

The COVID-19 economic shutdown and the future of flexible workplace practices in the South Bay region of Los Angeles County

THE COVID-19 ECONOMIC SHUTDOWN AND THE FUTURE OF
FLEXIBLE WORKPLACE PRACTICES IN THE SOUTH BAY REGION OF
LOS ANGELES COUNTY

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ABSTRACT

The COVID-19 lockdown has increased the use of flexible workplace practices (FWP) especially work from home, demonstrating their importance to the resilience of transportation systems and regional economies. This study compares experiences and perceptions of FWP and related policy interventions before and during the COVID-19 shutdown, focusing on the South Bay region of Los Angeles County, to inform projections about the use of FWP and policy implications post-COVID. Policy makers should focus on training programs and promotional campaigns tied to public health messaging, and the implications of reduced commuting for transportation system design and commercial zoning and land use.

Keywords: Telecommuting, COVID-19, Resilience, Flexible Workplace Practices.

INTRODUCTION

The COVID-19 outbreak has significantly changed the use of flexible workplace practices (FWPs) such as work at home, flexible scheduling, and the use of co-working spaces (Brynjolfsson *et al.*, 2020). Prior to the outbreak, FWP use was increasing at a slow rate, despite advances in technology, changing worker demands, and evolving workplace cultures (Prager *et al.*, 2019). Many organizations and individuals had previously resisted adoption despite the potential for FWPs to benefit workers with improved work-life balance, organizations with higher productivity, communities with reduced congestion (Allen, Golden and Shockley, 2015; Bélanger, Watson-Manheim and Swan, 2013; Bloom *et al.*, 2014; Coenen and Kok, 2014; Greer and Payne, 2014; Kröll and Nüesch, 2017; McNaughton *et al.*, 2014; Shepherd-Banigan *et al.*, 2016; Vilhelmson and Thulin, 2016; Whyman and Petrescu, 2014), and economic systems with greater resilience to disasters and extreme events (Rose, 2007; Walmsley, Rose and Wei, 2020). The sudden increases in FWP usage during the COVID-19 lockdown—estimates include increases of 22-25% (Dey *et al.*, 2020) and 35% (Brynjolfsson *et al.*, 2020) for the first lockdown period spring 2020—highlight the need to explore the implications of FWP on the transport system and for broader transport policy issues such as sustainability and emissions, employment, and equity. While this shift in mode choice was temporary for some workers at first, and some have returned to previous commute patterns full time, it is anticipated that many will to telework either part or full time. Employees and organizations have adjusted to this new reality by moving residence or downsizing office space, suggesting FWP will be continued as a workplace practice in future years.

FWPs are one of many transportation system resilience strategies (Cox, Prager and Rose, 2011), and may offer a “double dividend” during a pandemic. FWPs can help to contain the virus

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by allowing working from home or flexible scheduling to allow social distancing in physical workplaces. FWP's can also help to mitigate some potential losses to businesses, allowing some workers to maintain or even improve productivity. However, there are important limits of FWP's as a resilience strategy to pandemics and other disasters. As experienced during the COVID-19 pandemic, some of those working from home during a disaster may face work-life challenges and lowered productivity, limiting the potential for economic losses to be offset. Also, many occupations are not able to work from home as they require physical workplace attendance or interactions, which creates challenging trade-offs between economic resilience and public health concerns during viral pandemics in particular. Moreover, another effect of the COVID-19 lockdown and subsequent recession has been substantial job losses. As the majority of the job losses during the outbreak have been in lower-skilled occupations with no option to telework (Kochhar and Passel, 2020), the economic impacts of the shutdown are also likely to be concentrated in low income households and neighborhoods. This raises concerns about the equity of telework as a resilience approach in general, but also has implications for transportation systems given that lower income groups are more likely to use public transit systems.

While the COVID-19 shutdowns appear to have drastically changed the workplace, the outcomes of these changes remains unclear. Questions remain as to short-term and long-term impacts of the COVID-19 pandemic on FWP usage on travel behavior and transport policy. In particular, there are important questions about the extent to which workplaces have adopted flexible approaches, how the transition was managed by organizations, whether the barriers to expansion observed prior to the event remain in place, what new challenges and innovations in the implementation of FWP have resulted from the pandemic. There are also relevant questions

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regarding the policy implications of these changes for transportation planners and emergency managers, and what policy options have emerged from the COVID-19 experience.

Prior literature provides useful insights about the barriers to FWP expansion. Constraints include occupational and industry incompatibility, manager resistance (Greer and Payne, 2014; Kaplan *et al.*, 2017; Rhoads, 2015), and employee concerns over missing out at the workplace and lack of ability to be productive at home (Caillier, 2014; Gordon, 2014). This study contributes to the literature by exploring the obstacles to expansion of FWP and potential government interventions in the context of a global pandemic that has seen workplace practices shift substantially in a short period. In doing so, the study aims to inform the questions raised in the prior paragraph, including the impacts of the COVID-19 pandemic on FWP usage and in turn regional transport policy. This study compares experiences and perceptions of FWP both before and during the COVID-19 shutdown, using a mixed-methods approach focusing on the South Bay region of Los Angeles County. Responses from a total of 104 participants in 13 focus groups of 4-10 people were conducted across the South Bay region, alongside 14 open-ended semi-structured interviews, between October 2018 and March 2019, prior to the pandemic. These responses are compared with 28 follow-up interviews conducted during the shutdown period.

The rest of this paper is organized as follows: Section 2 discusses the background and relevant literature. Section 3 introduces the methods and data. Section 4 discusses findings from the focus groups, surveys, and interviews conducted before and during the COVID-19 lockdown. Section 5 provides conclusions and suggestions for future research.

BACKGROUND AND LITERATURE REVIEW

Prior to the COVID-19 lockdown, US national trends in working from home showed a mixed picture, which varied depending on the survey and measures used. The annual US Census American Community Survey presents patterns of full-time work at home only, which has increased at a gradual pace from 3.6% in 2005 to 4.3% in 2010, and 5.2% in 2017 for the nation. The same picture is present in our region of focus, as shown in Figure 1. Between 2013 and 2016, Los Angeles County full-time rates remained at 5.6% (Prager *et al.* 2019). The decennial National Household Transportation Survey (NHTS) provides more detail on both part and full-time flexible workplace practices, including work at home, flexible start times, self-employment, and work locations. According to NHTS data, the percentage of workers who indicated they were eligible to work from home has increased over time from 10% in 2001, to 13% in 2009, and to 18% in 2017 (U.S. Federal Highway Administration, 2019). The increase is more pronounced in LA, where 16% of workers had the option in 2009 and around 40% had the option in 2017.

The FWP picture is further complicated by changing workplace and labor market practices. Co-working offices—spaces where people can rent desks and have available meeting rooms and printers—have grown in the past few years as they are attractive settings for the self-employed as well as for organizations that are willing to let their employees work remotely but are not comfortable with their employees working in isolation. Co-working sites are growing in popularity and the percent of spaces have increased by 700% between 2011 and 2016 (Roth and Mirchandani, 2016). Self-employment has been systematically dropping in the US for decades,

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although some types are increasing.¹ Non-traditional work arrangements have not been very well surveyed by the Bureau of Labor Statistics, which excludes many types of independent work.

FWP have important implications for transport policy issues such as impacts on transport modes, emissions, and sustainability, as well as relevance for equity and employment concerns. The literature is ambiguous on whether increased FWP leads to a reduction in VMT and hence emissions. Various studies (Eldér, 2020; Kochan *et al.*, 2011; Lachapelle, Tanguay and Neumark-Gaudet, 2018; Mokhtarian, 2004) suggest increased telework leads to some reduced travel demand and reduced congestion. However, other studies find such effects softened when telecommuting centers or co-working spaces are employed (Bieser *et al.*, 2021), and some find that telework increases vehicle trips (Mokhtarian and Varma, 1998; Zhu, 2013) and home energy use (Kitou and Horvath, 2003) such that net emissions reductions are not experienced.

The COVID-19 pandemic has highlighted broader audience telework inequalities (Brussevich, Dabla-Norris and Khalid, 2020; De Silver, 2020; Gould and Shierholz, 2020; Lund *et al.*, 2020; Parker, Horowitz and Minkin, 2020) previously observed in statistics and literature (Bélanger, 1999; de Abreu e Silva and Melo, 2018; Rhoads, 2015). That said, prior to the pandemic there were only limited studies on the equity dimensions of telework, especially during disasters. The uneven health and economic impacts of the COVID-19 pandemic worldwide are particularly salient in Los Angeles County. 18 months into the pandemic, communities with less than 10% of residents in poverty have mortality rates of 128 per 100,000 compared to 417 per 100,000 for communities with more than 30% of residents in poverty. The Latinx mortality rate is 367 per 100,000, compared to 216 per 100,000 for African Americans and 125 per 100,000 for

¹The decline is due to the consolidation of American farms, an increase in the number of doctors who join hospitals or groups of physicians, the declining fields of law and contract work, and the economic cycles that lead the demand for real-estate agents' work (Fox, 2014; U.S. Bureau of Labor Statistics, 2016).

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Whites (County of Los Angeles Public Health, 2021). Similarly, unemployment rates were consistently higher for women and minorities than for Whites (Martínez, Prager and Brodman, 2020). A lack of access to telework for less privileged employees contributed to both (Brussevich, Dabla-Norris and Khalid, 2020; De Silver, 2020; Gould and Shierholz, 2020).

The Impact of the COVID-19 Lockdown on Commuting and Telework

Recent research has highlighted the important role of transport policies on the travel and transport system during major disruptive events such as pandemics (Budd and Ison, 2020; Corazza and Musso, 2021; Thombre and Agarwal, 2021). This research highlights the importance of urban regions in providing responsible (Budd and Ison, 2020), resilient (Thombre and Agarwal, 2021), and safe mobility systems (Corazza and Musso, 2021), all such work highlights the important role played by telework and other FWP in helping to maintain transportation system function and economic productivity.

Increases in working from home appear to have helped to soften the economic blow of the COVID-19 lockdown in three ways. First, working from home allows employees to contribute to limiting the spread of the virus. This can help to reduce the direct economic costs of the pandemic through reducing illness and death, as well as by reducing the constraints placed on the medical services sector. During the lockdown, traffic and commuting declined significantly around the Los Angeles region. Miles driven per week in March were around half of February levels (Nelson, 2020). Data from Apple (2021) suggests that driving and walking route search requests were nearing January baseline levels by the end of June. The return to something closer to—though still not equivalent to—pre-lockdown behavior is not surprising as restrictions were lifted gradually in stages –according to a combination of State of California, LA County, and city-level mandates – between May and July 2020. Second, working from home allows for

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economic activity to continue, offsetting some potential losses from a lockdown. Numerous studies in a growing literature around resilience to disasters have shown the contribution that FWP and other transportation-related “resilience strategies” can make in limiting the harms of disasters and other major disruptive events (Chen *et al.*, 2017; Chen and Rose, 2018; Cox, Prager and Rose, 2011; D’Lima and Medda, 2015; Markoff *et al.*, 2019; Zhang, Wan and Yang, 2019). Resilience can help transportation systems and regional economies maintain function or quicken the speed of recovery following a major disruptive event (Rose, 2004; Cox, Prager and Rose, 2011). FWP have also been shown to offset economic losses from pandemics in particular (Prager, Wei and Rose, 2017), and in the case of the highly-contagious and drawn-out COVID-19 pandemic, many other resilience strategies transportation modes are not as effective.

Some researchers have tried to quantify the increase in working from home during the COVID-19 lockdown. Brynjolfsson et al (2020) ran two waves of a survey, drawing on nationally-representative sample, in early April and early May 2020. Around half of those employed before the COVID-19 lockdown reported working from home, including 35 percent who had switched from commuting to telework.² University of Chicago economists Dingel and Neiman combine working from home feasibility classifications with occupational employment data to estimate that 37 percent of US jobs were telework-compatible; these jobs account for 46 percent of total wages. They also estimated that between 39 percent Los Angeles MSA jobs were telework-compatible, or 50 percent of total wages (Dingel and Newman, 2020). Kate Lister of Global Workplace Analytics uses an approach developed by transportation scholars Matthews and Williams (2005) and estimate that 56 percent of the 2020 US workforce can work from

²Early on in the COVID-19 lockdown in the US, numerous surveys conducted by business-service firms indicated that around two-thirds of respondents worked for companies that were planning to allow employees to work from home who did not already do so.

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home at least part time. Dey, Frazis, Loewenstein, and Sun (2020), economists at the Bureau of Labor Statistics, expand on Dingel and Neiman's analysis using data from the American Time Use Survey and the National Longitudinal Survey of Youth 1979. Dey et al estimate that 45 percent of U.S. jobs are feasible for telework, and while only 10 percent of workers worked from home part time, they estimate that 22-25 percent of began working from home during the pandemic.

While only limited data is currently available, increases in FWP usage are likely to be higher for the South Bay than national averages. For example, as shown in Figure 2, Google Mobility data (2021) suggests that US workplace trips have decreased by 10% on average from before the pandemic to the summer of 2021, while trips to residences have stayed the same. In California, trips to workplaces decrease of 15% on average, with trips to residences increasing by 2%. In Los Angeles County, trips to workplaces have decreased by 18%, and trips to residences have increased by 3%.³ Figure 2 also clearly illustrates the influence of government policy on travel behavior in Los Angeles County during the pandemic.

A collaborative study between Los Angeles Metro and Duke University surveyed employees in Los Angeles County for changes in work practices from before to during the COVID-19 pandemic. For South Bay respondents, those with shorter commutes of less than 40 minutes were less productive, while those with longer commutes were more productive (Hymon, 2021). This finding highlights the opportunity cost of commuting long journeys, and the potential for increased productivity, as well as highlighting the benefits to employees and companies in the region of facilitating more FWP beyond the COVID-19 pandemic.

³ These statistics are not adjusted for unemployment, which was higher in Los Angeles County (10.6%) and California (7.7%) than the national average (5.9%) in June 2021.

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These changes have important implications for the transportation system as a whole, as well as housing and land use. Many workers will have switched from other commuting modes across to telework. As private motor vehicles were the predominant mode in Los Angeles County prior to the pandemic, first order impacts are anticipated in terms of VMT and traffic congestion. While public transit is not widely used in Los Angeles County, reductions in usage due to requirements and fear around social distancing may have led to offset increases in private motor vehicle commuting once workplaces reopened. Rental prices decreased in Los Angeles County, especially in denser, urban areas, as renters moved away from the region or into more spacious accommodation in suburban locations in the region (Martínez, Prager and Brodmann, 2020). The continued spatial restructuring will have important equity implications as those with means and ability to work flexibly settle outside of urban areas while those without resources have fewer options.

Organization adoption of video conference software has substantially increased. Zoom reported in June 2020 an increase in customers with more than 10 employees at 265,400 up from 74,100 in December 2019 (Zoom, 2020). The number of daily active users of Microsoft Teams increased from 32 million in early March to 75 million in late April (Zaverí, 2020). These figures are reflected in the stock market too, with some notable video conferencing platform companies experiencing gains in their share prices. Between July 2019 and July 2020, the Zoom share price increased from \$93 to \$266, the Microsoft share price increased from \$139 to \$212, and the LogMeIn (GoToMeeting) share price increased from \$75 to \$85.

Third, it is possible that productivity can increase as a result of working from home. Research in the academic literature highlights the numerous benefits of FWP, including: increased flexibility, job satisfaction, and sense of independence among employees; improved

efficiency and competitive advantage, especially in the labor market, for organizations; and mutual gains for managers and employees in terms of low absenteeism and productivity, especially with respect to project work (Allen, Golden and Shockley, 2015; Bélanger, Watson-Manheim and Swan, 2013; Bloom *et al.*, 2014; Coenen and Kok, 2014; Greer and Payne, 2014; Kröll and Nüesch, 2017; McNaughton *et al.*, 2014; Shepherd-Banigan *et al.*, 2016; Vilhelmson and Thulin, 2016; Whyman and Petrescu, 2014). FWPs have proven to be effective in randomized control trial experimental studies at improving productivity (Bloom, 2014; Bloom *et al.*, 2014). They increase an individual's quality of life by allowing them to have more control over their schedule and independence with respect to work (Coenen and Kok, 2014; Dockery and Bawa, 2014; Greer and Payne, 2014). On the whole, a satisfied and less-distracted employee works more productively and is less likely to find another job (Allen, Golden and Shockley, 2015; Whyman and Petrescu, 2014). This increases an organization's productivity and decreases costs associated with employee turnover, productivity, and office space (Bloom *et al.*, 2015; Caulfield, 2015).

Outside of a pandemic environment, home environments have the potential to provide distraction-reduced atmospheres, increasing an employee's output. There are fewer co-workers and managers to cause disturbances or interruptions. Many workers utilize their days at home to catch up on substantial projects that benefit from continuous concentration. On the other hand, homes might contain other distractions such as home entertainment, housework, or friends and family. That said, flexible work allows people to schedule an appointment or run errands without losing a full day of work and reduces unscheduled absences (this is because people that call in sick are often attending to other needs). Telework has shown to decrease absenteeism (Coene and Kok, 2014; Duxbury and Halinski, 2014; Gajendran and Harrison, 2007; Gajendran,

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Harrison and Delaney-Klinger, 2015; Hill, Ferris, and Mårtinson, 2003). Other studies have suggested that successful implementation of FWP is more likely when workplace cultures and processes encourage a balanced approach to work and home life, creating appropriate workplace cultures and processes, and an iterative or problem-solving understanding of programs (Dockery and Bawa, 2014; Hill, Ferris, and Mårtinson, 2003; Reshma, Aithal and Acharya, 2015; Shepherd-Banigan *et al.*, 2016). However, this final point is based on research conducted prior to the outbreak, and the changes in conditions may restrict productivity benefits.

Hypothesizing FWP in the Post-COVID-19 World

Projections of telework in the post-COVID-19 world can be informed by trends in the pre-COVID-19 workplace and by experiences of telework during the pandemic and lockdown. Prior to COVID-19, it remained unclear as to why FWPs were not expanding more quickly given the evident benefits. The COVID-19 lockdown created a shock to the system, and a substantial increase in telework. Following the COVID-19 outbreak, will telework return to pre-COVID-19 levels? Or will there be a lasting shifting in workplace culture? This section proposes numerous hypotheses about the barriers to expansion experienced prior to COVID-19, and explores them in terms of conditions experienced during the COVID-19 lockdown. The most relevant hypotheses are then used to inform the research design presented in the following section. A first hypothesis for barriers to FWP expansion are the benefits identified in prior research are overstated or not generalizable. Research studies have highlighted that FWPs are not completely without downsides. Teleworking is not a positive experience for all workers. While working from home can improve work-life balance of employees, some studies have highlighted concerns about feelings of isolation and challenges in separating home and work life (Gordon, 2014). A lack of face-to-face contact between employees can harm information sharing and hence productivity,

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and can cause anxiety among employees about their status and job security within an organization (Caillier, 2014). Evidence from the South Bay region of Los Angeles suggests that those cities with high levels of working from home tend to have relatively low numbers of households with children and low numbers of people per household.

This is particularly a concern during the COVID-19 outbreak. Stanford Economist Nicholas Bloom—whose study of Chinese firm Ctrip’s telework policy under pre-lockdown conditions observed productivity benefits—highlights the additional challenges of working from home during the COVID-19 pandemic. He argues that working in tight home spaces among family members and roommates, with little flexibility or choice and no in-person meetings could result in a decline in productivity and innovation (Gorlick, 2020). That said, implementing a major FWP program during a lockdown is not ideal, and hence may not be the best conditions through which to evaluate longer term outcomes. In a post-COVID-19 world, many of these challenges are likely to have been removed or navigated.

A second hypothesis for barriers to FWP expansion is that the organizational costs of FWP program implementation may be too expensive and uncertain. It has been argued that ability to work at home is dependent on the type of job. However, this is becoming less relevant in the modern economy, as most jobs, even the purely physical jobs, have a component that can be completed virtually. Data from the Bureau of Labor Statistics show that for all occupations, even those requiring physical presence, some portion is worked at home. It is estimated that 50% of workers have at least some part of their job that can be worked remote from the workplace, and 20–25% with a high frequency (Global Workplace Analytics, 2021). Workers in managerial and professional occupations were more likely than workers in other occupations to do some or

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all of their work at home (around 36% vs. 22% and below for other occupations; U.S. Bureau of Labor Statistics, 2016).

The COVID-19 lockdown forced many organizations to implement FWP quickly, and regardless of transition costs—such as investments in IT systems, software, and internet connectivity, telework training, organizational policy changes, and insurance adjustments—or uncertainty for large numbers of workers. In the post-COVID world, these transition costs are likely to have been borne already, and organizational leaders will have more experience of telework programs. As such it is anticipated that these barriers will have been removed for many organizations.

A third hypothesis is the cultural change that needs to occur, especially among managers and executives, for FWP to be adopted and implemented successfully. There is a small but notable literature on managerial and executive resistance (Cooper and Baird, 2015; Mahler, 2012; Pérez, Sánchez and de Luis Carnicer, 2003; Scholefield and Peel, 2009). Scholefield and Peel (2009) surveyed 123 marketing firm managers in New Zealand and conducted eight interviews. They found a distinction between managers' positive attitudes towards telework and their concerns over actual usage. Papers by Pérez et al (2003) and Mahler (2012) both use large employee survey datasets to examine the perceptions of telework of HR managers and those barred from telework. Pérez et al find that HR managers view telework as more feasible for particular occupations and for smaller companies, while Mahler finds that being eligible but blocked from telework can cause disaffection among employees. As with the second hypothesis, the experience of managing telework programs during COVID-19 may have persuaded some organizational leaders during the post-COVID world. However, this is likely to depend on whether the perceived benefits of telework outweigh the cost.

A fourth hypothesis for why FWP are not expanding more quickly is that organizations are hesitant to give up negotiation and motivation tools. Instead of adopting company-wide FWP policies, they may reserve FWP as a transactional tool to be used for recruitment of desirable candidates, and rewarding and retention of high-performing employees. This would lead to limited adoption, but stymie further growth across the organization as a whole. Interviews conducted for this project with telework consultants and human resources managers (E. Shirazi, E. Michel and J. McLarty 2019, personal communications, 16 January) revealed that, anecdotally, some organizations are resistant to create formal telework policies because doing so would give up a bargaining chip in hiring, retention, and promotion negotiations. Other interviews with organization executives (E. Johnson 2018, personal communications, 23 October; R. Coley 2019, personal communication, 31 October) suggested that the promise of FWP had been used as a motivational tool: greater workplace flexibility is a reward for improved productivity. This dynamic does not appear to have been addressed in the literature, and is explored further in this study. On the one hand, organizations creating formal telework policies and successful programs during the COVID-19 pandemic may benefit afterward by being able to recruit from a national labor market. However, on the other hand, high levels of unemployment may decrease the need for organizations to provide recruitment incentives.

A fifth hypothesis as to why FWP were not expanding more quickly is that commute times were not sufficiently costly or increasing quickly enough to stimulate a response. Despite the Los Angeles region having the longest period of congestion nationally, commute times are not the highest—in 2017, average one-way commute times were 30 minutes, compared to 36

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minutes for the New York MSA.⁴ During the COVID-19 lockdown, commuting times dropped substantially. As commuting patterns interact with the level of economic activity as well as rates of telework, the importance of the COVID-19 recession over the coming years implies that this hypothesis will only provide limited insight into telework in the post-COVID-19 world.

A sixth hypothesis for why FWP are not expanding more quickly is that the public policy promotion of FWP is not sufficient to incentivize significant change. Within Los Angeles, it appears as though AQMD penalties are not high enough to stimulate change. In our interviews with executives and managers, the commute-related penalties imposed by AQMD seemed to be of minimal concern. In a key contribution to the literature, this study examines the issue by exploring participant perceptions of the cost and impact of different policy measures on their organizations. During the COVID-19 outbreak, the government focus has been on the public health response, and aside from requiring that businesses are shuttered, there have been limited resources provided to promote or support the transition to telework.

Government interventions in the Los Angeles region around FWP have been limited. The South Coast Air Quality Management District regulates the travel behaviors of workers at large organizations—those with more than 250 employees—in the Los Angeles region. These regulations may indirectly incentivize FWP usage. However, any increases in practices before the pandemic would have been offset by increasing VMT overall. The focus of policy makers

⁴Flexible start times can broaden the period of congestion, and reduce the average commute time. According to the U.S. Census American Community Survey (2017), the number of commuters in Los Angeles County leaving home between 5am and 5.29am increased from 135,930 (3.52%) in 2000 to 205,122 (4.60%) in 2015. Similarly, the number of commuters leaving home between 9am and 9.59am increased from 289,034 (7.49%) in 2000 to 423,504 (9.51%) in 2015. During the time in between (i.e., 5.30am–9am), commuters leaving home increased in number, though decreased in proportion, from 2.53 million (65.5%) in 2000 to 2.78 million (62.5%) in 2015. On the other hand, Los Angeles' polycentric nature may enable short commute times in spite of a large congestion period (U.S. Census American Community Survey, 2017).

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has tended to be enacting FWP procedures for government organizations while promoting best practices for private sector organizations. For example, the County of Los Angeles, which has over 100,000 employees, was a first mover around telework in the 1990s, and more recently ran a pilot satellite/co-working space program, covering 140 employees over 608 work days, which led to an approximately 58% reduction in VMT and emissions for those individuals (County of Los Angeles, 2020).

METHODS

The paper explores the barriers to expanding flexible workplace practices through a case study of the South Bay of Los Angeles County. The South Bay is an important sub-region within Los Angeles County, with a diverse, well-educated workforce, dynamic industries, and entrepreneurial base (Yu, 2019). Like the Los Angeles region as a whole, the commute times for South Bay residents increased by 1.1 minutes between 2009 and 2016. Similarly, the percent of residents teleworking full-time has increased from 4.6% in 2009 to 5.1% in 2016 (Prager *et al.*, 2019). As shown in Figure 1, the cities with the highest rates of telework are the more affluent Peninsula and Beach cities. This is in accordance with various studies that show the wealthier are more likely to telework (Rhoads, 2015).

According to NHTS data, almost half of workers and residents in the South Bay are offered some flexibility in the workplace. More South Bay residents (45%) work for organizations that offer flexibility than workers in the South Bay (30%) are allowed. In other words, residents appear to be offered more flexibility (from organizations outside of the South Bay) than workers who work in the South Bay. Within the South Bay, 7% of the workforce has a second job and 19% of these jobs are conducted at home while 23% are mobile jobs with no

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fixed workplace, such as Uber or Lyft; this adds up to a total of 42% of second jobs not performed at a worksite.

This research commenced in 2018, before the pandemic, with a focus on barriers to expanding FWP usage, and how government interventions might set the South Bay region on a different course into the future. Once the pandemic hit, the study was extended to explore the same questions in light of many more organizations experiencing FWP. In the pre-COVID-19 data collection period, five events featuring a total of 104 participants in 13 focus groups of 4-10 people were conducted across the South Bay region between October 2018 and March 2019.⁵ Employees of South Bay organizations were reached via email based on public databases.⁶ During these events, and in accordance with the hypotheses above, participants completed surveys about current FWP in their organizations, perceived obstacles to expansion, and the costs and effectiveness of potential government programs and incentives. Participants then discussed their survey responses within the focus groups so that detailed responses could be provided and trade-offs between different preferences could be ascertained. Around the events, 14 open-ended semi-structured interviews were conducted with subject matter experts and organizational executives and managers from the region (Hammer and Wildavsky, 2018).

The authors tailored the expert elicitation focus group (Nemet, Anadon and Verdolini, 2017; Otway and von Winterfeldt, 1992) approach to examine the obstacles to FWP expansion, as well as the limitations and tradeoffs of government programs and incentives. At each focus

⁵ One at CSU Dominguez Hills in Carson CA; one at El Camp Co-working space in El Segundo, CA; one at the SBCCOG in Torrance, CA; and a main event at the DoubleTree Hotel in Torrance, CA, which featured multiple simultaneous focus groups.

⁶ Potential participants were made aware of the focus group event location, dates, and agenda, as well as the purpose of the events. The recruitment materials highlighted the voluntary nature of participation, both in terms of attending the events, and participation in discussions during the events. The recruitment materials highlighted the anonymity of participation in events, that as participants they will be representing their personal views as individuals and not representatives of their employers.

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group, the participants went through the same set of survey questions and were given the same level of information before the administering of surveys and discussions. Respondent data were collected to ensure that the research team could account for the differences in terms of occupation, familiarity with FWP, and industry sector. Along with assessing the current state of FWP, the focus group discussion also focused on examining the effectiveness of various specific flexible workplace policies. The authors then devised a list of possible policy incentives through communication with subject matter experts:

1. *Publicity campaign*
2. *Public co-working facilities*
3. *Local, state and federal resources such as training*
4. *Free cost audits and employee surveys*
5. *Free managerial audits and training*
6. *Expansion of current regulations*
7. *Financial incentives: Tax Credits, Subsidies and Grants.*

Details of these policy incentives are presented in Appendix A.

The participants in the focus groups were key decision makers and employees at South Bay organizations who have expertise on the costs and benefits of managing workers and implementing flexible practices within their organizations. These events featured participants that vary with respect to three factors: 1) levels to which companies have implemented flexible work programs (ranging from limited and informal to formal and more extensive); 2) occupations and roles within those companies; and 3) sectors within the South Bay economy (see Tables B1, B2, and B3 comparing the sample of participants to these three factors). While the sample is largely representative of South Bay organizations, it does not represent the true

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proportional mix of industry and occupation. The wholesale and retail trade, finance, and health care sectors are underrepresented compared to overall data for the South Bay region, while education and government are over-represented. Table B1 shows that the distribution of participants' occupation levels is reflective of the distribution for the population of workers in the South Bay. It is important to note that the sample includes more employees than executives.

28 follow-up interviews were conducted during the COVID-19 pandemic, in July 2020. Interviewees were in the fields of health care, education, utilities, non-profits, government administration, tourism, biotech, public safety, human resources, social work, retail, supply chain management, advertising, information technology, and insurance. Interviewees were asked the extent to which telework and other FWPs had been implemented during the outbreak compared to prior, both in their workplace and their industry as a whole. Interviewees were also asked how likely their workplaces would use telework following the COVID-19 pandemic, whether executives and managers were supportive of the programs, whether productivity had been maintained or reduced, and whether significant changes had been made such as not renewing leases, creating new policies for telework, or modifying insurance policies to account for telework. Interviewees were also asked about any training, IT hardware and software, and equipment provided for working remotely.

RESULTS

Pre-COVID-19 Obstacles to FWP Expansion

Table 1 presents the perceived obstacles to expansion of telework at workplaces for those participants working in organizations with FWPs in place. According to these results, a lack of formal policies and a lack of training are the main barriers to further expanding telework. This

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suggests that Hypothesis 2 (the organizational costs of FWP are too expensive and uncertain) is the most relevant explanation. The results also show that there are relatively few concerns regarding a lack of prior success for implementing telework, and that there is not a lack of interest or awareness among employees. These findings suggest that Hypothesis 1 (the benefits of FWP are overstated or not generalizable) and Hypothesis 5 (commute times are not sufficiently costly or increasing quickly enough) are not as concerning as other factors. These results also imply that organizations wanting to expand their telework options, the creation of formal policies and investments in training would remove the major obstacles.

Table 2 presents the perceived obstacles to telework at workplaces for those participants without access to FWP. In these organizations, executive and manager resistance is perceived to be the major obstacle to expansion. This reflects findings in the broader literature (Greer and Payne, 2014; Kaplan *et al.*, 2017; Rhoads, 2015), supports the case for Hypotheses 2, 3 (cultural change among managers and executives is required) and 4 (organizations hesitant to give up negotiation and motivation tools), and highlights the importance of those with power within organizations to affect change around FWP. It is also important to highlight that the appropriateness of occupations—constraint 1 in the Eom et al (2016) framework—is the second most important perceived obstacle. Indeed, this concern is highlighted on multiple occasions in open-ended responses discussed below. As with results in Table 1, the ideas that workers are not interested in or resistant to change (relevant to Hypothesis 5), or that HR/personnel resistance is a major obstacle is not supported here. Due to the small sample size, these results are less robust than results in Table 1.

One further caveat to the results in both Tables 1 and 2 is that our sample of participants includes more employees than managers or executives. While this is reflective of the economy as

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a whole, it also creates potential for the employee perspectives to overshadow the executives' perspectives. The perception differences between employees, managers, and executives is a critical one. Interviews with some executives suggested they were aware of the benefits of FWP yet were highly skeptical about the capability of some managers to administer the programs effectively and in a manner to achieve productivity improvements. One executive was concerned to ensure that managers were “sophisticated” enough to implement FWP effectively. Manager training—e.g. to write effective performance reviews—and developing productivity metrics were more of a priority than other benefits. Other executives saw the benefits of using flexible work to their advantage as a negotiating tool for recruitment, promotion, retention, and motivation, yet expressed concern that this could create inequitable outcomes in the workplace, and possibly negatively impact morale. This was the reason provided by the UK's Wellcome Trust research foundation, which pulled back from a four-day work week proposal as the transition would be unfair on some staff, and “too complex” to implement (Booth, 2019), echoing Hypothesis 2.

Participants without FWPs in their workplaces (see Table 2) perceived the two primary obstacles to expansion of FWPs in their organizations to be a lack of training and the absence of a formal policy. Consistently with previous literature, participants without FWPs in their workplace—whether employees, managers, or executives—perceived these major obstacles to expansion to stem from a combination of managerial and executive resistance, as well as from occupational constraints. Focus group discussions suggested that managerial and executive resistance in turn stemmed from a number of sources. Some participants without flexibility highlighted workplace power dynamics, seeing manager resistance as an attempt to retain oversight or to retain use of special treatment as a transactional reward. Other participants without flexibility highlighted the challenges for particular occupations to adopt FWPs, as well

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as concerns over information security and workplace cohesion. Among all participants with FWP, some were wary of working at home too much, due to challenges in balancing family life, maintaining productivity, and remaining connected with colleagues. Participants who were managers and executives were generally open to more flexibility, but highlighted the variability in successful outcomes; some employees were better than others at working with this structure, and some types of work—especially project work—were more appropriate for work outside the office than were others.

The subject-matter experts interviewed unanimously pointed to manager training—i.e. Hypothesis 3—as the first step in flexible workplace practice promotion. Traditionally, worker accountability in large bureaucracies is often measured by factors such as attendance, appearance, and personality instead of performance. Training of management in performance-focused evaluation could begin shift the culture of accountability in an organization, possibly making the case for a telework program more feasible. Historically, attempts to shift the measure of accountability have proven difficult; a number of telework pilot programs have dissolved over time. The introduction of financial incentives provides an opportunity to strengthen the telework proposition, but it is generally difficult for these to gain political approval. These incentives, especially tax credits, require state legislation in order to develop dedicated state resources for the program. One expert suggests that the key to long-term success is to identify what business school curriculums need in their training of future managers regarding interactions with employees. Behaviors recommended for development, like communicating expectations, setting measurable goals, monitoring progress, and making mid-course corrections, can aid in reducing a manager's resistance to implementing telework.

Pre-COVID-19 Discussion of Policy Interventions

Potential government interventions were explored in light of Hypothesis 6 (public policy promotion not sufficient to incentivize change). Participants perceived “subsidies and incentives” to present a good balance between costs and impacts; participants suggested these could be tied to the use of private co-working spaces, which, although expensive and concentrated in clustered coastal areas, nevertheless present a market solution combining the benefits of virtual working and collaborative workplaces. It is notable that there was skepticism among executives, managers, and employees alike about the benefits of mandates and other regulatory approaches. Instead, participants were more favorable towards incentives and tax credits, especially when combined with FWPs—for example, when used to subsidize co-working space rental, or the communications and human resource management systems required to implement FWPs effectively. Among the less interventionist approaches, participants perceived training programs as the most impactful; however, training programs were also perceived as being not costlier to organizations when compared to subsidies and incentives.

Skepticism about the efficacy of regulatory mandates among focus group participants was also apparent among subject-matter experts interviewed. This group has extensive experience of the field, including academic research, consultation with organizations, and practical implementation of telework programs for government agencies and businesses alike. The subject matter experts’ wariness about regulatory mandates stemmed especially from challenges experienced by the South Coast Air Quality Management District (AQMD) in enacting and implementing congestion reduction rules. While some were also skeptical about the use of incentives, tax credits, and even publicity campaigns, there was general agreement that a

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sequence of management training, cost audits, and employee surveys would be the most appropriate way to nudge companies towards implementation.

Tables 3 and 4 present the participants' perceived costs and effectiveness of potential government programs and incentives. It is important to emphasize that these questions are framed in terms of the costs and impacts to the participants' work organization. With respect to effectiveness, the most impactful government interventions were deemed to be tax credits or stipends. It is interesting that regulations, which usually provide a negative constraint on organizational operations, are deemed to be less impactful than the positive incentive of tax credits or stipends. It is possible here that participants are incorporating their political attitudes and preferences with respect to government intervention into these responses—this is certainly hinted at in the open-ended responses—or that participants are concerned about implementation issues and unintended consequences that could arise from regulations.

While regulations are more “interventionist” than tax credits or stipends, both are quite distinct from the more informational approaches outlined in the other potential programs and presented as the first six programs listed in Tables 3 and 4. These informational approaches are interventions that neither coerce, nor significantly change economic incentives. It is unsurprising that participants considered these informational approaches to be less impactful than the more interventionist approaches. Training programs were seen to have the highest potential impact, while the other “nudge” options of publicity campaigns, public co-working spaces, free cost audits, free managerial audits, and free employee surveys were all considered to have a similar level of impact.

Regulations were also deemed the most costly to the participants' work organization, followed by public co-working spaces and training programs. There may be a concern among

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participants that these options contain some kind of charge of service or hidden cost due to the time and resources organizations would need to support these approaches. It is notable that tax credits or stipends—for which organizations would be receiving additional resources for a behavioral change—were perceived to be as costly to their organization as a publicity campaign. Those programs perceived to be the least costly were the free audits and employee surveys.

Many of the subject matter experts interviewed pointed to the likely failure of interventionist programs such as regulations. Most highlighted either concerns about the more interventionist programs or incentives, because of cost or because of political feasibility concerns. The South Coast Air Quality Management District (SCAQMD)'s proposition XV from 1995 failed due to resistance from employers against allowing government-mandated restructuring of internal affairs. Moreover, SCAQMD regulatory changes would take a significant time to go through the rulemaking process. This is especially unlikely given its current board, which recently shifted to a more conservative representation, and hence are unlikely to propose adding further regulations. Given the political capital spent to maintain the SB1 gas tax, it is quite possible that the state legislature would not be interested in further transportation interventions.

In terms of incentives and tax credits, one expert questioned whether public money should be paid to companies to implement a program that primarily has private benefits. The same expert also raised concerns about the costs of monitoring and enforcement to ensure that telework programs are being implemented. Moreover, there are legitimate concerns as to whether organizations are implementing telework programs that would not be implemented otherwise; it would not seem worth using taxpayer money to pay for telework programs that would have been developed anyway.

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In contrast, less interventionist approaches are often more politically feasible and easier to implement, according to the feedback from the experts. That said, even a publicity campaign would be costly to implement. One expert notes that the proposed publicity campaign strategy requires a form of state or foundation funding to cover the cost unless the company is willing to absorb the cost of the public relations work. Even then, the campaign's reach and success would need to be supported by collaboration with regional leaders both in the public and private sector that are backed by telework policies in their own organizations.

Interviews Conducted During the COVID-19 Pandemic

As summarized in Table 5, interviews conducted during the COVID-19 pandemic reflect the common perception that telework has increased significantly in the South Bay region in this period. Most respondents' workplaces moved to working-from-home full time for most staff members. Numerous occupations within these organizations were not able to work from home due to being public-facing or requiring a physical presence (e.g. manual labor). Many respondents reported initial periods of working from home, followed by flexible schedule arrangements of various types for office work to allow for social distancing.

Most respondents found productivity levels at their workplaces to be maintained or improved during the lockdown period, and some were surprised by this. However, a significant minority found productivity levels to have decreased. These findings speak to Hypothesis 1, such that while the productivity benefits of FWP were not overstated for most respondents, these are not generalizable to all workers and organizations.

About half of the respondents expected that telework would continue after the COVID-19 pandemic for those occupations which are non-essential or do not require a physical presence. This may be due to many reporting that organizational managers and executives were supportive

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and experiencing non-negative productivity impacts. Roughly one in four respondents were unsure whether or not telework would continue following the outbreak, and the remaining group anticipated previous working practices to continue after the event. These findings are particularly interesting in light of Hypotheses 2 and 3. Because of the pandemic, many organizations were forced through cultural changes and imposed transition costs. The fact that many have then continued with FWP suggests that Hypotheses 2 and 3 were major contributing factors to a lack of growth in FWP.

There was a roughly even split between those respondents whose workplaces had or were considering renewed leases, created new internal policies for telework, or modified insurance policies to allow telework, and those who had not. It is not clear why some organizations have been more proactive than others on such matters. However, some respondents reported that their workplaces had taken these steps with a view to longer-term telework programs following the COVID-19 outbreak. Either way, the issue of office space leases has the potential to impact the commercial real estate market, as well as land use, zoning, and planning considerations.

Some sectors have implemented innovative work approaches, which may have contribute to mitigating losses in productivity. Among respondents, these innovations were especially in the health sector, where telemedicine approaches were implemented for non-physical patient care. Similarly, other respondents reported their workplaces moving customer and client service calls onto video conference platforms. One interesting innovative approach reported was the use of meditation programs to assist staff in dealing with anxiety and stress related to the pandemic. Another innovation for some organizations was to move documentation onto online platforms, with some staff diverted to document scanning.

While such approaches can lead to efficiency gains in the medium term, numerous respondents reported challenges with managing workflows to accommodate these changes. It is also important to note that numerous respondents reported lay-offs and furloughs at their organizations, which have led to work process challenges. While working from home, a wide array of video conferencing and collaboration software programs were used, some of which were generic in nature, and others that were specific to the industry. Some respondents reported challenges within their workplace for obtaining the hardware and connectivity to implement this software; however, most did not see this as a primary concern.

A number of further challenges were observed that may have impacted productivity levels. The most common issue observed was that of time management while working at home, including maintaining a work-life balance, and for some the challenge of parenting during lockdown. With most schools and some day-care options also operating online, this period has been particularly challenging for those with young families. In addition, having to negotiate non-dedicated workspaces was a commonly reported challenge.

Some respondents reported having received no telework-specific training to support their transition away from the office. This did not concern numerous respondents, either because of their prior-experience with telework, or due to a perception that the transition was manageable without it. That said, some respondents reported personal challenges with the transition and others reported challenges faced by their colleagues.

CONCLUSIONS AND THE FUTURE OF FWP

This paper compares perceptions of FWP such as telework, co-working spaces, and flexible scheduling before and during the COVID-19 outbreak to provide insights into the post-COVID-19 world. The research design was built around numerous hypotheses as to why FWP

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were not expanding faster prior to the outbreak, and whether the substantial increase in telework and flexible scheduling during the outbreak would result in lasting changes. To explore these research questions, numerous expert elicitation focus groups were held across the South Bay region of Los Angeles between October 2018 and March 2019. During these events, participants of the focus groups completed surveys about current FWPs in their organizations, perceived obstacles to expansion, and perceived costs and effectiveness of potential government programs and incentives. Participants then discussed their responses in the focus groups, so that detailed responses could be provided and trade-offs between different preferences could be ascertained. The data from the pre-shutdown surveys and interviews are compared against a small sample of 28 follow-up interviews with executives, managers, and staff, conducted during the shutdown period. These interviews explore the ways in which workplaces have adopted flexible approaches, how the transition to FWP was managed, and whether obstacles to expansion observed prior to the event were removed.

Based on this analysis, telework in the South Bay region of Los Angeles appears to have mirrored results from other studies and surveys, which show a substantial increase in usage. Further, our interviews suggest that while many organizations used telework solely in the early period of the COVID-19 lockdown, as the government has relaxed restriction, telework has been paired with flexible scheduling for some organizations to allow staff to return to physically-distanced workplaces. That said, it unlikely that FWP will return to pre-COVID levels following the pandemic, as many interviewees reported that barriers to expansion identified and confirmed in the pre-COVID data—especially Hypotheses 2 and 3 related to executive and managerial resistance and the costs of transition—appear to have been overcome in their organizations.

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Pre-COVID data for the South Bay largely followed national data, with flexible schedules were the most used FWP by participants. Only 14% of participants worked for organizations with a formal telework policy; individuals in this group averaged 3.3 days allowed to work from home per week. Thirty-six percent of participants worked for organizations with no telework policy of any kind. When these two groups were pooled together, individuals averaged 0.9 days per week allowed to work from home. 19% of participants reported an informal policy being used in their workplace. Participants in pre-shutdown surveys and focus groups interviews perceived the major obstacles to expansion to be a combination of managerial and executive resistance (hypothesis 3), alongside occupational constraints. Pre-shutdown interviews suggest that costs associated with manager training and cultural transition (hypotheses 2 and 3) are major concerns for executives.

Both before and during the COVID-19 pandemic, data collected suggested a notable divide between the “haves” and the “have nots”. Participants without FWPs in their workplaces perceived the two primary obstacles to expansion of FWPs in their organizations to be a lack of training and the absence of a formal policy. Consistently with previous literature, participants without FWPs in their workplace—whether employees, managers, or executives—perceived these major obstacles to expansion to stem from a combination of managerial and executive resistance, as well as from occupational constraints. Focus group discussions suggested that managerial and executive resistance in turn stemmed from a number of sources. Some participants without flexibility highlighted workplace power dynamics, seeing manager resistance as an attempt to retain oversight or to retain use of special treatment as a transactional reward.

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Prior to the outbreak, participants without flexibility highlighted the challenges for particular occupations to adopt FWPs, as well as concerns over information security and workplace cohesion. Among all participants with FWPs, some were wary of working at home too much, due to challenges in balancing family life, maintaining productivity, and remaining connected with colleagues. Participants who were managers and executives were generally open to more flexibility, but highlighted the variability in successful outcomes; some employees were better than others at working with this structure, and some types of work—especially project work—were more appropriate for work outside the office than were others.

These concerns and challenges were mirrored in some of the responses gathered during the outbreak. Interviews suggest that during the shutdown, some challenges for workers working from home may have increased, as workers using FWP need to work from home full time, and require appropriate IT hardware and software, network connectivity, and childcare. As such, some organizations have been forced to allow FWP to be more flexible during the lockdown period, taking into account workers' childcare needs, fear of infection, and social distancing guidelines. In addition, the interviews explored the experiences of individuals and managers engaging in telework, and whether they might continue such practices once the COVID-19 outbreak had receded. Lastly, interviews explored to what extent attitudes towards policy interventions might have changed as a consequence of the shutdown period.

In terms of policy interventions (Hypothesis 6), the COVID-19 pandemic has highlighted that shifting to telework and flexible scheduling can serve as an effective economic resilience strategy, especially for some occupations and organizations. Pre-shutdown study participants perceived government subsidies and incentives as being the most desirable approaches to increasing FWP usage, and hence improving economic resilience. Pre-shutdown findings suggest

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that policy should focus on less aggressive options such as promotional campaigns, facilitation of co-working spaces, and workforce training programs. It is notable that there was skepticism among executives, managers, and employees alike about the benefits of mandates and other regulatory approaches. Among the less interventionist approaches, participants perceived training programs as the most impactful; however, training programs were also perceived as being not costlier to organizations when compared to subsidies and incentives.

Skepticism about the efficacy of regulatory mandates among focus group participants was also apparent among subject-matter experts interviewed. This group has extensive experience of the field, including academic research, consultation with organizations, and practical implementation of telework programs for government agencies and businesses alike. The subject matter experts' wariness about regulatory mandates stemmed especially from challenges experienced by the South Coast Air Quality Management District (AQMD) in enacting and implemented congestion reduction rules. While some were also skeptical about the use of incentives, tax credits, and even publicity campaigns, there was general agreement—in the pre-COVID-19 world—that a sequence of management training, cost audits, and employee surveys would be the most appropriate way to nudge companies towards implementation.

Interviews conducted during COVID-19 support the claims of telework program experts that training is often lacking, as most interviewees had received little or no training and had to muddle through. Despite a short adjustment period to the new technologies, work processes, and work-life balances, most interviewees reported no reduction in productivity as a result of the shift to telework. This suggests that there could be scope for effective use of management training and cost audit programs, whether offered by or subsidized by government agencies, to support organizations in their development of FWPs. This could facilitate greater use of FWPs,

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and potentially increase the productivity and resilience of organizations while reducing office space and transportation costs.

Policy makers will also need to consider the broader implications of the likely increased FWP usage in the post-COVID world. Table 6 summarizes COVID-19 impacts on FWP and future trends by the transport policy issue areas of regional transport systems, emissions, land use, employment, and social equity. While some organizations will maintain office leases to facilitate physically-distanced workspace, it is anticipated that demand for office space will contract. Moreover, as more are working at home, and possibly at greater distances, it is anticipated that demand for housing in less dense areas and with more designated working spaces will increase. While uncertain and also influenced by deeper economic conditions, both potential trends raise important questions about land use and zoning at local levels. Transportation planners may also need to adjust to the implications of increased telework, and the potential substitution away from other transportation modes.

In contrast to other commute modes, the role of government is limited for FWP. While FWP can be facilitated by installation of high-speed internet fiber networks which need to be directed by governments, FWP do not require the same large infrastructure investments critical to road and rail commute modes, and are not influenced as directly by shifts in fuel taxes, vehicular regulations, or VMT targets. Instead, as FWP choices are made primarily at the household and organizational levels, regional policy makers tend to focus on organizational best practices and policy implementation, informational campaigns, and other measures to aid organizational compliance with commuting regulations. This study explores employee perception of some different options to achieve increased FWP, as well as the implications of

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study findings with respect to broader transport policy issues such as transportation planning, city zoning, sustainability, and equity.

Research on the continued expansion and adoption of FWP is both ripe and necessary. COVID-19 has catapulted FWP into a legitimate mode of transportation, however it has also created more of a wedge between the rich and the poor. It will be necessary to understand how FWPs will continue to shape urban areas as the wealthy and middle-income continue to leave traditional urban cores for less-urban ones and the effects this will have on public transportation, housing affordability and commercial opportunities. While wealthier populations have the luxury of flexibility (see Figure 1), poorer populations with more manual jobs that require face-to-face presence, will be left to bear the burden of the spatial restructuring.

Further research is needed into the usage of FWP during disasters such as pandemics and other major disruptive events. This includes the usage of different types of FWP—whether working from home, co-working spaces, flexible scheduling or otherwise—and the dynamics of substitutions between these types and between FWP and other transportation modes. There is also a notable gap in the literature regarding the equity dimensions of FWP, and especially during disasters. The COVID-19 pandemic has disproportionately impacted lower income communities, in terms of health impacts and economic outcomes, and evidence suggests that the lack of access to FWP and telework in particular has contributed to both. There is also research needed into FWP within different economic regions, especially at the structural level and examining the effectiveness of policies and programs. In addition, larger-scale studies of FWP usage and substitution relationships with other transportation modes are needed, including at a more granular, daily level. Such studies can help policy makers to better understand the

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conditions under which FWP are implemented and used, and design programming, transportation systems, and land-use accordingly.

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FIGURES AND TABLES

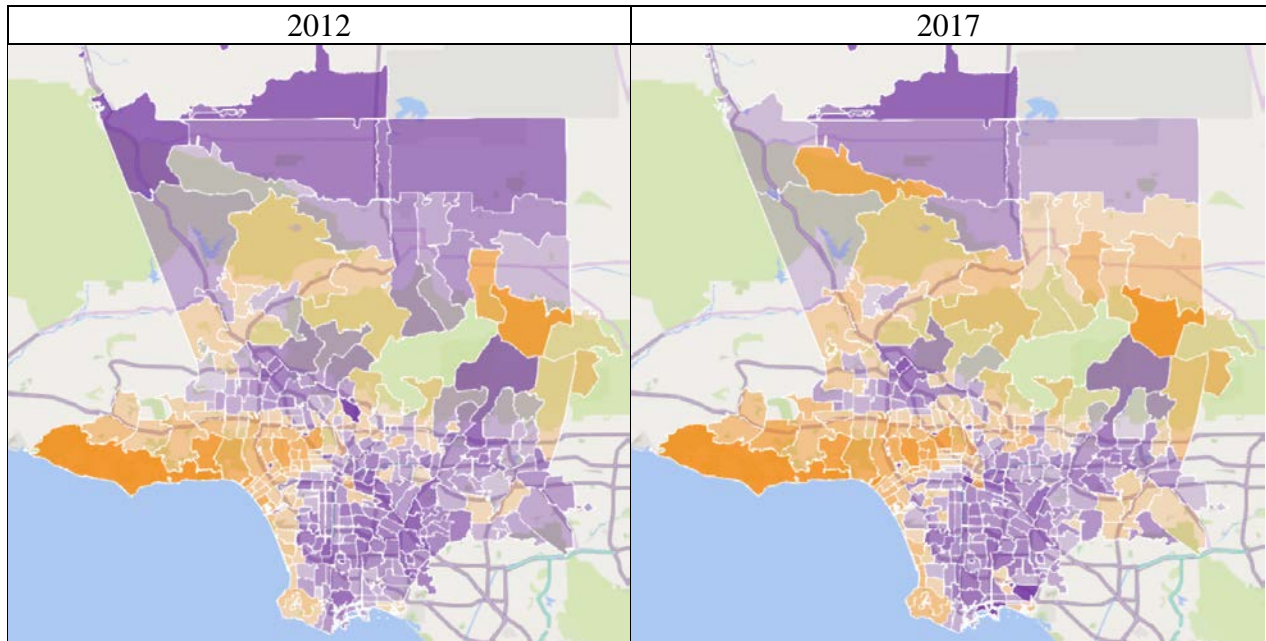


Figure 1. Percent of Los Angeles County Residents Working At Home by Zip Code

Source: US Census American Community Survey

Legend

Orange: Values greater than the 2012 mean; darker as value increases; range 0 to 15%

Purple: Values less than the 2012 mean; darker as value decreases; range 0 to -5%

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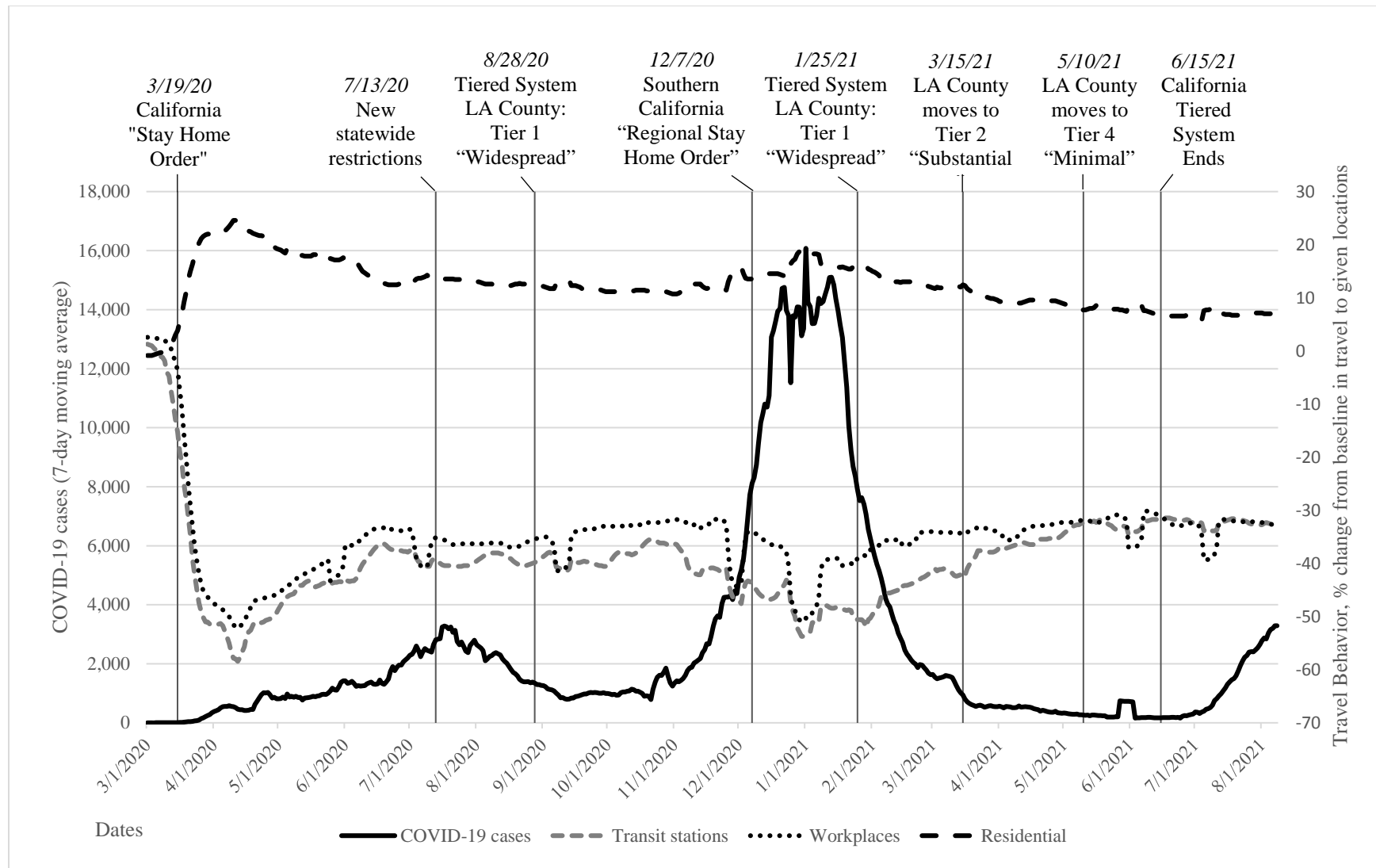


Figure 2. County of Los Angeles COVID-19 cases, policy, and travel behavior, March 2020-August 2021. Source: Authors’ calculations based on LA Times (2021) and Google Mobility data (2021).

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Table 1. Perceived Obstacles to Expansion of Telework at Workplaces with FWP

Current Obstacle	Not Important		Slightly Important		Moderately Important		Important		Very Important		Total	Avg ^a
	#	%	#	%	#	%	#	%	#	%		
No formal policy in place	18	26.5%	10	14.7%	3	4.4%	15	22.1%	22	32.4%	68	3.19
Lack of prior success	21	31.8%	14	21.2%	13	19.7%	14	21.2%	4	6.1%	66	2.48
Lack of awareness	15	23.1%	9	13.9%	15	23.1%	15	23.1%	11	16.9%	65	2.97
Lack of interest	20	30.3%	15	22.7%	11	16.7%	13	19.7%	7	10.6%	66	2.58
Lack of training	13	19.7%	11	16.7%	10	15.2%	18	27.3%	14	21.2%	66	3.14

^a Averages are calculated using the following scale: 1 = Not important, 2 = Slightly important, 3 = Moderately important, 4 = Important, 5 = Very important. These averages are used to compare responses to each factor, and should not imply that ordinal factors are appropriate for averaging in general.

Table 2. Perceived Obstacles to Expansion of Telework at Workplaces without FWP

Current Obstacle	Not Important		Slightly Important		Moderately Important		Important		Very Important		Total	Avg ^a
	#	%	#	%	#	%	#	%	#	%		
Executive resistance	1	3.9%	2	7.7%	4	15.4%	4	15.4%	15	57.7%	26	4.15
Manager resistance	2	8.0%	2	8.0%	7	28.0%	5	20.0%	9	36.0%	25	3.68
HR/Personnel resistance	5	20.8%	1	4.2%	4	16.7%	7	29.2%	7	29.2%	24	3.42
Worker resistance	6	26.1%	5	21.7%	3	13.0%	3	13.0%	6	26.1%	23	2.91
Not feasible given occupations within company	0	0.0%	5	20.0%	4	16.0%	4	16.0%	12	48.0%	25	3.92
No interest	4	16.7%	9	37.5%	4	16.7%	2	8.3%	5	20.8%	24	2.79
Too expensive to implement	3	13.0%	4	17.4%	9	39.1%	1	4.4%	6	26.1%	23	3.13

^a Averages are calculated using the following scale: 1 = Not important, 2 = Slightly important, 3 = Moderately important, 4 = Important, 5 = Very important. These averages are used to compare responses to each factor, and should not imply that ordinal factors are appropriate for averaging in general.

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Table 3. Perceived Impact of Potential Government Programs and Incentives to Expand Telework

Program or Incentive	No Impact		Low Impact		Moderate Impact		High Impact		Total #	Avg ^a
	#	%	#	%	#	%	#	%		
Publicity campaign	15	16.5%	25	27.5%	23	25.3%	28	30.8%	91	2.70
Public co-working spaces	19	20.4%	20	21.5%	22	23.7%	32	34.4%	93	2.72
Training Programs	13	14.0%	15	16.1%	31	33.3%	34	36.6%	93	2.92
Free cost audits	15	16.7%	20	22.2%	31	34.4%	24	26.7%	90	2.71
Free managerial audits	12	13.3%	27	30.0%	24	26.7%	27	30.0%	90	2.73
Free employee surveys	15	17.1%	19	21.6%	28	31.8%	26	29.6%	88	2.74
Tax credits, or stipends	11	12.2%	8	8.9%	23	25.6%	48	53.3%	90	3.20
Regulations	13	14.3%	11	12.1%	31	34.1%	36	39.6%	91	2.99

^a Averages are calculated using the following scale: 1 = No impact, 2 = Low impact, 3 = Moderate impact, 4 = High impact. These averages are used to compare responses to each factor, and should not imply that ordinal factors are appropriate for averaging in general.

Table 4. Perceived Cost of Potential Government Programs and Incentives to Expand Telework

Program or Incentive	Not Costly		Slightly Costly		Moderately Costly		Costly		Very Costly		Total #	Avg ^a
	#	%	#	%	#	%	#	%	#	%		
Publicity campaign	29	33.0%	16	18.2%	17	19.3%	17	19.3%	9	10.2%	88	2.56
Public co-working spaces	21	24.1%	11	12.6%	20	23.0%	21	24.1%	14	16.1%	87	2.95
Training Programs	12	14.3%	13	15.5%	34	40.5%	14	16.7%	11	13.1%	84	2.99
Free cost audits	28	33.7%	24	28.9%	18	21.7%	9	10.8%	4	4.8%	83	2.24
Free managerial audits	33	38.4%	22	25.6%	19	22.1%	8	9.3%	4	4.7%	86	2.16
Free employee surveys	28	33.7%	20	24.1%	25	30.1%	3	3.6%	7	8.4%	83	2.29
Tax credits, or stipends	26	31.3%	15	18.1%	18	21.7%	16	19.3%	8	9.6%	83	2.58
Regulations	10	11.8%	14	16.5%	24	28.2%	18	21.2%	19	22.4%	85	3.26

^a Averages are calculated using the following scale: 1 = Not costly, 2 = Slightly costly, 3 = Moderately costly,

4 = Costly, 5 = Very costly. These averages are used to compare responses to each factor, and should not imply that ordinal factors are appropriate for averaging in general.

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Table 5. Summary of Interviews Conducted During COVID-19 Pandemic

Interviewees and Industry Sectors	28 interviews with employees in health care, education, utilities, non-profits, government administration, tourism, biotech, public safety, human resources, social work, retail, supply chain management, advertising, information technology, and insurance
FWP implementation before and during COVID-19 outbreak	Most workplaces moved from little or no working-from-home to full-time, especially early in the lockdown. Some remained as full-time telework, while others combined with flexible scheduling to allow social distanced office use
Executive and manager support, productivity levels, and continuation of telework following pandemic	Most executives and managers supportive of telework. Most workplaces maintained productivity levels. Around half expected telework to continue following pandemic. However, a significant minority saw productivity levels decrease and one in four did not expect telework to continue.
Organizational changes due to COVID-19 lockdown	Around half of workplaces had at least considered lease renewals, created new internal telework policies, or modified insurance policies. Layoffs and furloughs had impacted work flow for some.
Innovative workplace practices	Broader implementation of telemedicine in healthcare and digitization of documentation. Customer and client service calls in other sectors moved online. Meditation and other wellness programs used to help manage employee stress and anxiety.
Challenges working from home	Most interviewees had experienced time management, work-life balance, and designated space challenges, either personally or among colleagues. Some experienced hardware, software, or connectivity challenges. Little or no training was provided to most.

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Table 6. Summary of COVID-19 impacts on FWP and future trends by transport policy issue area

Transport policy issue area	Impact of COVID-19	Impact of FWP increase	Future Trends
Regional Transport System	Significant reduction in travel, especially public transit.	Telework offsets commutes for 45-56% of more privileged jobs (Dey <i>et al.</i> , 2020). Teleworkers more likely to have been car drivers.	New commuting patterns and fear of public transit will likely stick for many. Some will return to offices, but less frequent, further commutes.
Emissions	Significant initial reduction in emissions, but offset by increases in private vehicle use instead of public transit.	Literature shows unclear emissions impact of FWP. Increase in local errands and home heating may offset reduce commute emissions (Mokhtarian and Varma, 1998; Zhu, 2013).	Long-term impacts may be influenced by land use and transport system factors for suburban residences of teleworkers (Budnitz, Tranos and Chapman, 2020).
Land Use	Lockdowns and social distancing requirements reduce demand for commercial real estate. City rents decline as desire for more space reduces demand for dense urban areas (Martínez, Prager and Brodmann, 2020).	Organizations look to downsize, end leases, or repurpose workplaces. Telework enables privileged employees to move further away from workplace (Zhu, 2031).	While demand denser urban areas will return, lasting telework and FWP will see suburban and satellite locations increase in importance.
Employment	Unprecedented disruption to workplaces through unemployment and telework.	Most telework-compatible jobs likely to continue with FWP.	High demand for workers means companies offering FWP to hire and retain.
Social Equity	Health and unemployment disproportionately affects poor and communities of color (Martínez, Prager and Brodmann, 2020).	Teleworkers are wealthier, whiter, more senior; poor and minority employees more likely to work in person (Brussevich, Dabla-Norris, and Khalid, 2020; Gould and Shierholz, 2020).	Benefits of telework and FWP experienced by more workers, especially as new graduates enter workforce. However, inequalities will remain.

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Appendix A. Potential policy interventions for FWP expansion

The following policy intervention

Publicity campaign: This program would create publicity in the form of commercials and print advertisements that highlight star companies such as Google who employ FWPs. The publicity would promote the benefits FWPs bring to the company and employees. Organizations that adopt practices would get an opportunity for free press.

Public co-working facilities: This public program would provide shared workspaces in government facilities or credits in private co-working facilities. For example, underused office space in civic facilities would be offered as a shared workspace where private and public organizations can use the space for employees who live nearby. Some organizations are more willing to adopt telework if they know their employees are showing up to a physical location other than the home. Employees may also prefer working in a shared space that has the appropriate technology rather than working at home. Shared and co-working spaces allows organizations and employees office and meeting space while also still offering the opportunity to reduce commute times.

Local, state and federal resources such as training: Organizations would have access to training programs through regional centers. The centers would help them implement telework programs from start to finish. Help would be in the form of managerial and executive assistance before and during implementation. The centers would also provide material on costs savings, organizational culture and leadership surrounding flexible workplace programs, on performance-based supervision, and more.

Free cost audits and employee surveys: These free audits would show an organization how much they could cut costs by employing telework. The audits would be conducted before implementation and after. Employee surveys would also be conducted in order to assess employee needs and levels of satisfaction, in order to determine the importance of FWP.

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Free managerial audits and training: Telework often reveals managerial weaknesses when implemented. Managerial audits would help an organization understand their current practices and the weaknesses that might be present before FWP are implemented. Training programs for organizations would be provided alongside the audit.

Expansion of current regulations: These programs would impose FWP on organizations through mandates.

Financial incentives: Tax Credits, Subsidies and Grants: These programs would offer organizations a financial reward for implementing flexible workplace programs in the form of tax credits, subsidies and grants.

Appendix B. Focus group and survey participants

Table B1. South Bay Employment by Sector

Industry Sector	Proportion of Workers Per Sector	
	California Employment Division Department data for the South Bay ^a	Survey and focus group participant responses ^b
Natural Resources	0.3%	0.0%
Construction	3.1%	1.9%
Manufacturing	13.6%	13.5%
<i>Aerospace and Defense</i>		7.7%
<i>Other Manufacturing</i>		5.8%
Wholesale Trade	4.8%	0.0%
Retail Trade	9.4%	0.0%
Transportation/Utilities	10.4%	3.8%
<i>International Trade</i>		1.0%
<i>Other Transportation/Utilities</i>		2.9%
Information	2.1%	1.0%
Financial Activities	4.4%	1.9%
Professional/Business Services	15.0%	22.1%
Educational Services	1.5%	15.4%
Health Care	11.8%	4.8%
Leisure and Hospitality	12.1%	8.7%
<i>Entertainment</i>		4.8%
<i>Sports Management</i>		1.0%

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<i>Other Tourism and Hospitality</i>		2.9%
Other Services	3.3%	
<i>Arts</i>		4.8%
Government	8.3%	18.3%

^a Data in this column adds up to 100.1% due to rounding error.

^b Italicized data in this column are sub-sectors and hence only non-italicized values should be added for overall calculations. Values do not add up to 100% as some participants selected “other” industry.

Table B2. Focus Group Participant Workplace Use of FWP by Sector

Industry Sector	Respondent Workplace Use of FWP		Total
	Count	%	
Aerospace and Defense	6	75.0%	8
Manufacturing	4	66.7%	6
Entertainment	2	40.0%	5
Sports Management	1	100.0%	1
Arts	2	40.0%	5
Health Care	4	80.0%	5
Education	9	56.3%	16
International Trade	1	100.0%	1
Natural Resources	0	0.00%	0
Professional/Business Services	16	69.6%	23
Government	15	78.9%	19
Technical Services	1	100.0%	1
Retail Trade	0	0.00%	0
Tourism and Hospitality	2	66.7%	3
Real Estate	0	0.00%	0
Construction	1	50.0%	2
Wholesale Trade	0	0.00%	0
Transportation and Utilities	2	66.7%	3
Financial Activities	2	100.0%	2
Other (please specify)	19	76.0%	25
Total	72	57.6%	125

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Table B3. Focus Group Participant Use of FWP by Occupation Level⁷

Occupation Level	Response %	Yes		No	
		Count	%	Count	%
Business Owner	12.8%	11	15.1%	2	6.5%
Executive	6.9%	6	8.2%	1	3.2%
Manager	19.6%	16	21.9%	3	9.7%
HR or Personnel	17.7%	9	12.3%	7	22.6%
Employee	31.4%	18	24.7%	13	41.9%
Other	16.7%	13	17.8%	5	16.1%
Total Responses	107	73	100.0%	31	100.0%

⁷ “Other” responses were specified as the following: Consultant, TDM consultant, AIG Financial Network employee, Professional, Independent contractor, Regional business specialist, Student, Agent, Financial associate, Director, Supervisor, and Career technical education.