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The "GO-Virtual Initiative": Using Flexible Workplace Practices to Reduce Traffic Congestion, Increase Economic Development, and Provide More Access to Affordable Housing Choices in the South Bay Region of Los Angeles County

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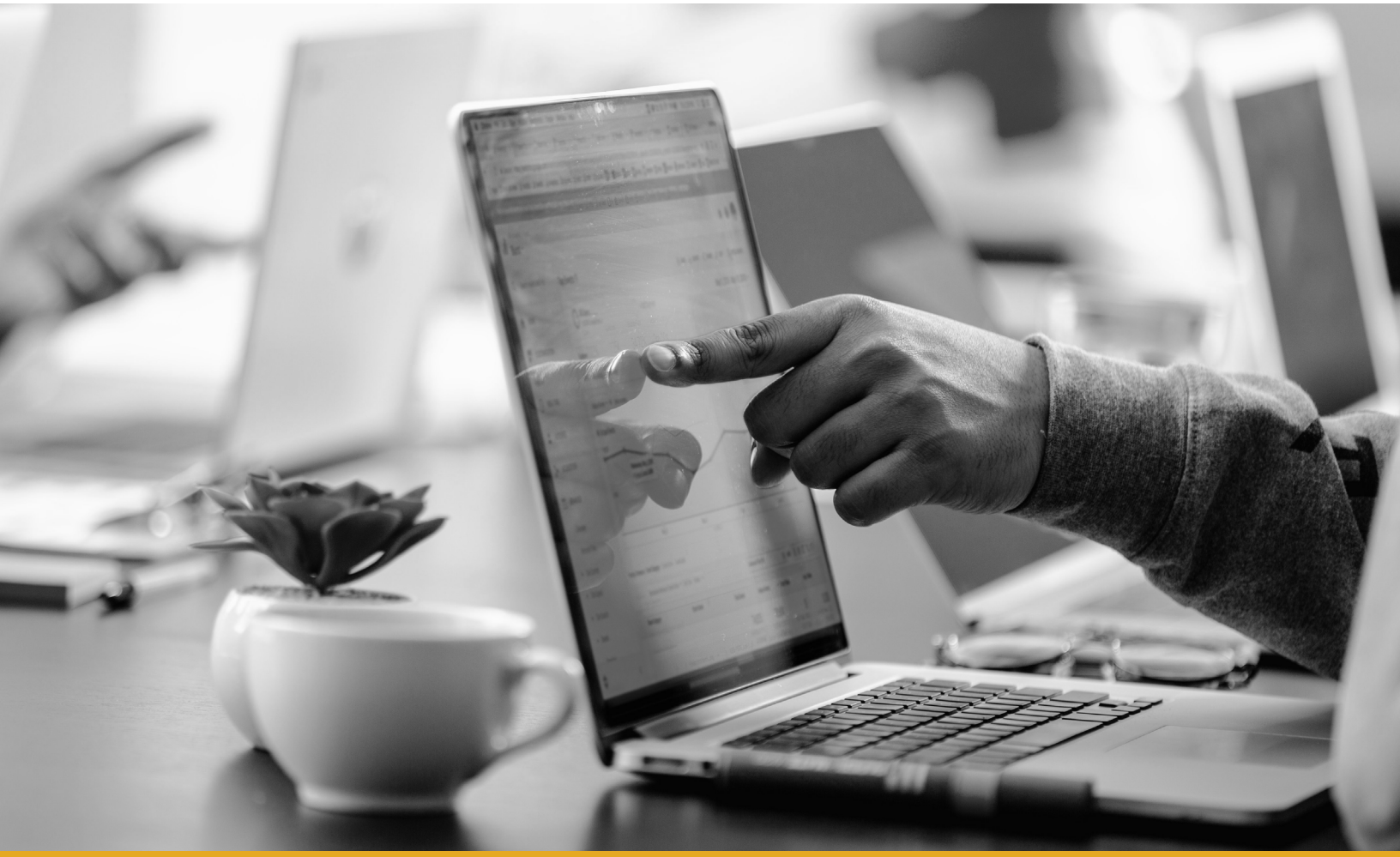

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REPORT 19-18

THE "GO-VIRTUAL INITIATIVE": USING FLEXIBLE WORKPLACE PRACTICES TO REDUCE TRAFFIC CONGESTION, INCREASE ECONOMIC DEVELOPMENT, AND PROVIDE MORE ACCESS TO AFFORDABLE HOUSING CHOICES IN THE SOUTH BAY REGION OF LOS ANGELES COUNTY

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16. Abstract

Flexible workplace practices (FWPs) such as telework, flexible scheduling, and the use of co-working spaces have the potential to address problems of congestion, pollution and lack of housing affordability in the South Bay region of Los Angeles County. However, trends in the adoption of FWPs—especially of working from home—across the region do not appear to be increasing as much as expected, despite advances in technology, changing worker demands, and evolving workplace cultures. In the South Bay and Los Angeles, commute times and the proportion of residents driving alone to work have increased as the economy has grown. As alternatives to driving alone to work, employees appear to face the choices of using public transit if more accessible, or carpooling if the journey is longer; however, both of these modes of transportation have declined in usage in recent years. Instead, the only alternative to driving alone that has increased in frequency in the South Bay and Los Angeles County in recent years is working from home, which is most likely concentrated among residents in locations with higher education levels or occupations that are more appropriate. Prior literature has provided numerous insights here, finding that conditions are region-specific, and that occupational and industry constraints combine with manager resistance and employee concerns over work-life balance to limit the expansion of FWP. The authors of this study contribute to the literature by focusing on the obstacles to expansion of FWP among South Bay organizations, as well as by comparing the projected impacts of potential government interventions in this space. The authors explore these issues with methods innovative to the field, including a combination of surveys and expert elicitation focus groups that includes a numerous types of FWP, especially the inclusion of co-working spaces as a strategy. Participants in the survey and focus groups perceived the major obstacles to expansion to be a combination of managerial and executive resistance, alongside occupational constraints. Participants perceived government subsidies and incentives as both having a good combination of costs and impacts, possibly to be used to encourage the use of private co-working spaces, which offer a market solution that balances the benefits of traditional at-home telework and collaborative workplaces. That said, telework remains a cost-effective approach to reducing commute-related emissions, and hence more aggressive programs, such as telework facilities exchanges, expansion of South Coast Air Quality Management District mandates, and incentives for workforce training and program implementation may be needed to achieve broader climate action and local pollution targets.

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EXECUTIVE SUMMARY

The "GO-Virtual Initiative" studies flexible workplace practices (FWP) in the South Bay Region of Los Angeles County. FWPs such as telework,[1] flexible scheduling, and the use of co-working spaces have the potential to address problems of congestion, pollution and lack of housing affordability in the South Bay region of Los Angeles County. However, trends in the adoption of FWPs across the region—especially of working from home—do not appear to be shifting in the direction that many predicted previously, despite advances in technology, changing worker demands, and evolving workplace cultures. The authors have studied this issue by establishing a baseline assessment of FWPs in the South Bay and Los Angeles based on the best available data, by studying local perceptions of obstacles to FWP expansion and government programs to increase FWP usage. This is also an action-oriented project; it therefore aims to influence further implementation of FWPs. The title for this project, "GO-Virtual Initiative", aims to capture the combination of research and outreach. The authors of this study hope to contribute to the development of policy and programming around FWPs in the South Bay, as well as providing better information to South Bay organizations about the benefits and costs of FWPs. Hence, the GO-Virtual Project aims to reduce traffic congestion, improve air quality, increase economic development and community cohesion, and provide workers with greater access to affordable housing choices.

As presented in Part I, "Establishing a Baseline Assessment of Current FWP Usage Rates in the South Bay," the academic literature highlights both the benefits and the limitations of FWPs. Benefits highlighted by research have included: increased flexibility, job satisfaction, and sense of independence among employees; improved efficiency and competitive labor market advantage for organizations; and mutual gains for managers and employees, in terms of low absenteeism and productivity especially with respect to project work. Other studies, however, have stressed that FWPs are not a panacea. Working from home can improve the work-life balance of employees, yet some studies have highlighted concerns about feelings of isolation, missed opportunities, and challenges in separating home and work life. FWP implementation appears to be most successful when workplace programs promote a balanced approach to work and home life, create appropriate workplace cultures and processes, and apply an iterative understanding of program development.

Part I also features baseline assessments of commuting and FWPs in the South Bay and Los Angeles County, based on analyses of various data sources, including the US Census American Community Survey and the California Household Transportation Survey. The analyses are conducted based on city-level data, as well as on mapping of zip-code level data to gain a deeper understanding of the spatial variations in commuting and FWPs across the South Bay and Los Angeles County. These analyses find that travel times in the region have increased over recent years as the economy has expanded. While the majority of workers drive to work, some choose to use viable alternatives. Neighborhoods with higher rates of use of public transit tend to be lower income areas and neighborhoods with higher access to transit systems, yet these rates have declined in recent years. Neighborhoods with higher rates of carpooling tend to be in peripheral regions and regions with a greater

[1] Numerous key terms in the field are somewhat synonymous, including telework, telecommuting, remote work and, virtual work. This report uses the phrase "telework" to refer to work undertaken away from the organization's primary workplaces, including working at home, co-working spaces, coffee shops, or some alternative.

proportion of less-flexible occupations; carpooling rates have also declined in recently years. The only alternative to driving alone that has increased in Los Angeles County in recent years is working from home. Rates of working from home are highest in those peripheral areas where workers tend to have higher levels of education; such workers are more likely to have occupations that allow for FWPs.[2] Within the South Bay, the coastal and inland areas have important differences in terms of the rates of traditional commuting and of working from home. It is also notable that there are important differences between males and females, with females being more likely to work from home and carpool, while males are more likely to take public transit. More sophisticated empirical research using special econometric techniques should be conducted to better-understand the factors influencing FWP adoption within the Los Angeles region.

As presented in Part II, "Exploring the Potential for Further FWP Implementation in South Bay Organizations," numerous expert elicitation focus groups were held across the South Bay region between October 2018 and January 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. Flexible schedules were the most used by participants; however, co-working spaces were the most used on average by participants' colleagues. This paradoxical finding could be the result of the participant pool containing lower levels of executives and managers—who are more likely to have the flexibility to telework from home or co-working spaces—compared to regular employees. 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. Nineteen percent of participants reported an informal policy being used in their workplace.

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. Other 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

[2] As shown in Table 17 below, the occupations in Los Angeles with the highest rates of being allowed to work from home are in Education, Healthcare, Arts, design and entertainment, and Computer and mathematical occupations. Each of these occupations requires higher levels of education. Moreover, occupations within these groups with high levels of flexibility—e.g., college professors in education, IT consultants in healthcare, and software programmers in computer and mathematical occupations—often require graduate degrees.

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.

When considering potential government interventions, 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 implemented 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 sequence of management training, cost audits, and employee surveys would be the most appropriate way to nudge companies towards implementation.

As presented in Part III, **“**Policy Recommendations, Informational Materials, And Workforce Development Training Programs,” the research team have developed a series of recommendations for programs and incentives for promoting telework in the South Bay region, as well as proposals for training materials. The recommendations and materials are based on a combination of baseline assessments, literature review, expert interviews, and expert elicitation focus group survey and discussion results.

Our recommendations vary depending on the broader goals and resource constraints of government agencies. Many government offices, especially at the local level, work within resource-constrained environments, yet are interested in promoting workforce development, facilitating local economic growth, and improving the welfare of local residents and workers. Within this context, our findings from surveys, focus groups, and interviews recommend that less-interventionist approaches be implemented, especially promotional campaigns to encourage organizations and employees to engage in FWPs, facilitation of co-working spaces and workspace exchanges, as well as workforce training programs in order for employees and managers to get the most out of FWP. With this in mind, the authors have created numerous promotional materials and training programs that can be used to inform South Bay organizations about the potential for and ways

of implementing FWPs. Government organizations can also play an important role as leaders in this area. Employees with educational occupations are the most likely to work from home in Los Angeles; we recommend that administration leadership at public schools and colleges engage in additional innovative efforts to expand FWP opportunities beyond those employees with high levels of flexibility, such as faculty members at higher educational institutions. Other public agencies can provide leadership by employing innovative ways to implement FWPs, including telework facilities exchanges between local public organizations.

Local economic growth and improved productivity are not the only goals that can be achieved through FWP. FWPs, and telework in particular, remain a cost-effective approach to reducing commute-related emissions. Therefore, if government agencies within the region wish to implement programs that have a significant impact in terms of emissions and congestion reductions, FWP promotion should be a primary consideration. This could include investment in major programs to identify and implement suitable FWPs for organizations and engage in ongoing promotional campaigns. Governments could also engage in efforts across the Southern California region to create and support telework facility exchanges, which could also provide secure office space rental and exchange to both public and private users. Another option is to expand AQMD mandates to organizations employing fewer than 250 employees. Incentives and tax credits for workforce training and program implementation may also be needed in order to achieve broader climate action and local pollution targets. Such efforts could be part of a broader program to engage in telework expansion in anticipation of the Olympic Games, which will be coming to Los Angeles in 2028 and are likely to impact traffic congestion in the region.

Following Part III, the authors provide two appendices: Appendix A replicates the materials provided to focus group participants; Appendix B replicates materials provided to conference attendees.

INTRODUCTION

Flexible workplace practices (FWP) have the potential to address problems of congestion, pollution, and lack of housing affordability. With economic growth has come increasing congestion and commute times, rising housing costs, and increasing dislocation of workers from workplaces and their residential communities. While vehicle-miles traveled (VMT) in the US saw a decline during the 2008 recession years, it has been steadily increasing as the economy has rebounded.[1] In the South Bay, commute times have continued to increase, even in periods of slow economic growth.[2] At the same time, the proportion of people using public transportation to get to work has leveled off (see Table 13). In addition, peak-hour commuting periods have grown, with periods of morning congestion in cities having widened,[3] delaying travelers and worsening the quality of life in cities.[3]

The South Bay Cities Council of Governments (SBCCOG) has highlighted FWPs as a key strategy for reducing congestion and emissions in the South Bay Climate Action Plan,[4] as well as in the South Bay Regional Broadband Network Initiative,[5] which provides guidance on infrastructural improvements that can facilitate both economic development and climate action goals. Studies show that workers using FWPs on average travel more outside peak hours, spend more time at home, and make more trips closer to the home.[6]

The success of FWPs depends on organizational willingness to adopt new working practices. Evidence suggests that the main constraints to flexible workplace provision are on the supply side: most organizations do not permit telework. National statistics from the 2009 National Household Transportation Survey[7] reveal that only around 14% of the workforce is allowed to work at home, including both the self-employed and the non-self-employed, with 9% utilizing the option. There is evidence that more people would like to telework if given the choice. Within one study, 88% of the participants desired to telework, but only 13% actually did so, because most did not have the option.[8]

Although an intuitive explanation would be to attribute low telework adoption to the requirement of a physical presence on the job, this appears not to be the primary factor. Data on work-at-home patterns presented by the US Bureau of Labor Statistics for 2003–2007 show that, on average, workers in all listed occupations work at home at some point during the week, although the time spent at home varied by occupation.[9] Among all workers who are not self-employed, the average time spent working at home is roughly 4 hours per week. Even occupations for which a great deal of physical presence is required—e.g. food preparation and serving, cleaning and maintenance, construction and extraction, installation, maintenance and repair—showed between .5 hours to 1.2 of working from home hours per week.

There has been a shortage of organization-focused research on FWPs and the barriers and incentives to their adoption.[10] While the literature has highlighted the benefits of flexible working hours and telework, there has been little attention paid to the reasons why such

[3] For example, according to the U.S. Census American Community Survey, 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.

strategies have not been implemented further, nor to the solutions that could increase their use. What research has been conducted has found that the main barriers seem to be organizational; organizations may be unwilling to adopt flexible workplace practices because of managerial and logistical concerns.[11] The literature would benefit from further research into these barriers and exploration of why some individuals have FWP options while others do not.[12]

Important questions remain about these barriers, the realistic potential for growth, the programs that could be offered to incentivize implementation, and the workforce development training that could be put in place to improve success using the practices. This project will conduct a large-scale and thorough examination of these questions around FWPs in the South Bay by using an innovative combination of interviews and expert elicitation focus groups held with business representatives in the South Bay. We will also explore and highlight connections between FWPs and the availability of affordable housing, and between FWPs and improvements to economic development for cities, companies, residents, and policymakers.

This report contributes to the academic literature in a number of ways. Firstly, it uses a mixed-methods approach, combining two approaches previously used in the field: a baseline assessment and survey, and an expert elicitation focus group approach. Secondly, it identifies and explores the obstacles to current expansion and potential for further FWP implementation in South Bay organizations, as well as the potential for policy incentives to promote FWPs. Some literature has begun to explore these obstacles;[13] this study's novelty lies in its exploring a broad range of potential obstacles while also incorporating potential government policy and program solutions to facilitate the expansion of FWP. Thirdly, a key aspect of this study is to consider explicitly different versions of FWP, following the lead of some previous literature,[14] and in particular to consider explicitly co-working spaces in the analysis. Fourthly, while in the literature it is common to focus on a specific region,[15] the region on which this study focuses is one that is both under-studied and uniquely placed in terms of economic conditions. Fifthly, this report is action-oriented, in that the aim of the analysis is to inform collaborative decision making around the development of FWP promotion programming and workforce development training.

This report is organized as follows. Part I presents research in the academic literature, which highlights both the benefits and limitations of FWP. Part I also presents baseline assessments of commuting and FWP in the South Bay and Los Angeles County based on analyses of data sources, primarily the US Census American Community Survey and the California Household Transportation Survey. These baseline assessments provide a snapshot of current and recent data on FWPs in the South Bay, as well as a starting point from which to compare future projections and potential FWP-promoting initiatives. Part II presents the methods used in the project and analyzes findings from numerous expert elicitation focus groups conducted across the South Bay region between October 2018 and January 2019. Part III presents a series of program and incentive recommendations to promote telework in the South Bay region, which are based on the above research as well as on input from subject matter experts. Part III also presents proposals for training and informational materials that could be used to support South Bay organizations' decision-making and FWP implementation.

I. ESTABLISHING A BASELINE ASSESSMENT OF CURRENT FWP USAGE RATES IN THE SOUTH BAY

The section examines current FWP usage in the South Bay and its impacts on employees and managers, on traffic flow, and on emissions. Baseline data is collected through analysis of AQMD commute reduction surveys, of publicly available data such as the American Community Survey and of supplemental interviews. A thorough literature review is also conducted covering the current state of knowledge about barriers to and success of FWP adoption.

BACKGROUND

For the first time in over 4 decades in the US, there are more jobs than workers to fill them.[16] The west, including California, is the region with the second highest rate of job creation. In order to compete for labor in such a market, organizations will need strategies to become competitive. Offering FWPs is one such strategy.

FWPs, such as telework, or starting the workday at off-peak or staggered hours, offer many benefits to both employees and organizations. Firms that offer FWPs look more attractive to potential workers, and some of these practices allow firms to seek talent regardless of geography. When workers have control over their schedule and can save time by eliminating the commute, they are more satisfied and productive.[17]

Organizations have the potential to reduce costs by adopting FWPs, through reduced employer turnover, reduced absenteeism, and improved productivity. Employees also have the potential to benefit from more flexible housing options and lower costs. Telework, whether it is adopted full-time or for only part of the workweek, has many community benefits, such as reducing congestion and emissions. We still see low rates of telework relative to commuting to work because many managers are reluctant to allow their employees to work remotely. Managers fear these practices although there is ample evidence that the benefits of employing FWPs greatly outweigh their drawbacks.[18]

That our communities are capable of implementing flexible workplace programs on a large scale was demonstrated during the Los Angeles Olympics in 1984. During the Olympics, organizations worked to implement telework and flexible start times, while trucking companies changed delivery schedules, and the city provided an extensive network of shuttles. The integration of these strategies vastly changed the traffic landscape: during the Olympics, the streets and freeways of Los Angeles were congestion-free.[19] While effective in terms of achieving reduced congestion, such programs were costly to both the governments providing the shuttles, and to workers and companies who changed their behavior. So while the Los Angeles 1984 Olympics shows us that when organizations and cities work together toward common goals, cities can realize true livable communities, the question becomes whether there is the political will among regional citizens and businesses to implement the necessary programs.

Flexible Work Practices

A review of the academic literature and reputable online resources reveals a variety of terminology used to define FWPs. Historically, FWPs were mainly discussed in terms of "telecommuting": work done from home, eliminating the need to commute. With the dawn of digitalization, FWPs have become more prevalent and new terminology has come into common usage, including "teleworking", "virtual work", "mobile work" "agile work", and "distributed work". These terms are all largely synonymous and refer to working remote from the workplace—and in numerous different locations in the case of distributed work—either at home or a location near home.

While in the past, technological limitations posed a problem for remote work, today modern-day technologies and platforms, including cloud technology, make remote work more feasible than ever before. Nevertheless, formal telework programs and telework uptake are not commonplace, even though most workers surveyed expressed a desire to telework (between 80% and 90%).[20] Though low, the rates of FWP usage are however growing.

Co-working has gained considerable traction in the past few years. Co-working offices—spaces where people can rent desks and have available meeting rooms and printers—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.[21] When advanced communications and video-conferencing technology such as Telepresence becomes more ubiquitous, collaboration may feel as real as a face-to-face conversation, rendering shared-office workspaces, and FWPs in general, increasingly attractive.

The growth in co-working spaces has been remarkable, both in the US and worldwide. In the US, 542,000 people worked in co-working spaces in 2017, a number expected to double over the next five years.[22] Between 2008 and 2018, co-working space has grew from 40,000 square feet to 26.9 million square feet in the US, and currently accounts for 1.2% of all office space in 20 major US regional economic markets.[23] In 2018, 3 million square feet of flexible workspace was added to the market worldwide. By 2022, it is expected there will be 30,000 co-working spaces worldwide.[24]

Independent Work

Flexible work takes place either as a formal or informal agreement within an organization, or through freelancers, contractors and the self-employed; the latter form of flexible work is referred to as "independent work". Independent workers are characterized by a high degree of autonomy and control, and by payment by task, assignment or sale, these being of short-term duration.[25] Independent workers include people seeking autonomy to people seeking extra income.

Self-employment has been systematically dropping in the US for decades, although some types are increasing.[26] The 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.[27]

Non-traditional work arrangements have not been very well surveyed by the Bureau of Labor Statistics, which excludes many types of independent work. Smaller surveys conducted by the private sector, such as by Upwork, have shown that freelancing is on the rise and that up to 36% of the workforce engages in some form of freelancing.[28] The largest categories of freelancers are those who have multiple jobs, such as part-time work and work on the side through Airbnb, Uber/Lyft or freelance coding.[29] Other self-employed workers on the rise are financial advisors, editors, web developers, fitness and mental health counselors, dietitians, nutritionists, scientists, human resource specialists, computer and information systems managers, technical writers, and market research analysts.[30]

The Workplace and Workforce of the Future

The workplace is changing, and so are the ways in which employees travel to and connect with their workplaces. As FWPs are introduced, commuting times are reduced, leading to benefits in terms of congestion and the local environment. Numerous strategies, such as telework, working at home, and using co-working spaces, will be increasingly employed by businesses and organizations in order to improve productivity, and to attract talented employees, including through increased flexibility in housing location and cost.[31] Each of these changes will lead to unique impacts in terms of transportation, commuting, network connectedness, workplace design, and working practices.

Figure 1 presents a proposed model of some of the societal trends influencing changes in the 21st Century workplace. This model is based on a review of literature from academic and trade publications on the workplace and workforce of the future. As the South Bay economy continues to move towards innovative service industries and emerging sectors, technological advancements such as Artificial Intelligence (AI) and Blockchain will continue to transform the workplace.[32] Generational and age composition changes in the workforce are likely to also see employees, especially those of younger generations, demanding flexible and mobile workplaces that allow for a better work-life balance.[4] Rising real estate prices will encourage businesses to reduce their office space footprint and employees to demand remote work so as to increase their flexibility in home location.

Many commentators have argued that the future workforce is likely to be increasingly mobile, diverse, and connected across numerous geographical locations.[33] This workforce will likely use multiple communication modes and tools to complete projects collaboratively. The future workforce will likely also use an increasingly sophisticated range of productivity tools and AI mechanisms, and yet doing so will require context-specific critical thinking and emotional intelligence skills in order to maintain meaningful human connections with customers, collaborators, and clients.[34] It is notable that already 57.3 million people freelance in the US, and this workforce grew at a rate 3 times faster than the overall

[4] A recent Ernst & Young study found that 76% of respondents find managing personal, family, and work responsibilities challenging. Moreover, it was found that a lack of work flexibility was the cause of 66% of resignations. Ernst & Young "Global generations: A global study on work-life challenges across generations". *Ernst & Young*. Accessed April 4, 2019 from: https://www.ey.com/Publication/vwLUAssets/EY-global-generations-a-global-study-on-work-life-challenges-across-generations/$FILE/EY-global-generations-a-global-study-on-work-life-challenges-across-generations.pdf

workforce between 2014 and 2017. Nearly half of working millennials do freelance work, and within 10 years the majority of US workers are projected to be freelancers.[35]

The architecture and design firm Gensler argues that a "next-gen" workplace is emerging.[36] According to their prediction, as the younger generation enters the workforce, workspaces are likely to be transformed, with office blocks and campuses blending with the city and local communities. Co-working spaces are expected to continue to scale up and diversify, and "smart" environments—both cities and workplaces—are predicted to develop and be enhanced by AI. The technology consulting firm ISG envisions, in addition to the creation of facilities that enable mobility and flexibility, a future workplace that will empower users and provide a "weekend experience during the week".[37] This means incorporating leisure and entertainment activities and event spaces into workplace design.

In addition to the workplace and workforce of the future, it is important to acknowledge the ongoing change in the nature of homes,[38] and the important role this may play in home-based working practices. As highlighted in the literature, working from home raises concerns for many due to the challenges of balancing family and work life, as well as to feelings of isolation and anxiety over missing workplace interactions. A further factor is that homebuilding in already-developed areas of Southern California is largely in infill apartment and condominium developments, which are much smaller than the average single-family home. This could further constrain the option of working from home—especially for those living in multi-person households--and increases the likelihood of people teleworking at co-working spaces and similar alternatives.

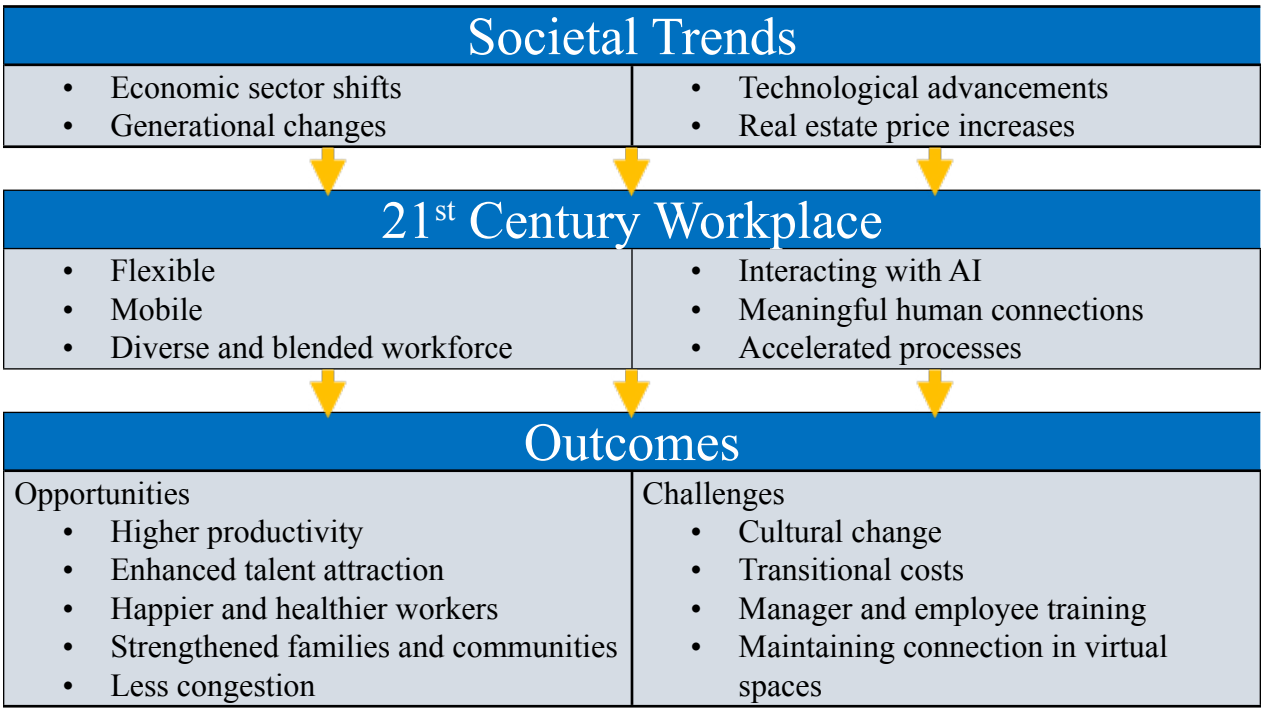

Figure 1. Causes and Consequences of Changes to the 21st Century Workplace

BENEFITS OF AND OBSTACLES TO FLEXIBLE WORK

Research in the academic literature highlights both the benefits and limitations of FWP. While the concept gained traction first in the US in the 1990s, especially in large government organizations such as Federal agencies and large County-level organizations, recent research has highlighted the global spread of the concept, with the majority of articles in recent years covering data from countries worldwide.[39] Many studies have reflected the 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.[40]

Numerous academic studies have demonstrated that FWPs offer many benefits to organizations and their workers. FWPs on average increase an individual's quality of life by allowing them to have more control over their schedule and independence with respect to work.[41] On the whole, a satisfied and less-distracted employee works more productively and is less likely to find another job.[42] This increases an organization's productivity and decreases costs associated with employee turnover, productivity, and office space.[43]

However, other 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.[44] A lack of face-to-face contact between employees can harm information sharing and hence productivity, and can cause anxiety among employees about their status and job security within an organization.[45]

FWPs also allow companies to create different models of work to secure the best talent regardless of geography. This borderless access to talent is critical to a firm's ability to compete. This can be an especially important strategy for small and medium-sized businesses with comparatively few resources.[46] Not only is the economy, at the time of writing, at an all-time high for job creation, it is estimated that there will be a shortage of workers with college and graduate degrees for the US by 2020, and globally by 2030.[47]

The following sections cover the various benefits of FWP.

Productivity and Competitive Advantage

According to a US Gallup poll, only 13% of employees surveyed worldwide are 'actively engaged' at work, with 63% of the workforce being 'not engaged' and another 24% being actively disengaged.[48] Dissatisfied employees are less productive and more likely to quit.[49] Poor employee well-being can reduce engagement and morale, increase overtime and turnover, and require overstaffing. In contrast, workers who have the option to telework are considerably more satisfied in their jobs than are those who are office bound.[50] Control over schedule, time, and work results in higher work satisfaction increasing productivity, well-being, and creativity.[51] Employees with higher levels of well-being not only cost their employers less, but are also more productive and engaged with their work.[52] Studies have shown that they are less likely to switch jobs.[53]

Desire for independence and control is seen in employee surveys, which consistently show a majority indicating that they would choose the ability to work at home over a pay raise, and would even be willing to take a pay cut for the option.[54] A survey of MIT employees revealed that job flexibility was critical to satisfaction and quality of life.[55] In a longitudinal, within-individual study of mothers who returned to work after 6 months, women allowed to work at home after childbirth experienced fewer symptoms of depression overtime compared with those women who worked at the workplace.[56]

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.[57]

Younger generations of workers appear to be demanding more flexibility in their lifestyles. Offering telework is seen as the top recruitment strategy both for groups aged 25 and younger and for groups aged 26–40.[58] Employers report that the main reasons for offering telework options are to increase employee morale and to increase recruitment and retention of employees.[59] Flexibility in the workplace engenders competitive advantage, and empirical research has demonstrated that there is a link between firm performance and the adoption of FWPs.[60]

Flexible Workplace Program **Productivity** Success Stories

- Due to flexible programs, Alpine Access remote agents closed 30% more sales than traditional agents, customer complaints decreased by 90% and employee turnover decreased by 88%.[61]
- British Telecom has 15,000 home workers out of 92,000. Studies of pilot programs and subsequent program participants found homeworkers to be 20% more productive compared with non-teleworkers. Studies also identified a 64% reduction in absenteeism compared with non-teleworkers.[62]
- 95% of AT&T employees and managers agree or strongly agree that they are more productive when working at home.[63]
- The Hennepin County (MN) Human Resources and Public Health Department reported a 9% increase in processed cases and a 77% decrease in unprocessed in-basket items after adoption of flexible work.[64]
- During the first year of a US Air Force telework program, the Central Adjudication Facility where 95% of the employees teleworked, saw a 55% increase in productivity.[65]
- The city of Ottawa, during a year-long telework pilot, found that case closing time went from 90 days to 15.[66]
- Fairview Health Services, a regional healthcare network, was able to reduce overtime by 50% through flexible workplace initiatives.[67]
- The US Patent and Trademark Office's productivity increased 10% through telework.[68]
- Through flexible work programs, Best Buy experience a 35% increase in productivity, British Telecom experience an estimated 20% increase in productivity, and Dow Chemical a 32.5% increase in productivity.[69]
- American Express telecommuters handled 26% more calls and produced 43% more business than their office-based counterparts.[70]

Figure 2. Flexible Workplace Program Productivity Success Stories

FWPs have proven to be effective in experimental studies. Researchers at Stanford University conducted a before/after study with Ctrip, a Chinese web-based travel company.[71] Using a randomized control trial experimental design covering a 9-month period, some employees were assigned to work at home and others remained at the workplace, a call center. For those who worked from home, performance increased, with 13.5% more calls completed. These individuals quit at half the rate of those remaining in the office, their use of sick days decreased, and they reported higher job satisfaction. Ctrip was estimated to have saved $1,900 per employee in the test group for 9 months in terms of furniture and space. Because of the successes, Ctrip decided to offer the telework option to all employees, and half of them opted in. Overall performance levels increased by 22%. Other studies have suggested that successful implementation of FWPs 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.[72]

Providing training to managers and employees can allow them to achieve a positive work-life balance that is productive, healthy, and family-friendly.[73] Similarly, adjusting work processes and restructuring office spaces to reflect and facilitate FWPs can pay off. Based on the focus groups conducted for this study, i appears as though co-working spaces are offering a balance between home and traditional office spaces. The significant growth in the availability of such spaces over recent years highlights the potential for organizations and employees to gain the benefits of shorter commutes and flexible office arrangements without the loss of face-to-face social interaction or of office amenities.

Continuity of Operations

Federal governments have been promoters of FWP as a method for increasing administration resilience in the face of weather storms or other calamites. Federal governments have initiated mandates and legislation to increase telework practices throughout federal agencies. A study conducted in New Zealand, for example, found that telework allowed for successful continuity of operations in the 2010–2011 earthquake series in Christchurch, New Zealand.[74]

Costs

Through FWP, organizations can reduce costs associated with office space, maintenance, employee turnover, and scalability. The average cost of unused space in the US is $25 or more per square foot.[75] In addition to the reduction in the real estate costs of office space, additional savings come from reductions in energy usage, parking lots leases, furniture, supplies, maintenance, security, janitorial services, insurance, taxes, common area expenses, and more. Part-time telework could save employers over $10,000 per year on average, with the total benefits to US companies exceeding $400 billion a year.[76] It is, however, important to note that these savings are calculated over a longer-term period; in the short term, they require up-front investments from organizations in terms of program development, technology, and training.

The US Labor Department estimates that the average cost to replace an employee is one third of the annual salary of a new hire.[77] Turnover costs are associated with recruitment, training and lost expertise. The cost of replacing an employee extends far beyond the recruiting process; it includes separation costs, temporary replacement costs, training costs, and lost productivity. A lost employee can also lead to lost customers, co-workers, and corporate intelligence.

Digital business models lower transaction costs because organizations can benefit from scalability by focusing on core operations, and hiring independent workers only when they need them (for example, hiring writers and designers when needed). Digital business models also allow businesses to scale up or down depending on need, and to add or reduce staff as needed, rather than over-staffing; this is a critical need for startups, which cannot afford to over-staff. Workers also save costs with FWPs, including costs related

to housing, parking, commuting, and food and clothing for the workplace. A study in the Dublin area found that for workers who teleworked, there were substantial savings in time and cost of travel.[78]

Flexible Workplace Program **Cost** Success Stories

- Forty percent of IBM workforce operates without a dedicated office space. IBM saves $450 million a year from reduced facility infrastructure and from associated initiatives.[79]
- Deloitte LLP offers most of its employers the ability to telework for as many as five days a week. It was able to reduce office space and energy costs by 30%, in comparison to before the program was implemented.[80]
- The US Patent and Trademark office was able to increase its workforce from 6,000 to 10,000 without increasing office space, saving them $19.8 million in real estate costs.[81]
- McKesson Health Solutions saved $1 million/year in real estate costs under its telework program.[82]
- Unilever reduced its office space by 36% and saved 40% on leases and maintenance through its agile working program.[83]

Figure 3. Flexible Workplace Program Cost Success Stories

Community Benefits

As shown in Table 1, FWPs offer many benefits to employees, employers, and the community. One community benefit is the provision of more work opportunities to the disabled, to the retired, and to women. In 2018, according to Bureau of Labor Statistics data, approximately 3.8% of the workforce is disabled,[84] and FWPs offer inexpensive compliance with ADA.

For communities, FWPs can reduce the outbound migration and promote the inbound migration of talent. FWPs can raise the standard of living in disadvantaged areas, reduce unemployment and underemployment, and leverage investment in broadband technologies. Those that work at home are engaged in more activities closer to home and community.[85] Other macroeconomic benefits include increased productivity by allowing more people to specialize in what they do best and in what makes them feel engaged.

Even though the benefits are great and well-documented, FWPs are still not widely adopted. One of the commonly stated reasons for the lack of uptake is that managers have a difficult time implementing or are unwillingly to implement the practices. The next section provides a case study from the US Federal Government.

Table 1. Potential Benefits of FWP to Employees, Employers, and Communities

Potential Benefits	Employee	Employer	Community
Increases Productivity	■	■	■
Environmental stewardship promotion	■	■	■
Quality of life	■		
Eliminates or reduces commuting time	■		
Lowers transportation costs	■		
Increases geographical labor market	■	■	
Increases retiree retention	■	■	
Decreases overtime	■	■	
Improved customer service	■	■	
Increases employee engagement	■	■	
Lowers relocation costs	■	■	
Reduces traffic accidents	■		■
Increases housing opportunities	■		■
Top recruitment strategy for younger generations		■	
Companies can downsize space or lease unused space		■	
Reduced employee turnover		■	
Reduced transaction costs		■	
Increased scalability		■	
Can reduce salaries or pay raises		■	
Organization marketability and increased competition		■	
Reduces absenteeism		■	
Can help uncover management weaknesses		■	
Reduced need for overstaffing to accommodate peak loads		■	
Ensures continuity of operations		■	■
Reduces outbound migration of talent			■
Reduces pollution			■
Increased labor force participation and hours			■
Provides work opportunities for military dependents			■
Increases digital government			■
Increases competitiveness of government sector			■
Raises standard of living in disadvantaged areas			■
Reduces unemployment and underemployment			■
Promotes inbound talent migration without adding population			■
Leverages investments in broadband technology			■
Improves quality of life and revitalizes communities			■
Reduces congestion and emissions related to commuting			■

Key: Green shaded areas represent when potential benefits relate to different stakeholders.
Benefits are identified from the literature and author's judgments are added to identify stakeholder relevance.

BASELINE ASSESSMENT OF FWP IN THE SOUTH BAY

Baseline assessments of the commuting and FWP in the South Bay use data from numerous sources; primarily the US Census American Community Survey and the California Household Transportation Survey. Analyses are conducted based on city-level data, as well as on the mapping of zip-code level data aim to gain a deeper understanding of the spatial variations in commuting and FWP across the South Bay and Los Angeles County. Focus group survey responses presented later in the report provide more detailed insights into the use of FWPs in South Bay organizations.

Census and CHTS Data Evaluation

The U.S Census American Community Survey (conducted annually via sampling) and the California Household Transportation Survey, CHTS (conducted once every 10 years by Caltrans) are data sources that survey residents on a variety of household travel behaviors. These datasets can paint a picture of current flexible workplace residential practices in the South Bay as well as of any geographical trends that may be occurring. The CHTS asks a variety of questions related to work, by zip-code and city for the South Bay.

There are important limitations with these datasets, and with data on FWPs in general. These datasets focus on traditional concepts of commuting to work, including the mode of transportation, travel time, and location of work. When considering FWPs, these categories do not capture the full extent of travel during the day, and hence are not necessarily a good indicator of total travel time nor of emissions impacts. The data also do not capture the subtleties of different types of flexible workplace strategies, nor the motivations behind them. For example, “working from home”—which for the Census is only provided as a yes/no condition—can take considerably different forms, ranging from those positions with very little travel, such as IT or web-based positions, to those with significant amounts of travel, such as sales. While the CHTS data provides more detail and subtlety in this respect, it is still unable to capture all the impacts of workplace strategies. For example, if an employee switches to a co-working space nearer to their home, but still commutes to the co-working space by car, this would not be clearly captured in the data. Similarly, while flexible work schedules could be inferred by looking at the variation of hours of travel, there is no indicator for distinguishing between employees who drive early to avoid traffic, and those who drive at varying times because their workplaces allow more flexibility.[86]

The next sections presents data first for the Los Angeles region, focusing on commuting patterns within and between counties; then for Los Angeles County, focusing on mapping of commuting data at the zip-code level; and finally for the South Bay region of Los Angeles County. This analysis highlights that while most indicators reveal relatively small changes to commuting patterns over recent years, there are interesting changes in specific locations. It is worth noting that only limited data is available from these sources, and that more detailed data on different types of FWP would provide more insights to researchers and policymakers alike. For example, it would be preferable to complement the South Bay resident data gathered here with equivalent data on South Bay organizations.

Commuting Patterns in the Los Angeles Region

Across the US, FWPs appear have grown every year over the past decade, at least in terms of the option to work from home. The US has seen an increase of 14 percentage points in the number of workers allowed the option to work from home within the past decade (14% in 2009 to 28% in 2017).[5] The increase is more pronounced in LA, where 16% of workers had the option in 2009 and around 40% had the option in 2017. Cities and counties invest heavily in transit, but over the past decade, more people have used teleworking than taking transit to work. In the US, around 14% of workers telework as a mode to work while only around 3% take transit. From 2000 to 2014, 13% of new workers worked at home, and the share of employees working from home increased from 3.2% to 4.5% with the largest gainers being in the South and the West, outpacing the overall growth in employment for these regions.[87] In Los Angeles, telework is even more common, with 19% of new employees working from home in 2017.[88,6]

Table 2. Commuting Patterns in the Los Angeles Region, 2013

Working In	Traveling From	Workers %	Car %	Public Transit %	Work at Home %	Other %	Travel Time (mins)	Carpool %
LA	LA	90.5	82.2	6.9	5.6	5.3	25	11.6
	Orange	4.0	96.0	2.8		1.2	40	11.9
	Riverside	1.1	94.8	3.7		1.4	60	20.4
	San Bernardino	2.9	95.1	3.9		1.0	45	16.3
	San Diego	0.2	90.4	5.6		4.0	90	8.4
	Ventura	1.5	96.7	2.6		0.7	35	10.4
Orange	LA	12.1	96.9	1.6	6.5	1.5	35	11.5
	Orange	79.9	87.0	2.4		4.1	20	10.6
	Riverside	4.8	96.4	2.4		1.2	60	21.6
	San Bernardino	2.3	97.2	1.2		1.7	55	15.9
	San Diego	0.8	92.4	5.1		2.6	60	13.8
	Ventura	0.1	100.0	0.0		0.0	90	13.9
Riverside	LA	2.1	96.6	1.6	7.5	1.8	45	16.0
	Orange	2.0	98.5	0.1		1.4	45	15.2
	Riverside	86.2	87.6	1.2		3.7	20	13.0
	San Bernardino	8.7	98.6	0.5		0.9	30	13.4
	San Diego	1.0	97.3	0.6		2.1	45	11.4
	Ventura	0.0	100.0	0.0		0.0	60	9.8

Source: US Census American Community Survey.

[5] Calculated from 2009 and 2017 National Household Transportation Survey (NHTS) Data.

[6] Note that this statistic is drawn from the National Household Travel Survey, which contrasts with the Census American Community Survey data presented elsewhere in this section; while the Census data asks about full-time commuting in terms of the primary mode of transportation to work, the National Household Travel Survey asks about all the different modes of transportation used. The above statistic does not mean that participants telework full time.

Table 3. Commuting Patterns in the Los Angeles Region, 2016

Working In	Traveling From	Workers %	Car %	Public Transit %	Work at Home %	Other %	Travel Time (mins)	Carpool %
LA	LA	90.5	82.06	7.03	5.61	5.30	20	12.19
	Orange	3.87	95.85	2.99		1.16	40	12.54
	Riverside	1.12	95.19	4.00		0.81	60	22.00
	San Bernardino	2.89	95.06	3.69		1.25	45	16.29
	San Diego	0.14	88.58	6.95		4.47	90	8.39
	Ventura	1.47	96.26	3.05		0.69	35	10.64
Orange	LA	12.1	96.69	1.92	6.14	1.39	35	11.53
	Orange	80.17	86.72	2.73		4.41	20	10.92
	Riverside	4.57	96.51	2.50		0.99	60	23.43
	San Bernardino	2.3	97.61	0.92		1.47	50	17.26
	San Diego	0.78	91.85	5.94		2.21	60	16.23
	Ventura	0.09	100.00	0.00		0.00	90	17.74
Riverside	LA	1.99	96.56	1.27	8.14	2.17	50	17.07
	Orange	1.71	97.84	0.27		1.89	45	12.92
	Riverside	87.43	86.78	1.29		3.79	18	13.29
	San Bernardino	7.8	98.41	0.88		0.71	30	14.26
	San Diego	1.05	96.88	1.34		1.78	45	11.06
	Ventura	0.01	100.00	0.00		0.00	60	8.44

Source: US Census American Community Survey.

It is often 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.[89] Workers in managerial and professional occupations were more likely than workers in other occupations to do some or all of their work at home (around 36% vs. 22% and below for other occupations).[7,90]

When comparing commuting patterns for the Los Angeles Region over time, it is notable that at least from 2013–2016 the patterns are very stable, especially for Los Angeles County (see Tables 2 and 3, and Figure 4). There are some minor shifts, may be indicative of a broader trend. In terms of working from home, there has been a minor drop within Orange County of 0.36 percentage points and an increase in Riverside County of 0.64 percentage points, with the latter result suggesting that telework is becoming more popular in peripheral areas of the Los Angeles region. When comparing the counties, it is notable that Los Angeles County has lower rates of working from home, and higher rates of public transport use. There does appear to be an inverse relationship between working from home and public transit use across the three counties (Figures 4 and 5).

[7] 24 percent of employed people did some or all of their work at home in 2015 on the Internet.

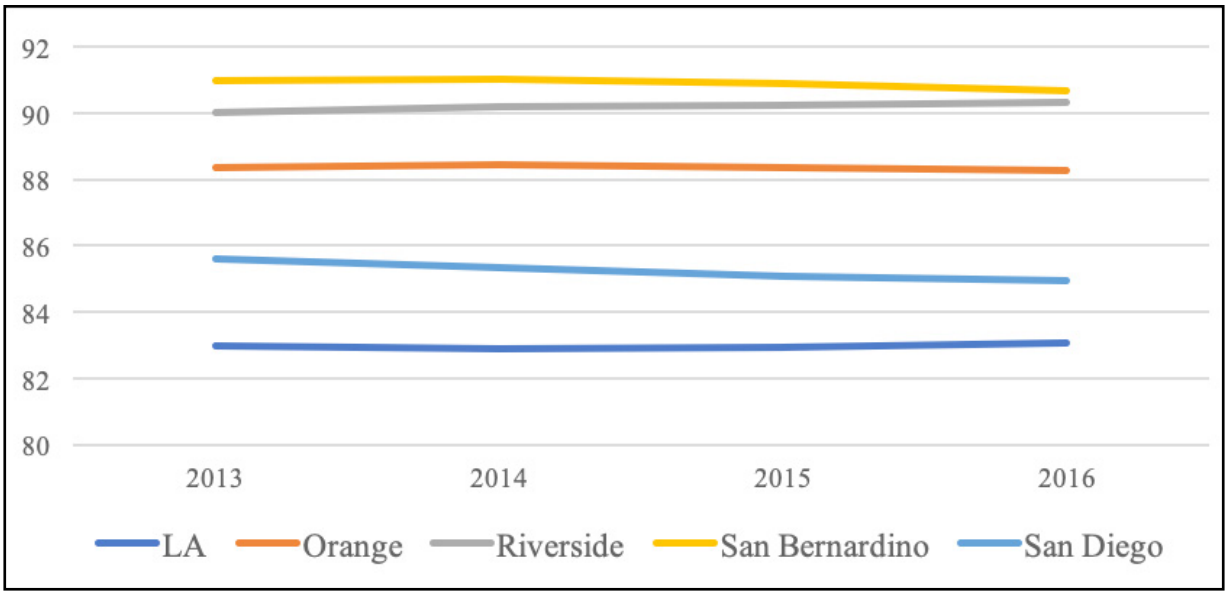

Figure 4. Percent of Los Angeles Region Workers Travelling to Work by Car, Truck, Van; 2013–16

Source: US Census American Community Survey.

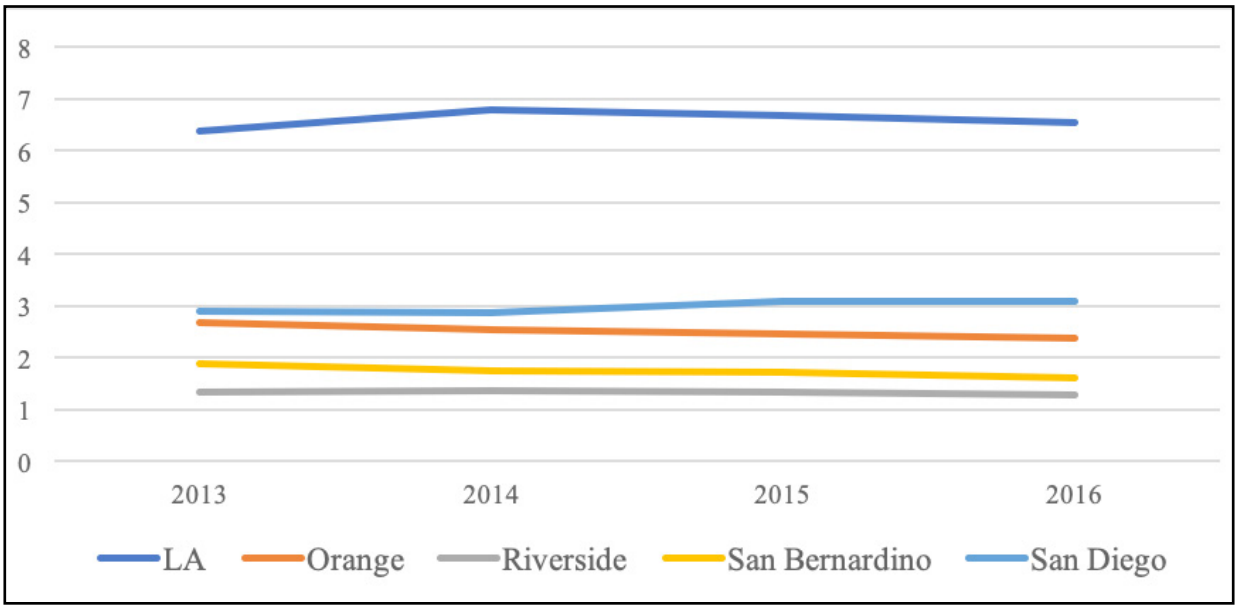

Figure 5. Percent of Los Angeles Region Workers Travelling to Work by Public Transit; 2013–16

Source: US Census American Community Survey.

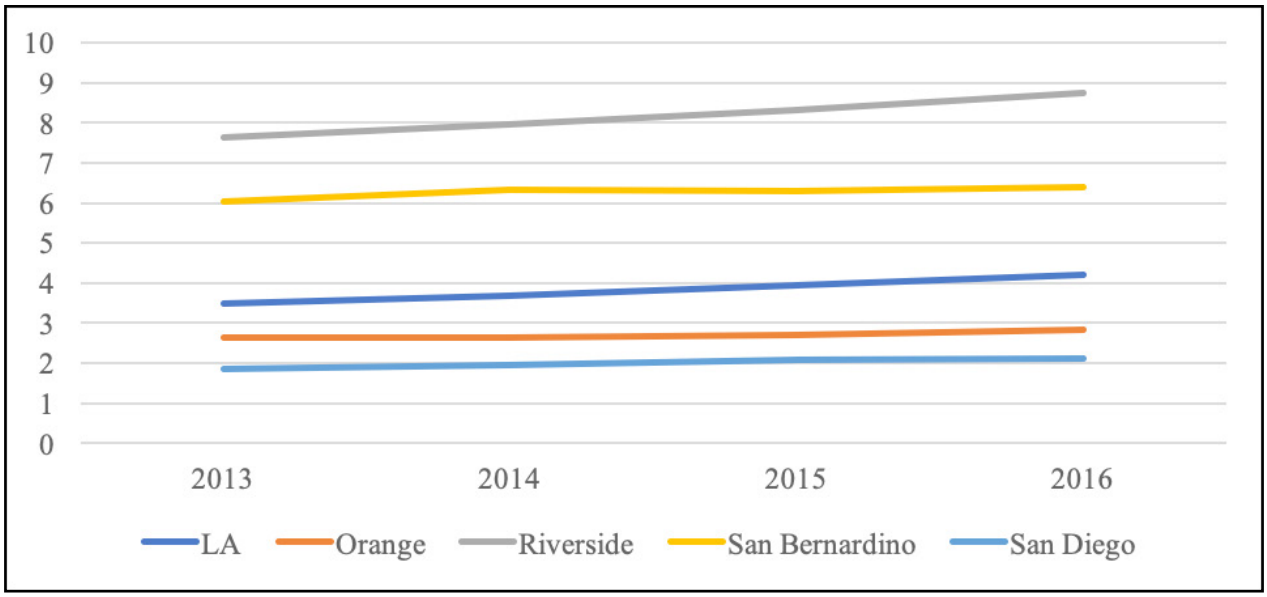

Figure 6. Percent of Los Angeles Region Workers Driving More than 1 Hour to Work; 2013–16

Source: US Census American Community Survey.

Table 4. Average Hours Worked at Home per Week and Percent of Workforce

Occupation	Average Hours Worked at Home per Week (2003–2007)	Percent of Workforce (2012)
Management, Computer and Mathematical Occupations, Education, Personal Care and Services, Farming, Fishing and Forestry	7.1 hours and above	17.3%
Business and Financial, Life, Physical and Social Science, Community and Social Services, Legal, Arts, Design and Entertainment, Sales	4.1 through 7.0 hours	20%
Architecture and Engineering, Healthcare, Protective Services, Food Preparation, Building and Grounds Cleaning and Maintenance, Office and Administrative Support, Construction, Installation and Maintenance, Production, Transportation	0.5 through 4.0 hours	62%

Source: US Bureau of Labor Statistics.

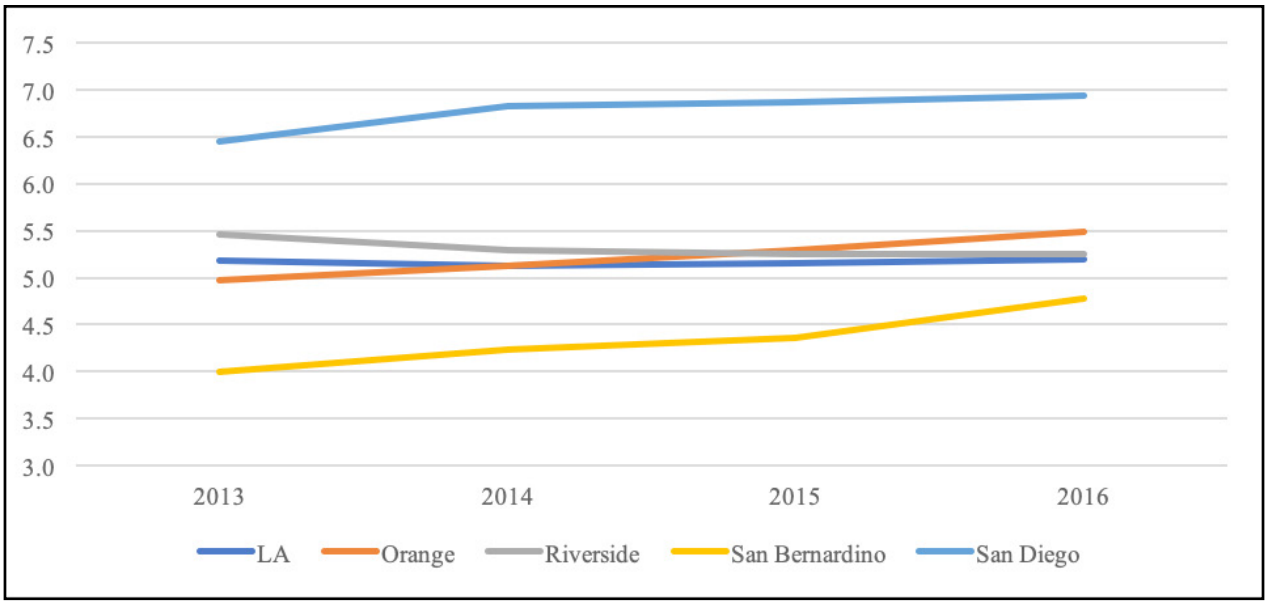

Figure 7. Percent of Los Angeles Region Workers Working From Home; 2013–16

Source: US Census American Community Survey.

Commuting Patterns in the County of Los Angeles

This section explores commuting patterns across zip codes in Los Angeles County to understand better the broader regional context of the South Bay. 5-year estimates from the U.S Census American Community Survey, taken in 2012 and in 2017, enable comparison of regional patterns over time.[91] The percentages for individual zip codes are with respect to all workers who reside in those zip codes. The figures in this section show those zip codes with rates or levels above the 2012 average in one color and those below the 2012 average in another. As shown in Figure 8 and Table 5, travel times have increased across the region, from around 28 minutes in 2012 to 30 minutes in 2017. Numerous zip codes that were below the average 2012 travel time shifted to above the average 2012 travel by 2017, including numerous South Bay zip codes such as 90220 and 90221 in Carson, 90249 in Gardena, 90250 in Hawthorne, 90254 in Hermosa Beach, 90266 in Manhattan Beach, 90278 in Redondo Beach, and 90501 and 90505 in Torrance. Figure 9 and Table 6 highlight that there has also been an increase in the rate of long commutes, defined as those over an hour long, from an average zip-code rate of 11.3% in 2012 to 13.6% in 2017. Comparing Figures 8 and 9, there are similarities in terms of spatial distribution between the average travel time and long commute time (i.e. more than 1 hour) rates across zip codes.

Driving alone is the dominant mode of transportation to work in Los Angeles County, as shown in Figure 10 and Table 7, with 70% of residents on average among zip codes driving alone in 2012, and 71% in 2017. A few regions within Los Angeles County in 2017 are less than the 2012 average, including the area around Downtown Los Angeles and South Los Angeles, some zip codes near the Port of Los Angeles, the West Los Angeles area, and some parts of Malibu and the east San Fernando Valley. Residents in the South Bay tend to drive alone more than the Los Angeles County average. In 2012, some exceptions here included 90220, 90221, and 90744 in Carson, and 90301 and 90304 in Hawthorne and Inglewood; notably each of these zip codes is proximate to the 405 freeway.

Figures 11–13 and Tables 8–10 provide insights into the commuting patterns for those workers seeking alternatives to driving alone. The rate of carpooling as a percentage of all workers in the average Los Angeles County zip code was 10% in 2012 and 9.1% in 2017. Carpooling appears to be particularly prevalent in the areas of north and east Los Angeles County, as well as South Los Angeles. Lower-income workers and those with less flexible occupations tend to reside in these communities, suggesting that carpooling is more likely to be a viable option for those not wishing to drive alone but who do not have access to workplace flexibility.

As shown in Figure 12 and Table 9, 5.8% of residents on average across zip codes used public transportation for their commutes in 2012, compared to 5.4% in 2017. It appears as though those taking advantage of this alternative are more concentrated in neighborhoods that are lower income on average, as well as those with greater access to transportation systems. The highest rates in the region are in the Downtown Los Angeles area, which is effectively the hub of the public transportation system within the region. South Bay communities are clearly divided here, with coastal cities tending to have lower than average rates of public transportation usage, while inland South Bay cities have higher than average rates.

Figure 13 and Table 10 suggest that working from home is the only alternative mode of transportation on the rise; the average value across Los Angeles County zip codes increased from 5.5% in 2012 to 6% in 2017. Regional patterns of working from home are almost the inverse of that for carpooling, with higher-than-average rates in coastal cities, the Westside, and some areas of the Valley and northern Los Angeles County. In the South Bay, there is a divide between coastal zip codes and the rest. The intersection of higher incomes and occupations that are more flexible appears to enable residents of coastal communities to benefit from working at home.

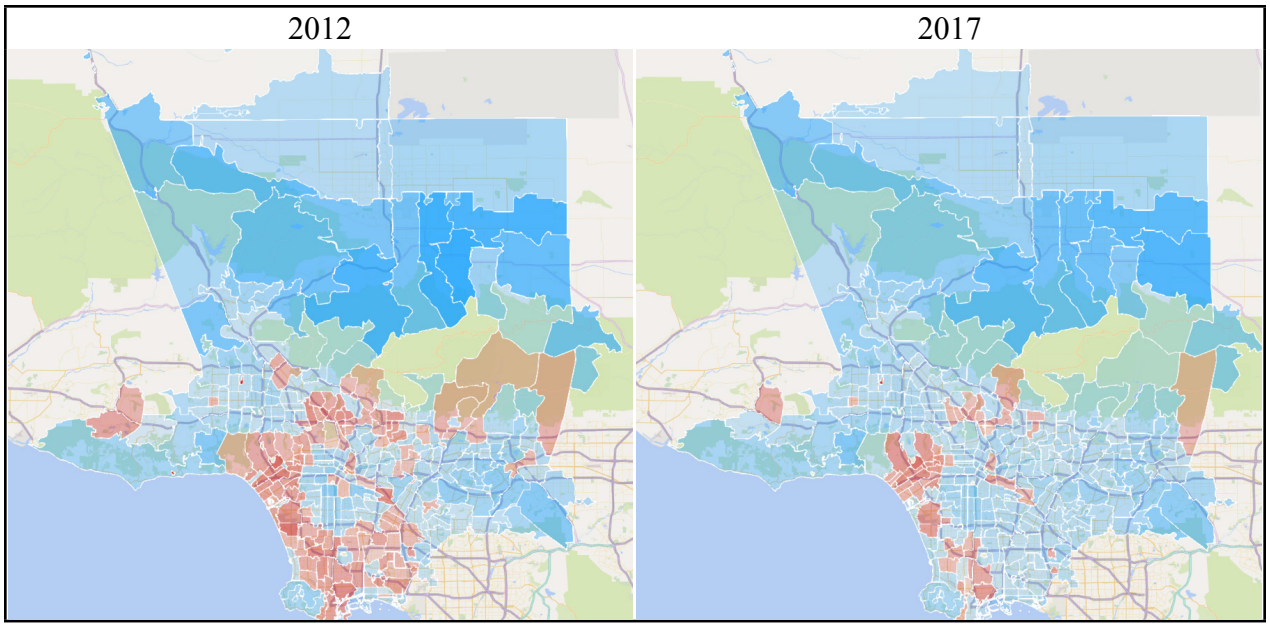

Figure 8. Los Angeles County Residents Average Commute Time by Zip Code

Source: US Census American Community Survey.

Key:

Blue: Values greater than the 2012 mean; darker as value increases; range 0 to 28%

Red: Values less than the 2012 mean; darker as value decreases; range 0 to -13%

Table 5. Los Angeles County Residents Average Commute Time by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	9	3.0%	9	3.0%
1–5	0	0.0%	0	0.0%
6–10	1	0.3%	2	0.7%
11–15	2	0.7%	1	0.3%
16–20	2	0.7%	2	0.7%
21–25	30	10.0%	12	4.0%
26–30	162	53.8%	108	35.9%
31–35	76	25.2%	132	43.9%
36–40	13	4.3%	24	8.0%
41–45	4	1.3%	5	1.7%
46–50	2	0.7%	4	1.3%
Total	301		301	
Mean	28.0		29.9	
Median	28.4		30.6	

Source: US Census American Community Survey.

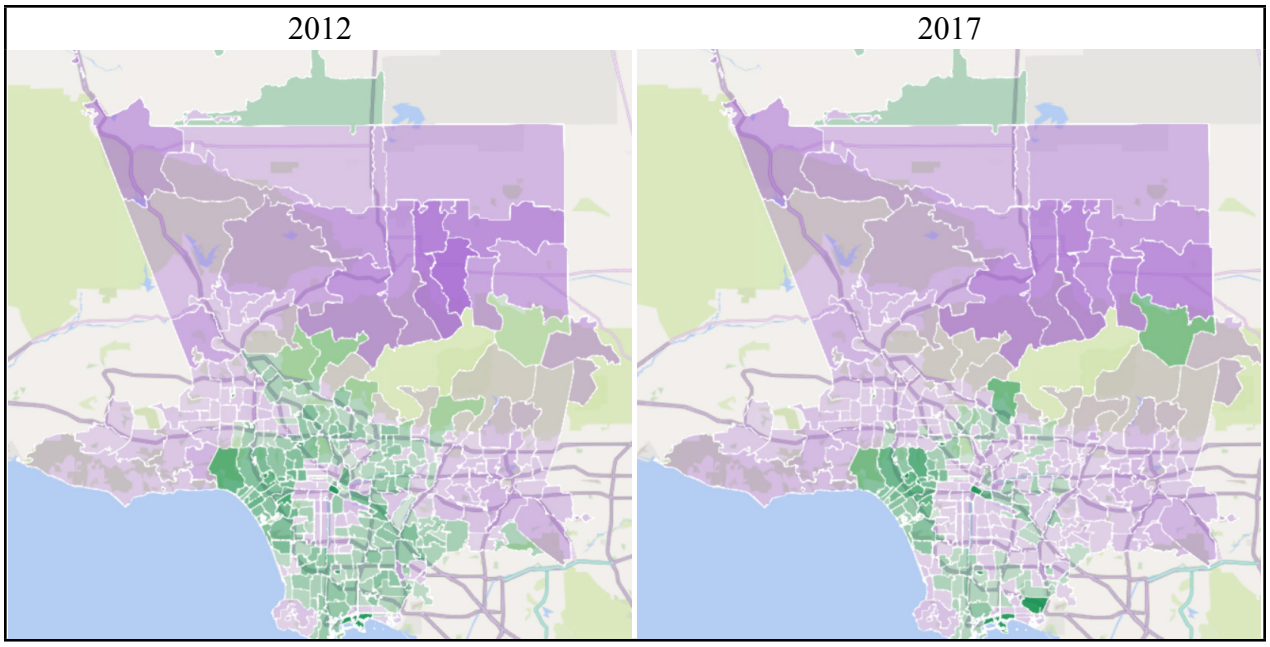

Figure 9. Percent of Los Angeles County Residents with Commute Longer than 60 Minutes by Zip Code

Source: US Census American Community Survey.

Key:

Purple: Values greater than the 2012 mean; darker as value increases; range 0 to 53%

Green: Values less than the 2012 mean; darker as value decreases; range 0 to -10%

Table 6. Percent of Los Angeles County Residents with Commute Longer than 60 Minutes by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	9	3.0%	11	3.7%
1–10	123	40.9%	59	19.6%
11–20	150	49.8%	199	66.1%
21–30	14	4.7%	23	7.6%
31–40	4	1.3%	7	2.3%
41–50	1	0.3%	1	0.3%
Total	301		301	
Mean	11.3		13.6	
Median	10.8		12.8	

Source: US Census American Community Survey.

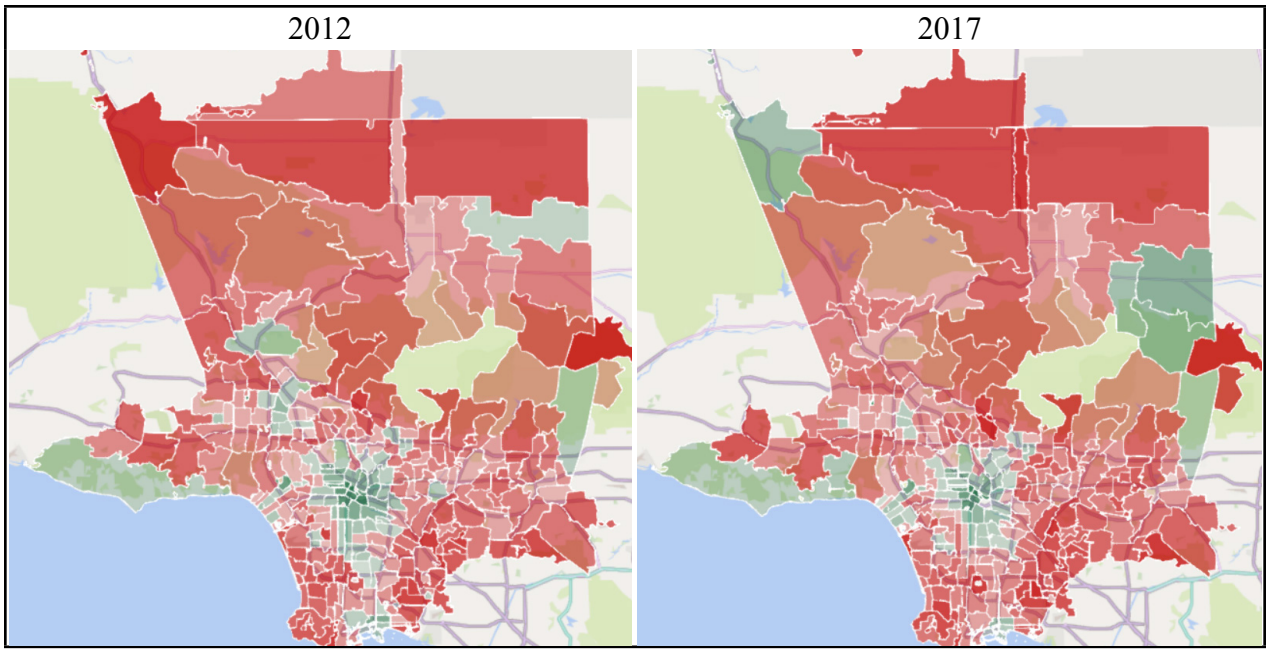

Figure 10. Percent of Los Angeles County Residents Driving Alone by Zip Code

Source: US Census American Community Survey.

Key:

Red: Values greater than the 2012 mean; darker as value increases; range 0 to 17%

Green: Values less than the 2012 mean; darker as value decreases; range 0 to -37%

Table 7. Percent of Los Angeles County Residents Driving Alone by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	8	2.7%	9	3.0%
1–10	1	0.3%	0	0.0%
11–20	2	0.7%	3	1.0%
21–30	1	0.3%	2	0.7%
31–40	5	1.7%	3	1.0%
41–50	8	2.7%	6	2.0%
51–60	14	4.7%	9	3.0%
61–70	52	17.3%	48	15.9%
71–80	146	48.5%	148	49.2%
81–90	64	21.3%	73	24.3%
91–100	0	0.0%	0	0.0%
Total	301		301	
Mean	70.1		71.0	
Median	74.7		75.9	

Source: US Census American Community Survey.

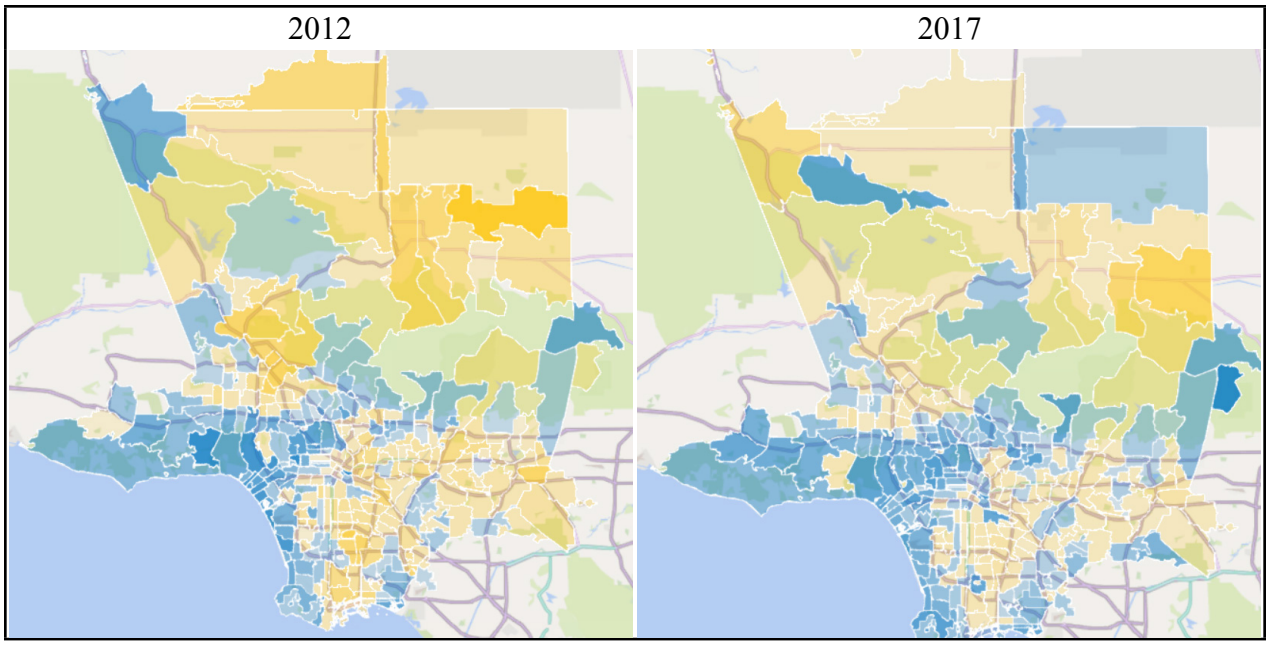

Figure 11. Percent of Los Angeles County Residents Carpooling by Zip Code

Source: US Census American Community Survey.

Key:

Orange: Values greater than the 2012 mean; darker as value increases; range 0 to 38%

Blue: Values less than the 2012 mean; darker as value decreases; range 0 to -9%

Table 8. Percent of Los Angeles County Residents Carpooling by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	11	3.7%	10	3.3%
1–10	144	47.8%	171	56.8%
11–20	143	47.5%	114	37.9%
21–30	3	1.0%	3	1.0%
31–40	0	0.0%	2	0.7%
Total	301		301	
Mean	10.0		9.1	
Median	10.0		8.9	

Source: US Census American Community Survey.

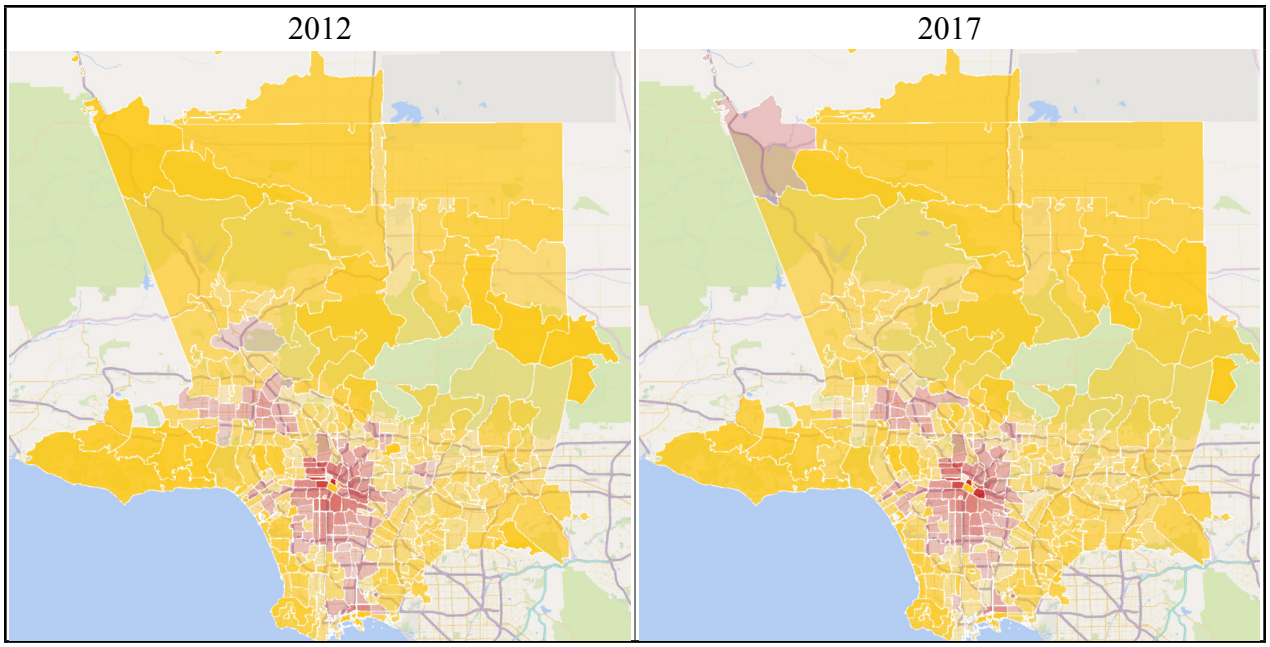

Figure 12. Percent of Los Angeles County Residents Commuting by Public Transport by Zip Code

Source: US Census American Community Survey.
Key:
Red: Values greater than the 2012 mean; darker as value increases; range 0 to 33%
Orange: Values less than the 2012 mean; darker as value decreases; range 0 to -6%

Table 9. Percent of Los Angeles County Residents Commuting by Public Transport by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	19	6.3%	15	5.0%
1–10	235	78.1%	249	82.7%
11–20	34	11.3%	28	9.3%
21–30	8	2.7%	5	1.7%
31–40	4	1.3%	2	0.7%
Total	301		301	
Mean	5.8		5.4	
Median	3.7		3.5	

Source: US Census American Community Survey.

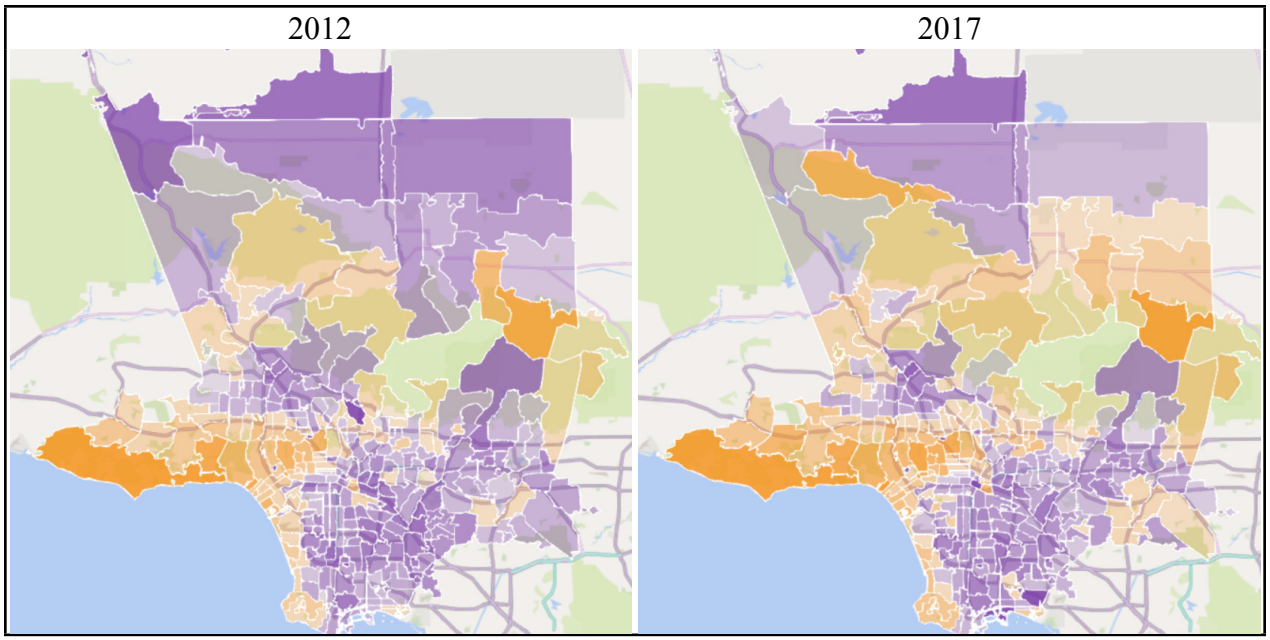

Figure 13. Percent of Los Angeles County Residents Working at Home by Zip Code

Source: US Census American Community Survey.

Key:

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%

Table 10. Percent of Los Angeles County Residents Working at Home by Zip Code

	2012		2017	
Interval	**Frequency**	**%**	**Frequency**	**%**
0	10	3.3%	9	3.0%
1–10	262	87.0%	247	82.1%
11–20	26	8.6%	45	15.0%
21–30	2	0.7%	0	0.0%
Total	301		301	
Mean	5.5		6.0	
Median	4.4		5.0	

Source: US Census American Community Survey.

Commuting Patterns in the South Bay Region of Los Angeles

Trends in the South Bay are similar to those of Los Angeles and the US. Working at home is increasing marginally as a mode of transportation while public transit use is declining marginally. FWPs continue to be an important strategy for dealing with expanding commutes and congestion related to work. Table 11 shows that from 2011 to 2016, travel time to work increased for residents of each South Bay city, with the exception of Rancho Palos Verdes. Rancho Palos Verdes and the rest of the Peninsula—such as Rolling Hills, Rolling Hills Estates, and Palos Verdes Estates—have some of the highest overall commute times

in the region of more than 31 minutes. The average commute time in the South Bay grew from 27.4 minutes in 2009 to 28.5 minutes in 2016.

With the exception of 2012, most South Bay Cities' workforces have grown over the past seven years. The total South Bay workforce grew by 2.3% between 2009 and 2016. Cities that have seen an overall decline in the workforce include Hermosa Beach, Manhattan Beach and others on the Peninsula. Cities that have seen no growth include El Segundo, Rancho Palos Verdes, and Redondo Beach. This may be due to high cost of housing in those cities.

From 2009–2016, the rate of working at home has grown by 11% (from 4.6% to 5.1%), more quickly than the workforce, which has only grown by 2%, as can be seen in Tables 12 and 14. The South Bay workforce has fluctuated in size, but showing an overall increase of 1.2% from 2009–2016. The percentage of South Bay resident workers that work from home has increased yearly from 4.6% in 2009 to 5.1% in 2016. While telework as a mode has grown at a faster rate, the number of South Bay residents in the workforce has increased by approximately 8,000 while the number of teleworkers has increased by only 2,150. As such, it is not clear whether those people teleworking are shifting from traditional modes of commuting, or are new arrivals to the workforce. The census only asks about the main mode of commuting; therefore, the statistics reveal only those who work at home full-time and do not capture those who occasionally telework. Percentages derived from the National Household Travel Survey would have been higher.

Table 11. South Bay Cities' Mean Travel Time to Work in Minutes

Cities	2009	2010	2011	2012	2013	2014	2015	2016	Change 09–16
Carson	25.8	25.6	26.9	27.2	26.4	26.2	26.9	27.1	1.3
El Segundo	21.2	21.5	21.6	21.5	22.0	22.8	22.9	23.8	2.6
Gardena	25.5	26.0	26.0	26.4	26.2	27.0	27.0	27.1	1.6
Hawthorne	28.2	28.9	28.2	27.6	27.6	28.5	27.8	28.4	0.2
Hermosa Beach	30.4	28.8	29.5	29.3	29.9	29.9	31.7	32.2	1.8
Inglewood	29.0	28.2	28.0	28.7	28.5	29.0	30.1	30.5	1.5
Lawndale	25.3	25.5	25.5	25.5	24.1	24.3	24.7	26.1	0.8
Lomita	25.5	25.4	25.2	25.9	26.0	25.1	25.7	25.6	0.1
Manhattan Beach	29.0	28.1	27.7	27.5	28.2	28.4	29.2	29.9	0.9
Palos Verdes Estates	33.8	35.3	36.3	37.4	35.0	34.7	35.4	35.2	1.4
Rancho Palos Verdes	33.0	32.5	32.9	31.8	32.2	31.6	32.1	32.7	-0.3
Redondo Beach	27.4	27.2	27.6	27.3	28.0	27.5	28.1	28.4	1
Rolling Hills	28.2	28.9	28.9	29.7	30.5	31.7	34.9	36.8	8.6
Rolling Hills Estates	30.9	30.1	28.3	28.4	29.1	28.9	29.1	31.1	0.2
Torrance	26.0	26.4	26.4	25.8	25.8	26.4	27.1	27.8	1.8
South Bay Total	27.4	27.3	27.4	27.3	27.3	27.5	28.0	28.5	1.1

Source: Authors' calculations based on American Community Survey 5-year estimates.

Table 12. South Bay Cities' Total Workforce

Cities	2009	2010	2011	2012	2013	2014	2015	2016
Carson	41,004	40,889	40,596	40,792	39,858	39,411	40,685	41,847
El Segundo	9,202	9,311	9,066	9,007	8,880	8,873	9,209	9,058
Gardena	25,268	25,402	25,651	25,941	26,195	26,302	26,582	26,967
Hawthorne	37,259	38,124	37,508	37,873	38,525	38,923	39,714	40,101
Hermosa Beach	12,482	12,434	12,117	11,676	11,590	11,443	11,186	11,431
Inglewood	48,812	47,298	46,085	46,680	45,509	46,755	47,559	48,738
Lawndale	13,623	13,921	14,340	14,264	14,703	15,139	15,586	16,546
Lomita	10,222	9,865	9,904	10,088	10,294	10,616	10,725	10,688
Manhattan Beach	17,333	16,860	17,155	17,201	17,492	17,095	16,790	16,859
Palos Verdes Estates	5,426	5,224	5,320	5,170	5,347	5,438	5,394	5,341
Rancho Palos Verdes	16,696	17,158	17,142	17,510	17,498	17,560	17,608	17,530
Redondo Beach	37,868	37,199	36,378	36,950	36,170	36,443	36,567	36,445
Rolling Hills	738	780	781	795	721	691	696	626
Rolling Hills Estates	3,262	3,338	3,491	3,323	3,290	3,262	3,263	3,202
Torrance	68,173	70,251	70,126	69,847	69,240	69,264	69,560	70,015
South Bay Total	347,368	348,054	345,660	347,117	345,312	347,215	351,124	355,394
Total % Change since 2009		.2%	-.7%	.4%	-.5%	.6%	1.1%	1.2%

Source: Authors' calculations based on American Community Survey 5-year estimates.

Table 13. Percent of Workers Using Transit to Work

Cities	2009	2010	2011	2012	2013	2014	2015	2016	Change 09–16
Carson	2.9	3.1	3.4	3.3	3.1	3.1	3.0	3.4	0.5
El Segundo	1.8	1.7	1.7	1.3	1.2	1.5	1.6	1.6	-0.2
Gardena	3.3	4.3	4.2	4.4	3.9	4.8	4.1	4.6	1.3
Hawthorne	7.1	7.9	7.2	6.8	7.3	7.6	7.7	7.3	0.2
Hermosa Beach	1.3	1.1	1.2	1.1	1.5	1.2	0.9	0.8	-0.5
Inglewood	7.2	7.6	7.5	7.9	7.6	7.8	7.9	7.3	0.1
Lawndale	3.5	3.4	4.5	4.4	4.5	3.8	4.6	3.9	0.4
Lomita	2.0	1.9	2.3	2.9	3.6	4.1	4.2	3.4	1.4
Manhattan Beach	0.6	0.4	0.6	1.2	1.5	1.8	1.8	1.5	0.9
Palos Verdes Estates	1.2	0.9	0.9	0.5	0.3	0.0	0.1	0.3	-0.9
Rancho Palos Verdes	0.9	1.1	1.4	1.4	1.6	1.3	1.3	1.1	0.2
Redondo Beach	1.9	1.8	1.4	1.4	1.3	1.5	1.6	1.4	-0.5
Rolling Hills	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.5	0.1
Rolling Hills Estates	1.4	1.5	0.5	0.3	0.5	0.2	0.1	0.8	-0.6
Torrance	1.9	2.0	2.3	2.3	2.5	2.0	2.1	2.1	0.2
South Bay Total	3.3	3.5	3.6	3.6	3.7	3.7	3.7	3.6	0.3

Source: Authors' calculations based on American Community Survey 5-year estimates.

Table 14. Percent of South Bay Residents Working at Home

Cities	2009	2010	2011	2012	2013	2014	2015	2016	Change 09–16
Carson	2.9	2.8	3.0	3.3	3.6	3.0	2.8	2.5	-0.4
El Segundo	6.6	6.7	7.3	6.7	6.1	5.0	6.2	5.4	-1.2
Gardena	2.8	2.8	2.3	1.4	1.2	1.4	1.6	2.0	-0.8
Hawthorne	3.0	2.8	2.6	2.9	2.7	2.7	2.4	2.1	-0.9
Hermosa Beach	6.6	8.0	8.5	8.4	9.3	10.4	11.0	9.2	2.6
Inglewood	3.2	2.9	3.1	3.4	4.2	4.6	4.8	4.9	1.7
Lawndale	3.2	2.9	2.3	2.9	2.5	3.3	2.9	3.0	-0.2
Lomita	4.0	4.5	4.9	5.7	6.0	5.1	5.4	4.5	0.5
Manhattan Beach	8.6	8.7	9.1	9.5	9.4	10.3	10.4	10.2	1.6
Palos Verdes Estates	8.4	8.4	8.3	9.4	11.1	11.3	11.9	12.0	2.6
Rancho Palos Verdes	7.3	6.8	6.6	6.8	8.2	8.9	9.5	9.7	2.4
Redondo Beach	6.8	6.8	7.4	6.5	7.3	7.8	7.6	7.9	1.1
Rolling Hills	9.1	9.7	10.9	11.4	11.2	11.0	13.2	11.3	2.2
Rolling Hills Estates	9.0	7.0	7.7	9.8	9.1	9.9	8.7	9.8	0.8
Torrance	4.2	4.6	4.3	4.2	4.5	4.6	4.6	4.8	0.6
South Bay Total	4.6	4.6	4.6	4.6	5.0	5.1	5.1	5.1	0.5

Source: Authors' calculations based on American Community Survey 5-year estimates.

The percent of residents who telework full-time has increased steadily since 2011. As shown when comparing Tables 13 and 14, working from home is a more popular commute mode than public transit in the South Bay. The cities with the highest rates of telework are the Peninsula and Beach cities. This is in accordance with various studies that show the wealthier are more likely to telework.[92]

Table 15 uses data from the 2012 California Household Travel Survey. This survey differs from the US Census American Community Survey in that it asks in-depth questions about work patters and travel behavior. The data in Table 15 show the percentage of residents and workers that are allowed flexibility in their work times. Sample sizes are small for the CHTS, so caution should be taken in interpreting the results for individual cities.

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.

Table 15. South Bay Residents and Workers Allowed Flexibility in Start Times

	Some Flexibility		Total Flexibility		Flexible Programs
South Bay City	Workers	Residents	Workers	Residents	Workers
Harbor City	50%	38%	50%	15%	100%
Hermosa Beach	44%	33%	33%	45%	13%
Lomita	57%	36%	29%	32%	14%
Hawthorne	38%	47%	20%	19%	21%
Inglewood	46%	48%	16%	16%	17%
Manhattan Beach	39%	54%	13%	30%	26%
Torrance	48%	43%	13%	15%	21%
Gardena	36%	45%	12%	23%	21%
Redondo Beach	63%	56%	11%	14%	54%
El Segundo	64%	41%	11%	26%	45%
Carson	54%	36%	8%	11%	25%
Wilmington	44%	46%	6%	14%	6%
Palos Verdes Peninsula	25%	36%	0%	40%	0%
Rancho Palos Verdes	50%	42%	0%	26%	25%
Lawndale	22%	50%	0%	9%	25%
South Bay Total	**52%**	**45%**	**12%**	**20%**	**30%**
Los Angeles	**47%**	**43%**	**13%**	**21%**	**22%**

Source: California Household Travel Survey, CHTS 2012.

Table 16. Percent of South Bay Residents with a Second Job

	Residents with a Second Job			
South Bay Cities	% of Total Workers	% Work at Home	% No Fixed Workplace	% Not at Worksite
Inglewood	12%	0%	67%	67%
Torrance	11%	40%	10%	50%
Rancho Palos Verdes	11%	67%	0%	67%
Gardena	8%	18%	18%	35%
Manhattan Beach	7%	50%	0%	50%
Hermosa Beach	7%	0%	44%	44%
Palos Verdes Peninsula	6%	0%	33%	33%
Harbor City	6%	0%	50%	50%
Wilmington	6%	25%	0%	25%
Carson	4%	0%	0%	0%
Hawthorne	4%	0%	50%	50%
Lomita	4%	0%	100%	100%
Lawndale	3%	0%	0%	0%
El Segundo	3%	0%	33%	33%
Redondo Beach	0%	0%	0%	0%
South Bay Total	7%	19%	23%	42%
Los Angeles	7%	26%	32%	58%

Source: California Household Travel Survey, CHTS 2012.

Table 16 shows CHTS results concerning second jobs. 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 fixed workplace, such as Uber or Lyft; this adds up to a total of 42% of second jobs not performed at a worksite. In Los Angeles, 7% of the workforce again had a second job, but 26% of these were conducted at home and 32% were mobile jobs, for a total of 58% not performed at a worksite.

Table 17 shows the occupations in Los Angeles that have the largest percentage shares of workers within each occupation that is allowed to work at home. The highest category is workers in education, training and library occupations, likely due to the large concentration of universities and colleges in the area. Healthcare in general tends to be a major provider of flexible work opportunities. Other occupations, such as entertainment and computer-related jobs also allow high rates in FWP.

The percent of residents working from home in South Bay cities increased by only 0.5 percentage points between 2009 and 2016, from 4.6% to 5.1%. If we look at the bigger picture, overall there was relatively little change in commuting patterns during this period. Between 2009 and 2016, public transit use increased by 0.3 percentage points and mean travel time to work increased by around 1 minute. Unfortunately it is not possible to see from this aggregate data whether workers are switching to particular FWPs. It may be that instead of allowing teleworking, companies and organizations are encouraging flexibility start times and other practices such as the use of co-working spaces. If organizations were employing FWPs other than teleworking, the impact in terms of commute times and commute mode shifts would not be as substantial compared to telework; however, there would still be reductions in congestion and emissions.

Table 17. Los Angeles Occupations by Percentage Allowed to Work at Home

Occupations	Percentage within Occupation Allowed to Work from Home
Education, Training, and Library Occupations	11.2%
Healthcare Practitioners and Technical Occupations	11.0%
Arts, Design, Entertainment, Sports, and Media Occupations	10.9%
Computer and Mathematical Occupations	7.0%
Transportation and Material Moving Occupations	5.8%
Food Preparation and Serving Related Occupations	4.8%
Management Occupations	4.5%
Sales and Related Occupations	4.4%
Installation, Maintenance, and Repair Occupations	4.2%
Production Occupations	3.9%
Office and Administrative Support Occupations	2.9%
Construction and Extraction Occupations	2.7%
Legal Occupations	2.3%
Business and Financial Operations Occupations	1.9%
Architecture and Engineering Occupations	1.1%

As discussed above in the Background section, the emergence and proliferation of co-working spaces over the past decade presents a significant development in the growth of FWP.[93] The South Bay is a prime location for co-working spaces, due to the coastal location, high real estate prices, and entrepreneurial culture. For example, the City of El Segundo has a high rate of start-up investment, totaling $1.07 Billion for the period of January 2017 to September 2018.[94] To put this in context, total technology company venture capital investments in the San Francisco Bay Area—one of the primary start-up locations worldwide—in 2017 were $26.5 Billion.[95] There are numerous major co-working sites in the region, including chains that have originated in other regions, and El Camp, an El Segundo start up that has a unique model that has gained investment and aims to expand its presence beyond the South Bay region. Table 18 presents a list of co-working spaces in the South Bay as of April 2019.

Table 18. Co-Working Spaces in the South Bay, 2019

City	Company	Address	Pricing (if available)
Inglewood/LAX	Innovative Entrepreneurs Hub	5777 W. Century Blvd. Suite 1110 Los Angeles, CA 90045 (424) 800-2135	Builder: $150/month Elite: $250/month Core: $375/month Focus: $540/month Day Pass: $30/day
	LA Create Space	401 E Hillcrest Blvd. #I Inglewood, CA 90301 (424) 312-1026	Creative: $400/month Business: $750/month
	LAX Coworking	9100 S. Sepulveda Blvd., Ste. 210, LA, CA 90045 (310) 645-5151	Membership $159/month
El Segundo	360WorkHub	1160 E Mariposa Ave. El Segundo, CA. 90245 (562) 449-5735	
	BizHaus	1730 E. Holly Ave, El Segundo, CA 90245 (310) 870-1730	Flex/Open Desk $175–$275/ month Dedicated Desk $375+/month
	CrossCampus	840 Apollo Street, Ste 100 El Segundo, CA 90245 (424) 325-6212	Hot Desk $350/month Reserved Desk $550/month
	El Camp	2150 Park Pl #100, El Segundo, CA 90245 (442) 224-3702	Cafe Membership $300/month Dedicated Desk $575/month
	Premier Workspaces	222 N. Pacific Coast Highway, Suite 2000, El Segundo, CA 90245 (310) 364-5200	
	Regus – LAX Continental Grand	400 Continental Blvd, 6th Floor, El Segundo, CA, 90245 (310) 426-2000	
	Spaces	360 N. Pacific Coast Highway, Suite 2000 El Segundo, CA 90245 (424) 367-1100	From $350/month
	Unità	215 Arena St, El Segundo, CA 90245 (310) 480-2728	“Surfer” coworking: $400/ month “Local” dedicated desk: $525/ month
	WeWork	222 CA-1, El Segundo, CA 90245 (646) 491-9060	Hot Desks: $390/month Private Offices: $820/month
Manhattan Beach	WeWork	1240 Rosecrans Ave #120, Manhattan Beach CA 90266 (646) 491-9060	Hot Desk $350/month Dedicated Desk $450/month
Hawthorne	CVMPUS	4471 W Rosecrans Ave, Hawthorne, CA 90250 (424) 772-0160	Lite Member: $60/month VIP Member: $270/month

City	Company	Address	Pricing (if available)
Hermosa Beach	NUWORK	618 Cypress Ave #201, Hermosa Beach, CA 90254 (310) 374-4300	Dedicated Desk $375/month
	Regus	2447 Pacific Coast Highway, Hermosa Beach, CA 90254 (310) 698–8700	
	Unità	832 Hermosa Ave, Hermosa Beach, CA 90254 (310) 480-2728	"Surfer" coworking: $400/month "Local" dedicated desk: $525/month
Redondo Beach	Sightbox Factory (Design Incubator)	101 N Pacific Coast Hwy #103, Redondo Beach, CA 90277 (323) 813-5930	"Solo": $750/month "Founders": $1250/month
Lomita	Social Workplace	2315 Lomita Boulevard, Ste 200 Lomita, CA 90717 (888) 432-7624	Social Desk $265/month Reserved Desk $365/month
Torrance	Barrister Executive Suites (3 locations)	21250 Hawthorne Blvd suite 500 & 700, Torrance, CA 90503 3838 Carson Street, 3rd Floor, Torrance, CA 90503 3868 Carson Street, 3rd Floor, Torrance, CA 90503 800-576-0744	
	Cowork South Bay	22519 Hawthorne Blvd, Torrance, CA 90505 (424) 340-0800	Flex desk: $195/month Dedicated desk: $395/month
	Premier Workspaces	3655 Torrance Blvd 3rd Floor, Torrance, CA 90503 (424) 247-1200	
	Regus	21515 Hawthorne Blvd, Suite 200, Torrance, CA, 90503 855-400-3575	
Gardena	Regus	879 West 190th Street, Suite 400, Gardena, CA, 90248 855-400-3575	
	CustomSpace	153 W Rosecrans Avenue Gardena CA 90248 323-900-0282	

Note: This Table aims to provide a brief comparison of some company prices for solo workers. Prices are those publicized on company websites as of April 2019 for monthly individual memberships. Other pricing and payment schedules are available. Please contact companies for specific quotes.

TRANSPORTATION AND EMISSIONS

Reducing commuting times, congestion, and emissions is increasingly important in the US, including in Los Angeles and the South Bay. Transportation is the highest-polluting sector in the US and on average is the second-highest household expense after housing.[96] The average Californian drives 36 miles per day, and while each year the average driver drives a few miles less, due to population growth, the total VMT in California nevertheless increases each year.[97] Transportation is the largest source of greenhouse gas emissions in California.[98] Flexible workplace practices are an easy solution for reducing commutes. Many employees would take switch jobs if it would allow them to reduce their commutes.[99]

There is also a growing literature that raises important questions about the environmental impact of FWPs.[100] Studies have suggested that home-workers may increase their miles travelled overall—which could be due to occupations such as sales, consulting, or education that may require high levels of local travel—and may live further from their workplace than they would have otherwise.[101] These studies highlight the complex interactions between workplace programs and employee decision making, and raises important questions about whether the data available to researchers fully captures the landscape.

Emissions Reductions in the South Bay

In spite of these limitations, the potential for emissions reductions through FWP is important to explore. Table 19 presents estimates for a reduction in emissions because of more South Bay residents working from home rather than driving. Focusing on South Bay residents, there were an estimated 355,000 workers in 2016, according to the US Census American Community Survey. Over the prior 10 years, the number working from home had increased by 0.5 percentage points, or 1,775; Scenario 1 presented in Table 19 reflects an equivalent reduction in emissions due to working from home. These estimates assume that someone working from home eliminates all of their commute time, and does not replace it with other travel time. Moreover, the calculations assume that working from home replaces prior average driving emissions, and not other commute modes. We take the average one-way commute distance for Los Angeles (18.3 miles), multiple by two, and then by the average commute days per year. For example, CO emissions for Scenario 1 equal 1,775 fewer commuters, multiplied by 9,150 miles per year for the average weekly commuter and the emissions factor of 2.239 grams per VMT. If the reduction scenarios in Table 19 can be achieved, these are not insignificant quantities of emissions being removed. It is important to note that we are only looking at South Bay residents here, and not those entering the region to work.

Table 19. Estimates of Potential Emissions Reductions from Telework in the South Bay

		Annual Emissions Reductions					
		Scenario 1: 0.5% Point Increase in Working from Home[2]		Scenario 2: 2% Point Increase in Working from Home[2]		Scenario 1: 5% Point Increase in Working from Home[2]	
Emissions type	Emissions Factor[1]	Grams	Tons	Grams	Tons	Grams	Tons
ROG	0.191	3,102,079	3.42	12,408,315	13.68	31,020,788	34.19
NOx	0.217	3,524,351	3.88	14,097,405	15.54	35,243,513	38.85
$PM_{2.5}$	0.087	1,412,989	1.56	5,651,955	6.23	14,129,888	15.58
CO	2.239	36,364,159	40.08	145,456,635	160.34	363,641,588	400.85

[1] Average auto emission factors (VMT, g/mile)[102]

[2] Scenarios are based on increases in South Bay residents working from home, which changed by 0.5 percentage points between 2009 and 2016.

SOCIAL AND ECONOMIC FACTORS CONTRIBUTING TO SOUTH BAY COMMUTING PATTERNS

The above analyses highlight some of the spatial and gendered factors that appear to be influencing commuting patterns and the interactions between particular modes. This section explores other social and economic factors contributing to South Bay commuting patterns, and in particular on the factors contributing to working from home. This section first reviews the literature focused on the demand-side factors influencing FWP, and then explores related economic data and trends that appear to explain rates of working from home.

There is a small but notable academic literature exploring the broader societal factors influencing adoption of FWPs in terms of revealed preferences.[103] Table 20, which is sourced from the PhD dissertation of Mohja Rhoads,[104] covers literature up until 2010. During this period, the majority of the research in this area focused on US datasets. As Rhoads highlights, there are both useful insights and methodological limitations within this set of articles.

Table 20. Methodological Issues with Demand-Side Studies on FWP

Study	Sample Size and Location	Dependent Variable and Method	Independent Variables	Methodological Issues
Mannering & Mokhtarian, 1995	65; 65; 433. San Francisco; Sacramento; San Diego	Frequency of Telecommuting. Ordered Response	Number of People in HH; Female w/small children; Home office space; Vehicles per capita; Automobile as a status symbol; Hours worked; Supervises others; Clerical occupation; Full-time; Level of control over work; Productivity in the workplace; Familiarity with Telecommuting; Lack of self- discipline; Family orientation; Satisfaction with Life	Frequency separated as Never, Infrequent, Frequent Key constraints not assessed: Distance from the Workplace Occupation, Status in the workplace, Time at the workplace, Age and Gender Only telecommuters were surveyed
Drucker& Khattak, 2000	23,712. Nation	Frequency of Work at Home. Ordered and Unordered Models	Age; Gender; Single; Age of children in HH; Education; HH Income; Driver?; Number of Vehicles; Time to Work; Rural?; Pays to Park; Availability of Bus, Train, Streetcar and Rail	Choice is not examined, individuals are all grouped together regardless of choice Occupation and job status not included Frequency separated as Never, Infrequent, and Frequent
Walls, Safirova, & Jung, 2007	2,315. Southern California	Likelihood and Frequency of Telecommuting. Probit and Ordered Probit	Age less than 30; No College; White; Kids between the ages of 0 and 5 and 6 and 17; Gender; Part-time or Full-time; 11 categories for organizations industry; 11 categories for worker's occupation; Size of firm; Commute	Regional Sample of the Southern California Income is not examined Education examined through no college Job types and industries are not separated enough to examine which ones are more reliant on technology Choice is not examined
Popuri & Bhat, 2003	6,523 and 1,018. New York	Choice and Frequency of Telecommuting. Binary and Ordered Response	Gender; Female w/children; Age; Marital Status; Education; Drives to Work?; Many Vehicles?; Licensed Driver; Takes Transit to Work?; Works for a private company?;F2F contact is needed at work?; Part-time status; Pays to park at work; Length of employment; Income; Fax machine?; Multiple phone lines	Regional sample Occupation is not examined Status in the workplace is not examined Distance to work is not examined Frequency assessed through ordered groups
Sener & Bhat, 2010	9,264 and 1,534. Chicago	Choice and Frequency of Telecommuting. Binary and Ordered Response	Gender; Female w/children; Younger than 30 years; Education; Driver's license; Full-time; Workplace flexibility; Sector: Communications Service portions of Finance, Real Estate, Professional, Scientific or Technical, Management, Arts, Education and Health Care, Government; Income between 75 and 100K; Income > 100K; # of vehicles, #of workers in HH; Commute > 25 miles; Walk, bike or take transit to work	Regional sample Sector is mainly examined through services Status in the workplace not examined Age not properly accounted for Income not properly accounted for Frequency assessed through ordered groups

Source: Rhoads (2015).

In terms of limitations to the available literature, the primary issue is the quality of data available to researchers. Most studies have used relatively small sample sizes to examine causal relationships within specific locations. For example, results from a study conducted by Mannering and Mokhtarian[105]—which features surveys of three California agencies—show that each location has different significant independent variables. The first survey conducted in San Diego identified vehicles per household (positive), clerical occupation (negative) and family orientation (negative) as significant variables associated with both adoption and frequency of telework. There was a significant effect on adoption of telework of being a female with children under 5 years (positive), and there were significant effects on frequency of telework of number of people in household (positive), possession of a home office (positive), and being full-time status (positive).

In contract, out of all the above independent variables, the second survey conducted in San Francisco found only family orientation to have a significant effect, and only on frequency of telework. That survey did find other significant independent variables, however: there were significant effects on both telework adoption and telework frequency of income per capita in household (positive) and the presence of children under the age of 5 (positive). The third survey conducted in the Bay Area only found one independent variable with statistically significant effects on both adoption and frequency of telework: length of time at present employer (positive). There were significant effects on adoption of being a female with children under 2 (positive), of vehicles per licensed driver (positive), and of length of time at present employer (negative), and there was a significant effect on frequency of adoption of the number of people in the household (positive). These contrasting results, for different locations, highlight the important of place in this field of research.

Since 2010 there has been a profusion of studies on FWP outside of the US. This includes studies in Germany,[106] South Korea,[107] China (Nanjing),[108] and Ireland (Dublin).[109] Each of these studies provides unique and interesting results. Using individual-level data on 10,884 German employees, Miruna Sarbu found that men have a higher probability of working from home at all, yet women are work from home for more hours on average. Education levels, length of employment, and the use of information and communications technology (ICT) all increased the likelihood for individuals to work from home, while younger employees and those working at larger firms were less likely to work from home. Employees with children less than 6 years old, who worked overtime, and worked longer hours were all more likely to work from home and work longer from home than other employees.

Seok-Jin Eom and colleagues use a broader definition of FWP than Sarbu, that of “smart work”—“an alternative means of organizing work with telecommunications, mobile devices, and computer-based technologies that allow employees to undertake their labor activities anytime and anyplace, including their home and/or their firm’s satellite offices”[110]—to study this phenomenon in the Korean public sector. In total, 17,214 employees were surveyed, and a sub-sample of 1,048 smart work users were identified. In contrast to the findings from Germany on working from home, younger employees and those with lower status positions and shorter tenures were found to be more likely to use smart work approaches. Unsurprisingly, those in quasi-government organizations—which tend to be more innovative and flexible than traditional public sector organizations—were more likely to use smart work than those in public sector organizations. When the employees perceived high costs for commuting and travel, work efficiency, and organizational and

technological support, they were more likely to adopt smart work. However, fears of social isolation and poor communication discouraged employees surveyed, as did the potential for problems with leadership and management.

Becky Loo and Bo Wang gathered surveys from 608 full-time paid employees in Nanjing, China to examine the characteristics of those who conducted e-activities at home, either working or shopping online. In line with the German experience above, and those of further literature from the UK[111] and the US,[112] results indicated that having young children increased the likelihood of working from home. This is likely because workers with young children need flexibility due to childcare. Women were also more likely to work from home, though the literature on this issue has produced mixed results. As with the above studies from Western countries, workers with higher education levels in this region of China were more likely to work from home; however, age was not a statistically significant predictor. Also similarly to results from Germany,[113] the UK,[114] and Canada,[115] this study found a positive correlation between working longer hours and working from home. This may be due to employees taking their work home from the office to complete outside of regular work hours. Also consistently with results from the UK and the US, it was found that those who live further away from their workplace are more likely to engage in working from home, whether for part or all of the day.

Findings from the Greater Dublin region of Ireland, presented in a study by Brian Caulfield,[116] suggest that broadband Internet coverage, public transport availability, and occupation type all significantly influence the likelihood of working from home. Caulfield gathered data from the 2011 census of Ireland in order to examine the influence of place-based demographic, economic, and infrastructural factors on the likelihood to work from home. Living in areas with higher incomes, fewer bus stops, no rail, older populations, more single-person households, lower residential density, and more broadband Internet coverage all increased the likelihood of working from home.

While the field has advanced since Mohja Rhoads' dissertation, the same limitations continue to apply with respect to data and the generalizability of results. To quote her dissertation:

> In order to continue exploring the interactions between ICT and behavior, or how ICTs highlight engrained motivations, better data and better theories are needed. A study of an institution, small group of people, or a city, tells us only about that institution, small group of people, or city. One or two-day travel diaries tell us only about what that individual did on the given day of her survey. Much caution should be taken in generalizing results. National datasets become increasingly important and many of our national datasets do not combine questions on work, travel and occupation sufficiently. The burden and cost of data collection will always be a problem, and focusing on the local is usually more feasible than large-scale studies, and thus, questions must be matched appropriately with available data and with desired outcomes. In the era of big data generated from mobile devices, passive GPS devices, accelerometers, consumer behavior, employment behavior, and so forth, more sophisticated and thorough analyses are possible.[117]

These limitations highlight the significant work required to analyze the factors influencing FWP adoption in the regions of the South Bay and Southern California. That said, approaches such as those used by Brian Caulfield[118] highlight the potential for future research in this area. While such an analysis is beyond the scope of this project, it is nevertheless useful to highlight some of the potential factors influencing the locational variations the authors have observed in the previous section.

Seok-Jin Eom and colleagues[119] provide a useful model of the factors driving and constraining the adoption of FWP, or what they refer to as "smart work". Their "drivers" are: 1) the cost of commuting; 2) the cost of business trips; 3) expected work productivity and efficiency; 4) institutional and technological support; and 5) the burden of supporting a family. Their "constraints" are: 1) job unsuitability; 2) expected isolation and lack of communication; and 3) unfriendly leadership and management. In the light of this model, the question arises whether any of these factors have changed significantly time in the South Bay. This section will look at driver 1, the cost of commuting with respect to commutes times, employment, and housing costs; driver 3, the expected work productivity and efficiency; driver 5, the burden of supporting a family with respect to demographic levels in the region; and constraint 1, job unsuitability in terms of human capital levels in the region. The authors do not have access to external data related to driver 4, institutional and technological support, or constraint 3, unfriendly leadership and management; however, these issues are addressed in the focus group discussion and survey presented below. In terms of driver 4, institutional and technological support, technology has improved and become more affordable over time, though data is not available as to the extent of technology implementation at South Bay businesses.

Driver 1: Cost of Commuting

As shown in Table 11, the commute times for South Bay residents have changed very little in recent years, increasing by only 1.1 minutes between 2009 and 2016. Residents in some cities have seen larger increases. While Rolling Hills is possibly an anomaly due to its small size, El Segundo resident commute times increased by nearly 3 minutes. This is likely due to their proximity to the Westside area of the 405 freeway, which experiences significant congestion.

There is not an equivalent dataset available for South Bay workers who are commuting in from other regions. That said, according to the data presented in Tables 2 and 3, there was no change between 2013 and 2016 in the average commute times for those working in Los Angeles County and commuting from other counties; for those living and working in Los Angeles County, the commute time decreased during this period.

This decrease in commute time is notable given the considerable increase in employment levels over that same period. As the economy recovered following the recession of 2008, the South Bay region as a whole has added jobs each year, as reflected in the South Bay employment figures presented in Figure 14. The South Bay has grown faster than the county has a whole, and while we might expect this to increase commute times and hence to increase the likelihood of South Bay residents and employees to engage in FWPs, the available data does not indicate this has occurred. Competing factors might be influencing

these relationships. On the one hand, forms of FWP not picked up in the data, such as flexible scheduling and the use of co-working spaces, might be softening the impact of increased employment on commute times and congestion. As reveal in focus groups conducted for this study, these practices do appear to be appealing to the emerging sector companies in the South Bay region. On the other hand, the traditionally strong industries in the South Bay are in aerospace and other high-end manufacturing, in health care, and in retail. Increased FWP use in these sectors is likely to be mitigated in terms of constraint 1, job unsuitability, as manufacturing, health care, and retail are all likely to require in-person work and physical attendance to the workplace.

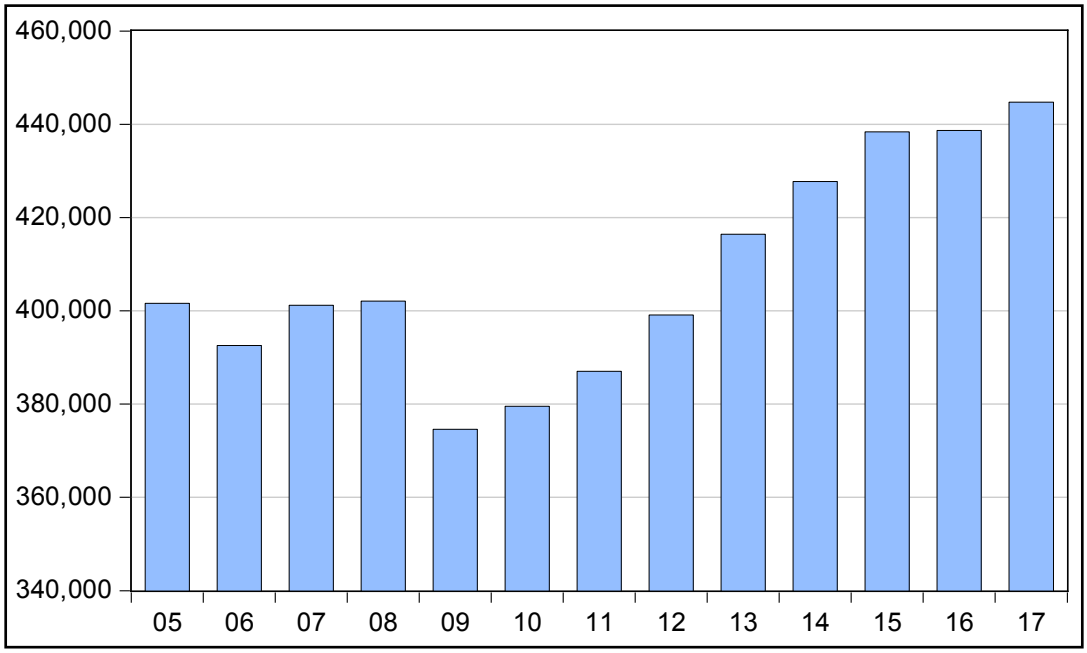

Figure 14. Private Sector South Bay Employment; 2005–2017[120]

Source: California Employment Development Department.

The growth in South Bay employment has also contributed to increasing real estate prices in the region, in terms of housing (Figure 15), rentals (Table 21), and commercial real estate.[121] Each of these markets has important impacts for FWP, though often with competing effects. South Bay house price increases clearly reflect an increase in demand for housing, which is largely driven by increased employment levels. Employees in the South Bay face choices around their "bundle" of housing and transportation. Only the highest-paid employees would be able to afford purchasing homes in the coastal communities of the South Bay (shown in green in Figure 15), or even in inland communities (shown in blue in Figure 15). The same spatial patterns continues into inland Los Angeles County, such that house and rental prices tend to decrease with distance from the coast. These differential prices increase the likelihood for employees to make quality of life trade-offs and commute further to find housing options which are within their budgets and which meet other lifestyle preferences. FWP options can soften these trade-offs for employees. As highlighted in the literature review above, those engaging in FWPs, especially working from home, are more likely live further from work.

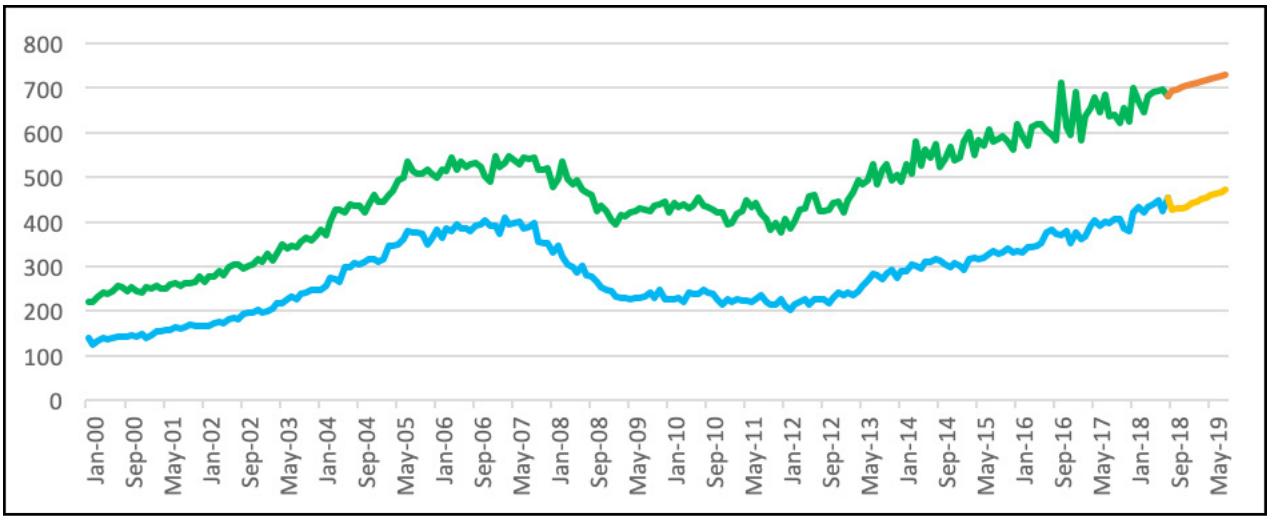

Figure 15. South Bay Detached Home Price per Square Foot in Dollars; 2000–2019

Key: South Bay Coastal Cities in Green; South Bay Inland Cities in Blue; Projections in Red and Orange.

Table 21. Los Angeles Region Renter Burden

County	2017 Median Renter Income	2017 Median Rent	2017 Severe Burden	2007–2017 Change in Overall Burden
Los Angeles	$47,008	$1,402	30.3%	4.1%
Orange	$61,503	$1,786	29.2%	4.5%
Riverside	$41,570	$1,313	32.2%	7.4%
San Bernardino	$43,375	$1,227	28.2%	3.5%
San Diego	$54,025	$1,598	28.3%	3.2%
Ventura	$58,656	$1,736	27.6%	6.3%

Driver 3. Expected Work Productivity and Efficiency; and Constraint 1. Job Unsuitability

Figure 16 provides a spatial map of education levels by zip code. Comparing Figure 16 with the maps provided in Appendix A, there appears to be positive correlations between residential human capital levels, rates of working from home, and proximity to the coast. This is in accord with the finding already demonstrated in much of the literature that those with higher educational levels, specialized occupations, and higher income levels are also more likely to work from home. There are competing explanations for why this phenomenon has occurred. It may be that only employees with higher education levels—and hence are more likely to be allowed to use FWPs—are able to afford to live in coastal communities. On top of this, it may also be that employees with higher education levels are in greater demand in the labor market, and hence are able to leverage that human capital to enable them to use FWPs. A second potential explanation is that those who are granted FWP options then live further from transportation networks and coastal locations that are more desirable, at least as reflected in housing prices, which are higher for coastal areas. A third potential explanation is that those already living in coastal communities are more likely to be willing only to take positions that allow FWP, due to their longer commutes and the

implied cost savings from using FWPs. Disentangling these competing explanations is difficult methodologically, and a possible area of future research.

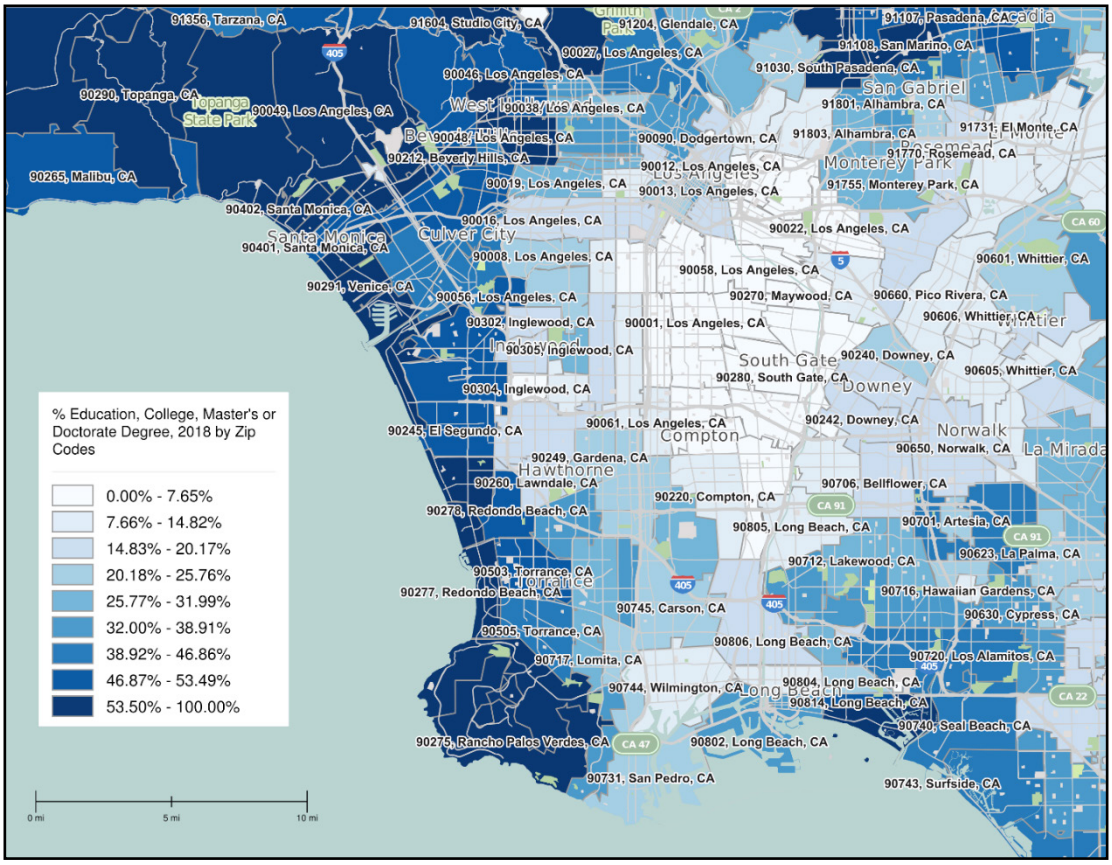

Figure 16. Education Levels by Code in Los Angeles County, 2018

Source: UCLA Forecast, South Bay Economic Forecast, 2018.

It is notable that millennials are less likely than older generations to engage in telework. Numerous studies, along with US national surveys of teleworkers, have demonstrated this finding, such that in 2017 the average teleworker was 46 years old, with telework being more common among employees over 35 than under, and being most common among baby boomers.[122] This may be due to millennials having higher rates of employment in entry-level occupations and service industries that allow for fewer telework opportunities. These patterns are present in the Los Angeles region, as the highest density of millennials is in Hollywood, Koreatown, Palms, and Sawtelle, while FWPs tend to be more concentrated in other neighborhoods.[123]

Driver 5: Burden of Supporting a Family

Table 22 presents household demographics with respect to the number of children and persons per household. As highlighted above, numerous studies have identified the burden of parenting as a driver for adoption of FWP. While that may be the case at the level of individual household variation within cities in the South Bay, the data in Table 22 suggest the opposite is true at the between-city level. Those cities with high levels of working from home, such as Hermosa Beach, Manhattan Beach, Palos Verdes Estates, Rancho Palos

Verdes, Rolling Hills, and Rolling Hills Estates, also tend to have relatively low numbers of households with children (especially households with children under 6 and single parents), and low numbers of people per household. This reflects the findings of a study in Ireland,[124] which found that working-from-home levels were higher in areas with more households of older and single individuals. This divergence between individual-level and location-level findings is an interesting dichotomy in the literature.

Table 22. South Bay Household Demographics

City	Total Households	% of Households with Children	% of Households with Children Under 6	% of Households with Single Parents	Persons per Household
Carson	25,248	30.8%	10.8%	9.2%	3.62
El Segundo	6,673	32.6%	13.5%	8.6%	2.38
Gardena	20,682	27.0%	10.1%	8.6%	2.88
Hawthorne	29,110	36.1%	15.9%	16.6%	2.99
Hermosa Beach	9,197	20.3%	8.6%	3.2%	2.08
Inglewood	36,580	32.1%	13.6%	15.8%	3.03
Lawndale	9,800	35.6%	16.7%	9.8%	3.43
Lomita	8,003	26.4%	11.3%	8.4%	2.54
Manhattan Beach	13,808	30.8%	12.3%	4.5%	2.55
Palos Verdes Estates	4,813	33.2%	8.7%	3.5%	2.70
Rancho Palos Verdes	15,771	29.3%	6.7%	4.3%	2.70
Redondo Beach	27,949	27.5%	12.2%	5.8%	2.33
Rolling Hills	637	25.3%	4.7%	1.1%	2.86
Rolling Hills Estates	3,009	32.0%	8.5%	2.5%	2.77
Torrance	55,114	29.5%	10.8%	6.0%	2.62

Source: US Census American Community Survey.

CONCLUSIONS TO PART I

To summarize Part I, research in the academic literature highlights both the benefits and limitations of FWP. Many studies have reflected the 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. However, other studies have highlighted that FWPs are not without downsides. While working from home can improved work-life balance of employees, some studies have highlighted concerns about feelings of isolation and challenges in separating home and work life. The research suggests that implementing FWP is most successful when based on a balanced approach to work and home life, creating appropriate workplace cultures and processes, and applying an iterative or problem-solving understanding of programs.

Baseline assessments of the commuting and FWP in the South Bay and Los Angeles County highlight the fact that travel times in the region have increased over recent years as the economy has expanded. While the majority of workers drive to work, some choose to substitute viable alternatives. Those more likely to use public transit tend to reside in lower income areas and areas with higher access to transit systems, though these numbers have declined in recent years. Carpooling has also declined in recently years, with carpooling employees tending to reside in regions that are more peripheral and tending to have a greater proportion of less-flexible occupations. The only alternative to driving alone that has increased in Los Angeles County in recent years is working from home. Working from home is most common in those peripheral areas where employees have higher levels of human capital; these employees are also more likely to have flexible occupations. Within the South Bay, there are important differences between coastal and inland areas of the South Bay in terms of the levels of traditional commuting and working from home. It is also notable that there are important differences between males and females, with females being more likely to work from home and carpool, and males being more likely to take public transit.

There are however notable limitations with the authors' analysis in this section. Data provided by the US Census and the California Household Travel Survey is limited in a number of ways relevant to this study. In particular, it would be helpful to policy makers to have more types of FWP more explicitly revealed in the survey results. It would also be particularly helpful if more disaggregated data in terms of both workers and residents within particular regions could be identified. Improved data would be beneficial to future research. A spatial-econometric analysis of the Los Angeles region with respect to changes in commute time, transportation mode, and the use of FWPs would be a notable contribution to the academic literature and could allow regional policy-makers greater insights into the location-based factors influencing flexible practice decisions. One notable addition to the literature here would be the incorporation of co-working spaces as a possible factor in employee decision making. Within Los Angeles, co-working spaces are clustered in the same coastal locations that also have higher rates of working from home. This raises important questions about what role co-working spaces are playing in the trends towards flexible workplace practices.

II. EXPLORING THE POTENTIAL FOR FURTHER FWP IMPLEMENTATION IN SOUTH BAY ORGANIZATIONS

In this section, the authors explore the potential for expanding FWP usage among South Bay organizations. Numerous expert elicitation focus groups were conducted across the South Bay region between October 2018 and January 2019. During these events, 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.

Scholars in the field of decision science developed the expert elicitation focus group[125] in order to estimate data points and distribution functions for information sets that are otherwise unavailable. For example, scholars have used this approach to estimate probabilities surrounding previously unobserved phenomenon, or to quantitatively estimate the consequences of extreme events, in a number of areas, from nuclear waste disposal and terrorism events to natural disasters and infrastructure failures.126 This approach falls under the broader research method of focus groups, as it allows for group dynamics and interactions to enter into the information gathering process. What sets this approach apart is the structured format, in terms of the information gathered and the types of exercises that participants engage in, as well as its use of experts. The authors have tailored the expert elicitation focus group approach to examine the obstacles to FWP expansion, as well as the limitations and tradeoffs of government programs and incentives. The experts are 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.

The focus groups all examine three key areas:

1. The current state of formal and informal FWP

2. The obstacles to and challenges of expansion of FWP

3. The potential for programs and incentives to assist in the expansion of FWP

The focus groups were conducted at a series of four events held between November 2018 and January 2019: 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. The main event consisted of information and discussion from keynote speakers and panelists about the 21st century workforce and productivity development, followed by the focus groups.

FOCUS GROUP PARTICIPANTS

These events aimed to feature participants that vary with respect to three factors: 1) different levels to which companies have implemented flexible work programs (ranging from limited and informal to formal and more extensive); 2) different occupations and roles within those companies; and 3) different sectors within the South Bay economy. Tables 23–25 indicate that the sample of participants represents all three factors well. While the sample is largely representative of South Bay organizations, some industry sectors and occupation levels could be captured better. The wholesale and retail trade, finance, and health care sectors are underrepresented compared to overall data for the South Bay region (see Table 23), while education and government are over-represented. Table 23 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.

Table 23. South Bay Employment by Sector

	Proportion of Workers Per Sector	
Industry 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%
Aerospace and Defense		7.7%
Other Manufacturing		5.8%
Wholesale Trade	4.8%	0.0%
Retail Trade	9.4%	0.0%
Transportation/Utilities	10.4%	3.8%
International Trade		1.0%
Other Transportation/Utilities		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%
Entertainment		4.8%
Sports Management		1.0%
Other Tourism and Hospitality		2.9%
Other Services	3.3%	
Arts		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 24. Focus Group Participant Workplace Use of FWP by Sector

	Respondent Workplace Use of FWP		
Industry Sector	**Count**	**%**	**Total**
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

Table 25. Focus Group Participant Use of FWP by Occupation Level[8]

		Yes		No	
Occupation Level	**Response %**	**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%

[8] "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.

FOCUS GROUP CONTENT

At each focus group, the participants went through the same set of questions and were given the same level of information before the administering of surveys and discussions. Survey materials are presented in Appendix A. 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:

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 facilitates 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.

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 FWPs 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.

FOCUS GROUP SURVEY RESULTS

As shown in Table 26, 70.2% of participants reported that their workplace uses some kind of FWP. This includes flexible schedules, the most popular, with 50% of participants reporting this approach being used in their workplace; telework with 34.6% of participants; and the use of co-working spaces, with 26.9% of participants. However, it is notable that when accounting for the number of workers using each approach within respondent's workplaces, the most popular was co-working spaces with 34.1%, followed by flexible start times with 16.2%, and finally telework with 14.5%. This paradoxical finding could be the result of the participant pool containing lower levels of executives and managers—who are more likely to have the flexibility to telework from home or co-working spaces—compared to regular employees. It is also possible that this finding is an anomaly, due to over-sampling of those using co-working spaces, as one of the focus groups was held at a co-working space and drew participants from their membership. That said, the South Bay region is on the forefront of this trend as an industry, so it is also possible that the region is also a pioneer in terms of using this practice as a workplace culture, and that the finding is genuine.

As reported in Table 27, when asked about organization policies regarding telework and telework, 35.6% of participants reported having no formal policy, with 19.2% reporting having an informal policy of some kind. When accounting for all responses, the average number of days per week that participants' organizations allowed for telework was 0.9. Of those participants with a formal policy, which is a small sample size, the largest number of responses is for 5 days per week, with 1 day per week the second largest response. This group is allowed to telework for an average of 3.3 days per week.

Table 26. FWP across South Bay Workplaces

Flexible workplace practice	Used in Workplace		Average proportion of workers at respondent's workplace using practice
	Count	%	
Telework	36	34.6%	14.5%
Flexible start times	52	50.0%	16.2%
Co-working spaces	28	26.9%	34.1%
Other	15	14.4%	
None	31	29.8%	
Total	104		

Table 27. Telework Policies across South Bay Workplaces

Telework Policy at South Bay Workplaces	Responses	%
1 day per week	4	3.8%
2 days per week	2	1.9%
3 days per week	2	1.9%
4 days per week	1	1.0%
5 days per week	6	5.8%
Average for above responses	3.3	
No telework	37	35.6%
Average for all above responses	0.9	
Informal policy	20	19.2%
Other	32	30.8%
Grand Total	104	

Obstacles to FWP Expansion

Table 28 presents the perceived obstacles to expansion of telework at workplaces for those participants working in organizations with FWP in place. According to these results, a lack of formal policies and a lack of training are the main barriers to further expanding telework where some FWPs are already currently in place. The results suggest 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 results imply that should organizations wish to expand their telework options, then creating formal policies and investing in training would remove the major obstacles to expansion.

Table 28. Perceived Obstacles to Expansion of Telework at Workplaces with FWP

	Not Important		Slightly Important		Moderately Important		Important		Very Important			
Current Obstacle	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**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 29 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,[127] 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 Eom and colleagues' framework)[128] 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 28, the ideas that workers are not interested in or resistant to change, or that HR/personnel resistance is a major obstacle is not supported here. However, it is important to note that these results are less robust than results in Table 28 given the smaller sample size.

One further caveat to the results in both Tables 28 and 29 is that our sample of participants includes more employees than managers or executives. While this is reflective of the economy as a whole, it also creates potential for the employee perspectives to overshadow the executives' perspectives in calculating these results. As was shown in Table 25, this is a more severe possibility for those workplaces currently without FWP (Table 29), as the employee category is more heavily represented in that sample (41.9% compared with 24.7% "employees" for organizations with FWP in place).

Table 29. Perceived Obstacles to Expansion of Telework at Workplaces without FWP

	Not Important		Slightly Important		Moderately Important		Important		Very Important			
Current Obstacle	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**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.

Potential Government Programs and Incentives

Tables 30 and 31 and Figure 17 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 30 and 31. 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. Within that set, training programs were seen to have the highest potential impact, while the other 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 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.

Table 30. Perceived Impact of Potential Government Programs and Incentives to Expand Telework

	No Impact		Low Impact		Moderate Impact		High Impact		Total	
Program or Incentive	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**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 31. Perceived Cost of Potential Government Programs and Incentives to Expand Telework

	Not Costly		Slightly Costly		Moderately Costly		Costly		Very Costly		Total	
Program or Incentive	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**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.

Key for Tables 30 and 31

Publicity campaign: Highlighting star companies promoting telework. Opportunity for individual press.

Public co-working spaces: Regional centers; workspaces in government facilities; credits for private co-working spaces.

Training Programs: Help companies to implement telework programs from start to finish.

Free cost audits: To determine potential and actual savings from telework programs.

Free managerial audits: To assess current managerial practices and develop appropriate telework strategies.

Free employee surveys: To assess the level of satisfaction, intention of leaving, level of trust and autonomy.

Tax credits, or stipends: Financial incentives.

Regulations: Teleworking mandates.

Figure 17 combines the perceived costs and impacts into a single chart. From the stand point of South Bay organizations, the preferred programs and incentives would be those that have relatively higher impacts and lower costs. Between the two more interventionist approaches, tax credits or stipends are perceived to be the most impactful while also having relatively lower cost to the organization. This does not take into account the cost to government and hence to the taxpayer, and it stands to reason that organizations would prefer to receive a benefit rather than experience regulations of some kind. Training programs and public co-working spaces are perceived to have similar costs, but training programs are perceived as notably more impactful. There is little difference between the options of free cost audits, free managerial training, and free employee surveys with respect to cost or impact. A publicity campaign is seen to be similar in impact to these, but slightly costlier.

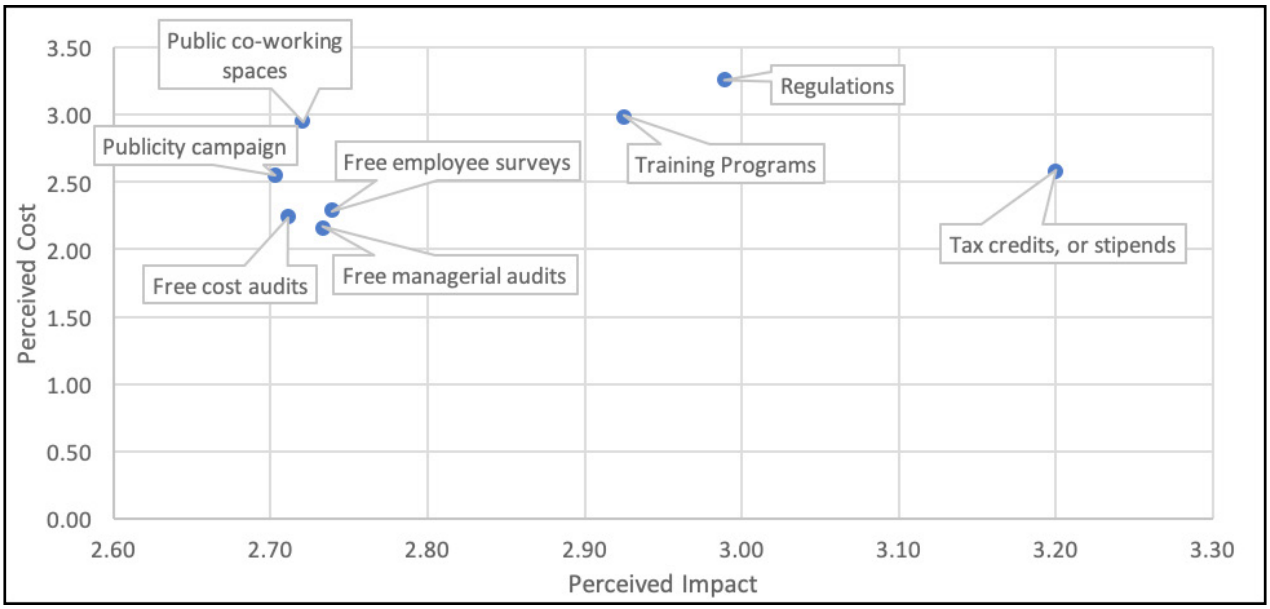

Figure 17. Average Perceived Impact and Cost for Government Programs and Incentives

Cost: 1 = Not Costly; 2 = Slightly Costly; 3 = Moderately Costly; 4 = Costly; 5 = Very Costly
Effectiveness: 1 = No Impact; 2 = Low Impact; 3 = Moderate Impact; 4 = High Impact

Table 32. Open-Ended Responses to Survey Questions

Focus group participants provided open-ended responses to the following questions:
What would your organization need to implement further telework or FWP?
Do you have any ideas that policymakers could implement to help or encourage organizations to have more telework?
Get approval from City Manager level to allow Human Resources to create policy and encourage Dept directors to identify positions that could be good candidates for telecommuting.
We already do it
It should have more flexible policies regarding teleworking creating the success stories for similar institutions.
Being a server, I can't imagine telework. But maybe management can handle office work from home.
It is flexible work, but my organization would not do telework because of the type of business it is.
Advertise it and provide adequate training programs in order to sustain productivity for those who work remotely.
We just need to report once a week for team meetings and once a month for firm meetings. We have webinars every so often that we need to attend and e-courses to take as required.
A miracle.
Buy-in. Some positions don't lend themselves to this.
Although telework is available, not everybody knows about it and the approval process is not clear and accessible.
Leaders/managers buy-in - perception that tax payer dollars is being wasted/mis-spent by government entities.
Technology set up in the home or use of co-working spaces.
Showing employee satisfaction surveys to show reactions to the idea of telecommuting, as well as just getting employees to try it out and see it if makes a positive impact on their work-life balance. All the ideas for the telecommuting options are there and all make sense and are very important. The real task is the change itself because humans are so resistant to change. The managerial resistance can be due to the managers being in the baby boom generation so this concept can be tough to grasp for them. Also, managers simply enjoy being in charge of people and telecommuting take that away from them in some aspect.
Implement policy - provide incentives.

Focus group participants provided open-ended responses to the following questions:
Healthcare not amiable to flex work concept within a formal organization. If outside formal organization; more flexible.
Tax credits/stipends that encourage removing employees from the office based on zip code analysis (e.g. encourage employees who commute >25 miles to office to complete remote closer to their residence).
Formal policy, more understanding, more flexibility.
Bulletproof technology, + proven examples of success in similar situation.
Tax credits or stipends in encouraging telework. Allow telework or flexible work available to all employees not select few; or options available due to their situation happening in their life.
Implement initiatives + Tax benefits to employers
Which positions could telework & which needed to come to the office. How managers would be able to check/ determine productivity.
Telework, we are running out of space & hiring many more employees this year. get our legislators connected to Businesses.
make it less costly, provide training & learning opportunities
equipment and connectivity for internet compatible productivity could be evaluated
Give solo independent contractors a lot of incentives, benefits. Offer work places to meet (common meeting rooms) Offer tax incentives for solo practitioners.
Keep up the great work!
Health care industry is heavily regulated and positions must be on site. Already doing flextime.
Government won't change quick
New technologies

FOCUS GROUP DISCUSSION

Based on the open-ended comments shown in Table 32, participants were in favor of policy incentives that provided resources for managerial training, training in general, and company-wide audits. Participants seemed to place an emphasis on the resistance to flexible workplace uptake as being internal and a consequence of managerial issues. Participants also seemed to favor publicity campaigns and financial incentives. Participants did not seem to favor policy incentives that included the provision of shared workspaces, regulations, or large-scale pilot programs.

The focus group discussions highlighted the complexity of FWP. There are multiple dimensions to the expressed preferences around this issue, which result from interactions between multiple actors—workers, managers, executives—with variable preferences and capabilities. These preferences sit at the intersection of numerous areas of study, including labor economics, management science, transportation science, and decision science.

Discussions revealed numerous layers to these preferences. The primary layer related to the occupation sector. Numerous focus group participants highlighted the limited opportunities for particular occupations to engage with FWPs. Many occupations require the individual to be present while undertaking the core functions of their position: for example, those engaging in manual labor, or those who interact with customers or the public in the workplace location. Technology is changing the nature of such positions, whether in the form of artificial intelligence or robotics, and in the future may enable greater levels of distance working for such occupations. However, it is notable that focus group participants did not raise these considerations.

Beyond occupation type, the employment level is a second important layer in flexible workplace practice decision making. In general, the higher the position within the organizational structure, the more autonomy and power employees have to influence decision making. That said, the workplace culture—as reflected in both the formal policies and the informal arrangements—and the interpersonal relationships between managers and subordinates could influence the expansion of FWP.

Our focus group picked up both sides of this influence. Many participants reporting that they did not have the sufficient autonomy to engage in FWPs, or that manager and/or executive resistance was the major factor in not implementing further telework. On the other hand, some participants reported about their positive experiences in being granted more flexibility, and attributed these opportunities to a more project-based workplace culture and trusting relationships with managers.

Among those focus group participants with little or no opportunities or experience with FWP, there were numerous questions and concerns raised about the efficacy of such approaches. In particular, there were concerns raised about their own productivity and that of their colleagues, and about the ability to keep the work practices accountable when direct supervision is limited or virtual in nature.

At the other end of the spectrum, there are numerous positions that have a long tradition of greater flexibility and autonomy. However, these positions do not necessarily imply more working from home or less transport. Occupations such as those in sales, brokerage, insurance, or entrepreneurial activity, are often highly flexible and away from the traditional office environment, yet may require large amounts of travel. Numerous focus group participants were engaged in these occupations and highlighted the workplace cultures that had developed around their activities, such as weekly conference meetings or regular reporting through online systems. Indeed, it is notable that in some discussions it was observed that the technological solutions developed for these positions are then used by more traditionally office-oriented positions to stay connected to the workplace. With the wide range of technological solutions and workplace systems available on the market, many of which are now integrated into human resources and personnel systems, obstacles to telework growth are fewer than ever before.

Those engaging in project-based work such as creative occupations, academics, consultants, or IT specialists are also more likely to have flexibility built into their schedules, and in some cases also have a long tradition of this approach. Numerous participants in our focus groups benefitted from such occupations. Working at home can be very effective when concentration is needed and work needs to be finished undisturbed. However, the notable talking points for these participants were that working from home presented numerous challenges. Working from home requires employees to be diligent, organized, and have the trust of their managers. Some reported that flexibility can become corrosive in terms of productivity, with single days taken “off” work during the week turning into more days per week. This in turn can contribute to concerns and anxiety about employees being left behind, on top of concerns about missing important informal interactions. Moreover, when more days are worked from home, other negative experiences can arise, such as loneliness or tensions around family interactions.

Focus group discussions also highlighted a third important layer to decision making around FWP: the type of organization. Public organization representatives in our sample worked in a range of organizations, ranging from small city administrations through to large county agencies. Smaller public organizations, such as city governments, appeared to have relatively limited flexibility and no opportunities for distance work. City government workers highlighted concerns from managers and elected officials around the perception of wasting taxpayers' money and around granting virtual access to potentially sensitive information. Public agencies with less political oversight appeared to have more flexibility and autonomy among their staff. The modes of work appeared to be more project- and grant-based, and so as long as productivity was high, the employees could adopt FWP. Large public agencies, i.e. those in the County of Los Angeles organization, had opportunities for FWP, but employees expressed that approval times were lengthy, that budget was a significant concern of managers, and that the technology used was limited.

For participants working in both public and private organizations, there was a clear consensus that flexible schedules such as "9/80"—80 hours spread across 9 days over a 2 week period—or "4/40"—40 hours spread across 4 days over a 1 week period—arrangements were more feasible than telework of some kind. Even participants from large organizations such as major government contractors were employing or trialing flexible schedules that enabled workers some time during the working week to spend with family, run errands, or do housework. These are more feasible because executives and managers can still monitor employees and productivity for the majority of the workweek.

In contrast, expansion of telework policies was seen to be less feasible for many participants' workplaces, especially as they require more implementation steps. Numerous participants saw telework as "far-fetched" or as something that would take a long time to realize. There would need to be policy change, technology roll-out, training for management and employees to ensure productivity and effective communications, identifying which occupations and tasks are appropriate for virtual work, addressing of issues such as insurance, liability and security, and shifting the workplace processes and culture. There was a perception among participants that while such changes could bring many benefits to workers and organizations alike, the implementation of complex virtual work processes would need to move slowly and organically to ensure a smooth transition. There was a feeling among many focus group participants that limited virtual working programs—such as 1 or 2 days per week—would be the most appropriate for their organizations.

While some participants reported thriving in the flexibility of their schedules, those with experience of co-working spaces highlighted the desire for a balance between flexible schedules and the structure and sense of professionalism and workplace that can be provided by a co-working space. Participants based at co-working spaces reported that working at home can be socially isolating, can generate anxiety and frustration, and can lead to lower levels of productivity, while attending co-working spaces provided an incentive to develop a routine and increase productivity.

The number of co-working spaces is growing rapidly, and, as revealed during the focus groups, their appeal is a combination of numerous factors in addition to the drawbacks of working from home. Participants reported that with the increasing price of office real estate,

organizations are looking for ways either to reduce their office space costs, or to expand without the costs of location search and not committing to long-term leases for office spaces. Moreover, co-working spaces allow companies to hire and monitor employees closer to their place of residence, wherever that might be.

Each of these discussed factors will likely influence the expansion of FWP across South Bay residents and organizations. The factors could be combined with those societal and workplace trends outlined in Figure 1 above to provide a broader picture of changes over time in FWP. Clearly, there are broader pressures on South Bay organizations to adopt more FWPs, as changes influence their industries, commercial and residential real estate prices increase, and a more flexibility-oriented workforce enters the labor force. As outlined in Part I above, there can be benefits to companies of adopting FWP, though our focus group discussions have highlighted some of the factors that might limit expansion of FWP.

For those participants with little or no experience of FWP, the primary obstacles for telework expansion were the lack of a formal policy. This concern was especially present in larger organizations and public organizations where the organizational structures are clearer and the policies more rigorous. While numerous participants were aware that some of their colleagues were able to take advantage of informal approaches taken by managers on a case-by-case basis, without broader policy changes within their organizations, significant further expansion would not be possible. It was noted in a number of focus groups that participants felt managers used the offer of or withholding of informal FWP as a tool of power. If organizations were to make policies formal, they would lose the power they had to provide incentives or attempt to influence subordinate behavior. Other participants highlighted another reason why many organizations do not formalize FWP: employers in hiring negotiations use them as bargaining chips. Informal use of FWPs on a case-by-case basis can hence be a tool to attract talent and provide the organization with an advantage in the hiring process.

With respect to potential government programs and incentives, many focus group participants saw tax credits and incentives as the most impactful. This was particularly popular among those who were self-employed or in small businesses, who saw the potential to use credits to deduct rental costs at co-working spaces or to invest in information and communications technology to facilitate productivity and the monitoring of work and productivity levels from a distance.

CONCLUSIONS TO PART II

To summarize, the authors conducted numerous expert elicitation focus groups across the South Bay region between October 2018 and January 2019. During these events, participants completed surveys about current FWPs in their organizations, as well as about 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 further detail surrounding the responses could be provided and trade-offs between different preferences could be considered.

Flexible schedules were the most used by participants, while co-working spaces were the most used on average by participants' colleagues. Only 14% of participants worked for organizations with a formal telework policy, and that group averaged 3.3 days of working from home per week. Thirty-six percent of participants worked for organizations with no policy, and when these two groups were combined, they averaged 0.9 days per week of working from home. Nineteen percent of participants reported an informal policy being used in their workplace.

Participants without FWP in their workplaces perceived the primary obstacles to expansion of FWPs in their organizations to be a lack of training and a lack of formal policy in place. In line with previous literature, participants without FWP in their workplace perceived the major obstacles to expansion to be a combination of managerial resistance, executive resistance, and occupational constraints. Focus group discussions suggested that managerial and executive resistance came from a number of sources. Some employees without flexibility highlighted workplace power dynamics, seeing manager resistance as an attempt to retain oversight or to use the provision of special treatment as a transactional reward. Other employees highlighted occupational constraints and concerns over information security and workplace cohesion. Among employees with flexibility, some were wary of working at home too much due to challenges in balancing family life, maintaining productivity, and remaining connected with colleagues. Managers and executives were generally open to more flexibility, but stressed that the success of such flexibility was variable: some employees were better than others at working with this structure, and some types of work, especially project work, were the most appropriate for work outside the office.

Participants perceived government subsidies and incentives to provide a good balance of costs and impacts, seeing them among other things as a way to encourage the use of private co-working spaces, which offer a market solution that combines the benefits of virtual working with the benefits of 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 FWP, for example when used to subsidize co-working space rental, or to subsidize the communications and human resource management systems required to implement FWP effectively. Among the less interventionist approaches, training programs were seen as the most impactful, without being the most costly.

In terms of limitations to this study, the authors acknowledge that, while the sample for this project—104 South Bay employees, managers, and executives—is of a good size and largely representative of South Bay occupational and industry statistics, the sample would ideally be larger and have more participants from the executive occupation level. In particular, it would be beneficial to include more participants from the sectors of wholesale and retail trade, financial activities, and health care. In terms of future research, it would be preferable to iterate the focus group approach to incorporate results from this project, and hence engage participants in discussions around policy and programmatic trade-offs with reference to prior responses.

III. POLICY RECOMMENDATIONS, INFORMATIONAL MATERIALS, AND WORKFORCE DEVELOPMENT TRAINING PROGRAMS

Based on a combination of baseline assessments, literature review, expert interviews, and expert elicitation focus group survey and discussion results, the research team have developed a series of program and incentive recommendations to promote telework in the South Bay region. This section presents recommendations first, followed by a summary of training materials developed by the research team. Following Part III, the authors provide two appendices: Appendix A replicates the materials provided to focus group participants; Appendix B replicates materials provided to conference attendees.

SUBJECT MATTER EXPERT INTERVIEWS

In addition to conducting surveys and focus groups, the authors interviewed several well-known experts in the field of telework to get their feedback on the proposed policy incentives. Experts included:

- Jack Nilles: Director of JALA International, a telework consultancy; former President of the International Telework Association & Council.
- Elham Shirazi: Principal, e-planning, a telework consultancy.
- David Fleming: Telework consultant.
- Evelyn Gutierrez: Developed Los Angeles County's telecommuting program; now a Commissioner for the County's Quality and Productivity Commission.
- Patricia Mokhtarian: Susan G. and Christopher D. Pappas, Professor & Group Coordinator respectively, Transportation Systems Engineering, Smart Cities, Sustainable Communities, University of Georgia.
- Wally Siembab: Research Director, SBCCOG.

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.

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.

One expert suggests that regional leadership would be necessary for such a telework campaign to be effective on a broad scale and over a long period. In the South Bay region, the easiest, most cost-effective way of introducing such an organization would result from collaboration between the SBWIB and the SBCCOG. The SBWIB is most likely to secure grant support, as well as capable of adding telework marketing and training to their current services. A SBWIB/SBCCOG-based telework service could serve as an infrastructure component for accelerating telework practice that could potentially be expanded countywide. This sub-regional organization could be responsible for marketing, acquiring and delivering resources, and identifying the program's needs for reach and sustainability.

The experts unanimously pointed to manager training as the first step in flexible workplace practice promotion. Traditionally, worker accountability in large bureaucracies is measured by attendance, appearance, and personality instead of performance. Training management 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.

One expert suggests that once attention has been brought to a program by presenting the applicable incentives, providing free cost/benefit audits and telework training is key to getting the program accepted. Such audit programs should be looked for in the private consulting sphere of business organizational development, where they may already exist. A possible downside to these audits, however, is the possibility of their revealing deep-

seated issues with an organization's company culture. The possibility of encountering said weaknesses can develop friction between a company and the telework program as a major shift in company culture is never an easy task. Such a possibility might also make companies less likely to accept audits in the first place.

RECOMMENDATIONS

Our recommendations vary depending on the broader goals and resource constraints of government agencies. Many government offices, especially at the local level, work within resource-constrained environments and yet are interested in promoting workforce development, facilitating local economic growth, and improving the welfare of local residents and workers. Within this context, our findings from surveys, focus groups, and interviews suggest that less-interventionist approaches be implemented, especially: promotional campaigns to encourage organizations and employees to adopt FWP; the facilitation of co-working spaces and workspace exchanges; and workforce training programs for employees and managers to get the most out of FWP. With this in mind, the authors have created numerous promotional materials and training programs that can be used to better inform South Bay organizations about the potential for and implementation of FWP. Government offices can also play an important role as a leader in this area. Educational occupations are the most likely to work from home in Los Angeles, and administration leadership at public schools and colleges should engage in more innovative efforts to expand FWP opportunities beyond faculty members at higher educational institutions. Other public agencies can provide leadership by employing innovative ways to implement FWP, including telework facilities exchanges between local public organizations.

Similar approaches have been trialed before. The Telework Facilities Exchange (hereafter "Exchange"), initiated by the Institute for Local Self Government and funded by the SCAQMD, tested the idea that telework could be expanded by providing government employees with low- or no-cost remote work opportunities using available/open government workstations near their home. Effectively, the program matched employees who were interested in telework (and whose employers were willing) with government agencies and facilities that had an inventory of available or underused workstations. There were no direct costs involved for either the teleworker or for their workstation "hosts".

The Exchange proved very successful, although it was limited by the technological standards of the early 1990's. A list of both host organizations and potential teleworkers was established with 23 organizations agreeing to serve as a host facility. The demand for the use of these workstations was filled from a pool of 220 individuals who had signed up for the program. Eventually, over the course of the study, 31 trained and approved public employees made their way to successfully working at one of the Exchange workstations. The study proved that there was a market niche for facilities-based telework using available public sector workstations by public sector employees (both within and between) different government agencies. The Exchange demonstrated that there was a surplus of unused or under-used workstation inventory (desks/computers/phones) that could be matched with teleworkers who would rather work at a facility than work from their home.

Local economic growth and improved productivity are not the only goals that can be achieved through FWP. FWP and telework in particular remain a cost-effective approach to reducing commute-related emissions. Hence, if governments within the region wish to implement programs that have a significant impact in terms of emissions and congestion reductions, then they should pursue FWP-promoting initiatives. These could include investment in major programs to identify and implement FWPs for organizations and engage in ongoing promotional campaigns. Governments could also engage in efforts across the Southern California region to create and support telework facilities exchanges, which could also provide secure office space rental and exchange to both public and private users. Another option is to expand SCAQMD mandates to organizations employing fewer than the current threshold of 250 employees. Incentives and tax credits for workforce training and program implementation may also be needed to achieve broader climate action and local pollution targets. Such efforts could be part of a broader program to engage in telework expansion in anticipation of the Olympic Games, which will be coming to the Los Angeles region in 2028 and are likely to impact traffic congestion.

BEST PRACTICES

Lessons From The Feds

The US federal government has been vigorously promoting telework for decades. Telework has been encouraged through laws passed by Congress and Presidential Administration mandates such as the Telework Enhancement Act signed by the Obama Administration.

One of the reasons telework is emphasized by the federal government is that it increases administration resiliency in the face of weather storms or other calamities. It also provides work opportunities for military dependents, increases digital government, and is a hiring practice that competes with the private sector in securing talent. Federal leaders want the federal government to be an excellent employer, an employer of choice, and a top performing organization.

An increasing percentage of federal workers are becoming eligible for telework and an increasing percentage are participating. As Table 32 shows, the share of all employees opting for telework grew from 14% to 22% from 2012 to 2016—an increase of 8 percentage points. In 2016, 37 out of 85 agencies participated in telework programs, a 10% increase in agency participation from the year before.[129] According to the program evaluation, the program increase was due to desires to avoid disruptions, decrease commutes and continue operations.[130] The majority of the telework was occasional at close to 50% of the teleworkers working remotely 1 to 2 days a week. Some federal offices such as the Patent and Trademark Office, The General Service Administration and the Treasury Department have adopted strong telework programs.

Table 33. Federal Government Telework Eligibility and Participation, 2011–16

Years	Percent of Employees Eligible	Participation as a Percentage of All Federal Employees	Participation as a Percentage of Eligible Federal Employees
2011	33%	N/A	N/A
2012	47%	14%	29%
2013	45%	17%	39%
2014	44%	18%	42%
2015	44%	20%	46%
2016	44%	22%	51%

Source: United States Office of Personnel Management (2016) "Status of Telework in the Federal Government" Report to Congress FY 2016.

Most federal survey participants see telework as positively associated with stress, morale, retention, productivity and the environment.[131] Several studies have shown that telework increases job satisfaction in federal agencies.[132] As Sharon Wall, Regional Commissioner for the GSA Federal Acquisition Service puts is, "Telework can help uncover management weaknesses". Furthermore, Martha Johnson, former GSA Administrator, claims, "Telework is a way to take the pulse of the management environment of an organization. It highlights very basic things such as trust, communication, collaboration. It's an excellent way to surface the critical issues for organization change/reinvention".

In fiscal year 2016, the Department of Labor was able to reduce the average of 230 commuting days per employee to 196.3 from the previous year for their 15,851 employees.[133] In addressing hurdles, the federal surveys indicate that managers are the biggest obstacle to telework implementation, together with a lack of organizational support and culture. Few federal government managers allow telework, and the majority would not even consider it.[134] Managers often resist managing via a results-based system and prefer a 'watch over the shoulder' system as they are afraid to lose sight of their employees. Many federal managers stated that their employees already have low productivity and fear their productivity would be even lower outside of the office.

Managerial focus often lies on those who are not performing, which is a problem of the individual and may not be simply a factor of telework. Managerial resistance comes from the inability to address low performance as well as challenges in developing a culture rewarding high performance. As Latte Bailyn, MIT Professor of Management and Co-Director of the MIT Workplace Center, argues, "Rather than organizing work around the needs of the task, in most American companies the work gets organized by means of the cultural expectations surrounding time…somehow one must always be at work, even when the job may not require it".[135]

Professor Patricia Mokhatarian at Georgia Tech, a telework expert, identifies manager retraining as the first step in the adoption process. The key to long-term success lies in training managers in effective communication, in how to set measurable goals, in monitoring progress, and in making mid-course corrections. Studies of private organizations have shown that having a formal teleworking policy or program stimulates favorable managerial behaviors. In addition, when telework is presented as a productivity enhancer rather than a personal-life enhancer, managers are more willing to adopt practices.[136]

A relevant case study is that of Los Angeles County's Telecommute Program. In an interview Evelyn Gutierrez, former manager of this program, gave the following summary:

> In 1989, Mike Antonovich, Supervisor LA County 5th district, wanted to explore reducing travel through telecommuting because many county employees were located all over the county. A countywide departmental program was developed. The program started out with 78 participants and today has over 5,000. The main barriers to implementation included management. The program developed management training that focused on productivity and documentation of outcomes rather than 'widgets'. It was stressed that presence doesn't equate with productivity. The program also devised incentives in the form of county purchases. LA County's telecommute program has substantially reduced miles driven for work and sick days. Employee morale and productivity increased along with program adoption." (Evelyn Gutierrez, June 3, 2018)

Other Obstacles

The main obstacle detailed in the literature are managerial resistance and the lack of a formal organizational telework policy and culture. Other obstacles include isolation, lack of socialization, and lack of suitable space, fears of missing career opportunities due to less presence in the minds of co-workers, envy of co-workers who are allowed to telework, a lack of necessary infrastructure, and collaboration difficulties. Factors such as information undersupply, autonomy and isolation can also increase telework burden.[137]

TELEWORK TRAINING RESOURCES

In light of the recommendation for managerial and employee training for success in FWP, the authors have produced a series of materials with which to educate South Bay citizens on available training programs. In addition, a module titled "The Flexible Workplace: Working in the 21st Century" was added to the SBWIB's work readiness class, called Blueprint for Workplace Success, comprising its Chapter 10. This module and other training materials accompany this report.[138]

In addition, various promotional materials were added to website hosted by the South Bay Workforce Investment Board to promote telework in the region.[139]

The following is a list of publicly available telework resources including manager training materials, courses, and webinars.

Federal Government

The federal government has made several legislative commitments to implement telework across federal agencies. The US Office of Personnel Management (OPM) hosts a website of resources to help federal managers and employees understand and implement telework.[140]

Materials offered include courses for employees to determine whether or not telework is the right fit and strategies for teleworking efficiently. Also offered are courses and webcasts for management training that promote the benefits of telework and walk managers through the process of developing a program.[141]

The Federal Government's 'One-Stop' Human Resources Career Development Center provides a training and resource center for human resource practitioners and agency managers regarding work-life in the Federal government.[142]

General Services Agency

The General Services Agency (GSA) an independent agency that provides assistance to the federal government including disaster recovery products and services. The GSA offers telework resources including guidance documents and management courses.[143]

Minnesota's e-Workplace

E-workplace is a program to help introduce Twin Cities metro area employers to telework and its benefits. Free training resources are available including a Telework Toolkit.[144]

Results-Based Management Resources

A typical preoccupation of managers is that if they 'can't see' their employees, the employees are less likely to produce work. Results-Based Management focuses on measuring an employee's contribution by the work-products generated rather than the time spent at work. This provides many benefits to employees in terms of autonomy, control over time and better time-management. The following are a few resources on Results-Based Management.

- *Global Workplace Analytics* White paper titled "The Key to Unlocking Talent and Increasing Productivity" (2010). The document provides an argument for shifting management styles to results-based, methods of implementation, and case studies.[145]

- *UN Habitat* UN habitat provides a results-based management handbook.[146]

- *E-work* E-work hosts webinars on measuring and mapping collaborative performance, implementing change, and measuring impacts.[147]

APPENDIX A: FOCUS GROUP MATERIALS

What are flexible work practices?

Flexible work practices include:

- Telework or Telecommuting, such as working from home, or some other location outside the office.
- Co-working spaces, with companies using spaces either as headquarters or occasional facilities.
- Flexible hours, such as 4 x 10-hour days.

Telework: Who Benefits?

Benefits of Telework

For the first time in over 4 decades, there are more jobs than workers to fill them. In order to compete for labor, organizations will need to become competitive. It is estimated that there will be a shortage in workers with college and graduate degrees for the US by 2020 and globally by 2030. Offering flexible workplace practices is one such strategy.

Recruitment, Satisfaction & Productivity

- Only a small percentage of employees (13%) are engaged at work.
- For many employees surveyed, job flexibility is critical to satisfaction and quality of life.
- Telework enhances positive well-being, satisfaction, and creativity with work. It increased productivity because it reduces distractions.
- Telework is seen as the top recruitment strategy for groups aged 25 and younger, and groups aged 26–40.
- Employers cite that the main reasons for offering telework options are to increase employee morale and recruit and retain employees.
- Telework decreases absenteeism.

CASE STUDY: Ctrip

Researchers at Stanford University conducted a before/after study with a Chinese travel website, Ctrip. After implementing a Work at Home program:

- Worker performance increased 22% along with worker satisfaction.
- Sick days plummeted and work at home individuals quit at half the rate as those in the office.
- Ctrip saved $1,900 per employee for 9 months.

Flexible Workplace Program **Productivity** Success Stories

- British Telecom homeworkers are 20% more productive and reduce absenteeism by 64%.
- 95% of AT&T employees and managers agree that they are more productive when working at home.
- The US Air Force's Central Adjudication Facility saw a 55% increase in productivity from teleworking.
- The city of Ottawa during a year-long telework pilot found that case closing time went from 90 days to 15.
- The US Patent and Trademark Office's productivity increased 10% through telework.
- Through its flexible work program, Best Buy's average productivity increased 35%, and Dow Chemical had a 32.5% increase.
- American Express telecommuters handled 26% more calls and produced 43% more business.

Costs

- The average cost of unused space is $25 or more per square foot.
- The average cost to replace an employee is 1/3 the annual salary of a new hire.
- Telework decreases costs associated with re-hiring and re-location.
- Employees save costs associated with commuting and being at work.

Flexible Workplace Program **Cost** Success Stories

- IBM saves $450 million a year in reduced facility infrastructure and associated initiatives.
- Deloitte LLP was able to reduce office space and energy costs by 30%.
- The US Patent and Trademark office was able to increase its workforce from 6,000 to 10,000 without increasing office space saving them $19.8 million in real estate costs.
- McKesson Health Solutions saved $1 million/year in real estate costs.
- Unilever reduced its office space by 36% and saved 40% on leases and maintenance.

Obstacles

- The number one obstacle to telework mentioned in the academic and practice literature is Manager Resistance. Managers are reluctant to 'manage from afar.'
- Other obstacles include lack of socialization for the employee and career fears from being out of sight.
- Other employer obstacles include lack of organizational culture around flexible workplace practices, security and infrastructure issues.

"Telework can help uncover management weaknesses."
Sharon Wall, Regional Commissioner, GSA Federal Acquisition Service, New England Region

"Telework is a way to take the pulse of the management environment of an organization. It highlights very basic things such as trust, communication, collaboration. It's an excellent way to surface the critical issues for organization change/reinvention."
Martha Johnson, former GSA Administrator

Section 1: Background information

1. What is your occupation level?

- [ ] Business Owner
- [ ] HR or Personnel
- [ ] Executive
- [ ] Employee
- [ ] Manager
- [ ] Other (please specify)

2. Which sector do you work in?

- [ ] Aerospace and Defense
- [ ] Government
- [ ] Manufacturing
- [ ] Technical Services
- [ ] Entertainment
- [ ] Retail Trade
- [ ] Sports Management
- [ ] Tourism and Hospitality
- [ ] Arts
- [ ] Real Estate
- [ ] Health Care
- [ ] Construction
- [ ] Education
- [ ] Wholesale Trade
- [ ] International Trade
- [ ] Transportation and Utilities
- [ ] Natural Resources
- [ ] Financial Activities
- [ ] Professional/Business Services
- [ ] Other (please specify)

3. Does your workplace use some kind of flexible work practice? This could include strategies such as flexible hours, telework/telecommuting, or use of co-working spaces.

- ◯ Yes
- ◯ No

If you answer “Yes”, please go on to Question 4. If you answer “No”, please skip to Question 10 (Page 8).

Section 2: Current flexible workplace practices

4. Which of the following flexible workplace practices does your company use?

- [ ] Telework/telecommuting
- [ ] Co-working spaces
- [ ] Flexible start times
- [ ] Other (please specify)

5. Please estimate what proportion of workers use telework or work from home in your workplace?

0% 100%

6. How many days of working from home per week does your company allow?

- ( ) 1 day per week
- ( ) 4 days per week
- ( ) 2 days per week
- ( ) 5 days per week
- ( ) 3 days per week
- ( ) Informal policy
- ( ) Other (please specify)

7. Please estimate what proportion of workers use co-working spaces in your workplace?

0% 100%

8. Please estimate what proportion of workers can adjust their start/end times (i.e. use flexible hours) in your workplace?

0% 100%

Section 3A: Obstacles to telework expansion

9. Of the current obstacles to the expansion of telework programs, which are more or less important? Please score on a scale of 1-5, where 1 = not important and 5 = very important.

	1 = Not important	2 = Slightly important	3 = Moderately important	4 = Important	5 = Very important
No formal policy in place					
Lack of prior success					
Lack of awareness					
Lack of interest					
Lack of training					

Other (please specify):

After answering, please skip to Question 11.

Section 3B: Obstacles to telework expansion

Only respond if you answered "No" to Question 3.

10. Of the current obstacles to the expansion of telework programs, which are more or less important? Please score each obstacle on a scale of 1-5, where 1 = not important and 5 = very important.

	1 = Not important	2 = Slightly important	3 = Moderately important	4 = Important	5 = Very important
Executive resistance					
Manager resistance					
HR/Personnel resistance					
Worker resistance					
Not feasible given occupations within company					
No interest					
Too expensive to implement					

Other (please specify):

Section 4: Potential government programs

In this section, we will be asking questions about different potential government programs and incentives that might stimulate expansion of flexible work practices.

Definitions of government programs and incentives

Publicity campaign:

This program would create publicity in the form of commercials and print advertisements that highlight star companies such as Google who employs flexible workplace practices. The publicity would promote the benefits flexible workplace practices 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 facilitates 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 allow organizations and employees office and meeting space while also reducing 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, and performance-based supervision among others.

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 to assess employee needs, levels of satisfaction, and the potential for flexible work practices.

Free managerial audits and training

Often when telework is implemented it reveals managerial weaknesses. Managerial audits would help an organization understand their current practices and the weaknesses that might be present before flexible workplace practices are implemented. Alongside the audit would be training programs for organizations.

Expansion of current regulations

These programs would impose flexible workplace practices 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.

11. For the following government programs and incentives, please estimate how effective each would be at increasing teleworking your organization?

	1 = No impact	2 = Low impact	3 = Moderate impact	4 = High impact
Publicity campaign				
Public co-working facilities				
Training programs				
Free cost audits				
Free employee surveys				
Free managerial audits				
Regulations or mandates				
Tax credits or stipends				

Comments:

12. For the following government programs and incentives, please estimate how costly each would be to *your organization*? Please note that this should not consider the costs borne by the government, but focus on any administrative, investment, or labor costs that your organization might face, even if the program is free of charge or includes a tax incentive.

	1 = Not costly	2 = Slightly costly	3 = Moderately costly	4 = Costly	5 = Very costly
Publicity campaign					
Public co-working facilities					
Training programs					
Free cost audits					
Free employee surveys					
Free managerial audits					
Regulations or mandates					
Tax credits or stipends					

Comments:

13. What would your organization need to implement further telework or flexible work practices? Do you have any ideas that policymakers could implement to help or encourage organizations to have more telework?

APPENDIX B: GO-VIRTUAL CONFERENCE PRIMER

Welcome to the 21st Century Workforce conference!

This conference is sponsored by the California State University Transportation Consortium and the South Bay Workforce Investment Board, and has been organized by the South Bay Economics Institute at CSU Dominguez Hills and the South Bay Cities Council of Governments.

At this conference, we will explore:

- **Trends shaping the future workforce and workplaces.**
- **Current problems and opportunities facing employers and workers.**
- **Strategies and policy solutions to improve productivity and attract talent.**

You may be asking some of the following questions.

What is the connection between transportation, commuting, & the workplace?

The workplace is changing. The way in which employees travel to and connect with workplaces is changing also. As flexible workplace practices are introduced, commutes are reduced, leading to benefits in terms of congestion and the local environment.

As highlighted in *GO-Virtual South Bay: A Primer on Flexible Workplace Practices*, numerous strategies—such as telecommuting, working at home, and using co-working spaces—will be increasingly employed by businesses and organizations in

order to improve productivity, reduce real estate costs, and attract talented employees.[148] Each of these changes will lead to unique impacts in terms of transportation, commuting, network connectedness, workplace design, and working practices.

What forces are driving changes in workplace and commuting practices?

Figure B1 presents some of the societal trends influencing changes in the 21st Century workplace. As the South Bay economy continues to move towards innovative service industries and emerging sectors, technological advancements such as Artificial Intelligence (AI) and Blockchain will continue to transform the workplace.[149] Generational changes in the workforce will also see employees, especially those of younger generations, demand flexible and mobile workplaces that allow for a greater work-life balance.[150] Rising real estate prices will encourage businesses to reduce their footprint and employees to demand remote work.

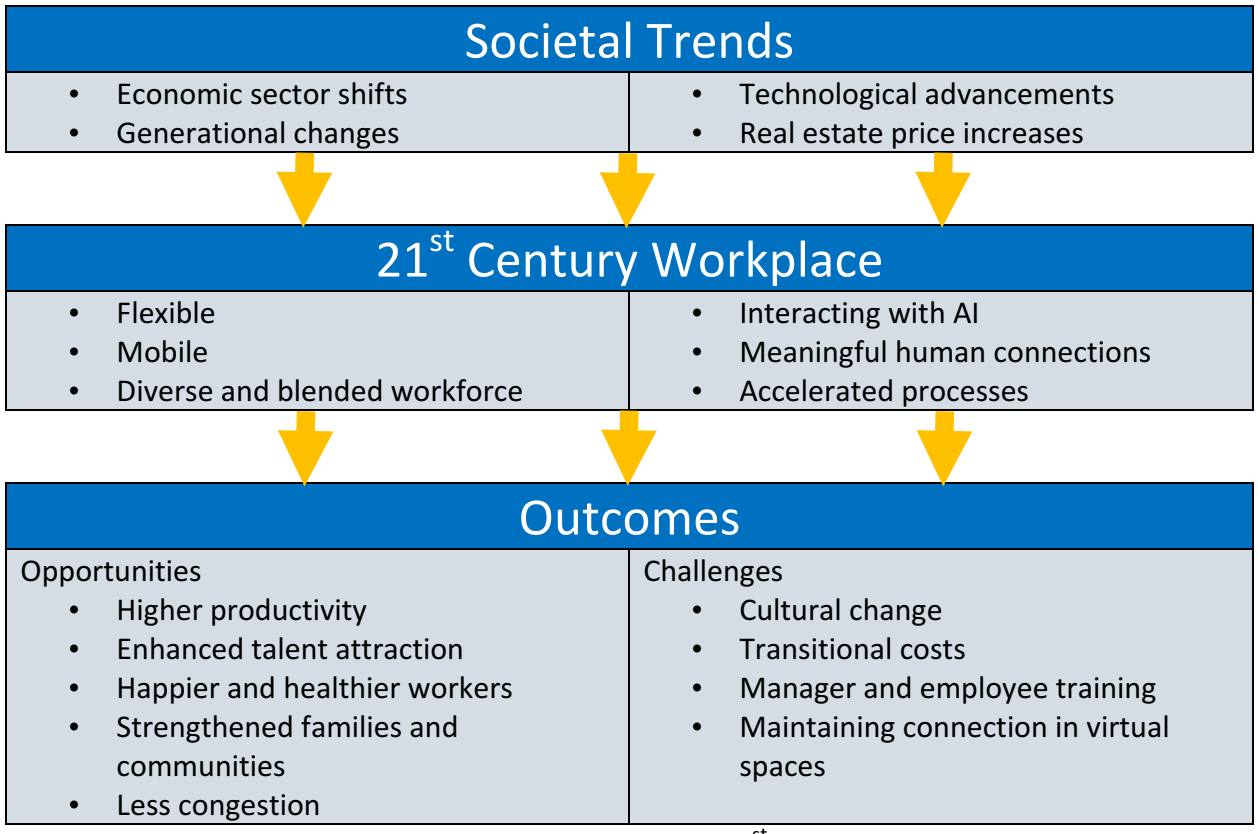

Figure B1. Causes and consequences of changes to the 21st Century workplace

What will the "21st Century Workforce" look like?

Most commentators agree that the future workforce will be increasingly mobile, diverse, and connected across numerous geographies. This workforce will use multiple communication modes and tools to complete projects collaboratively. The future workforce will also use an increasingly sophisticated range of productivity tools and AI mechanisms, and yet doing so will require greater critical thinking and emotional intelligence skills in order to maintain meaningful human connections with customers, collaborators, and clients.[151]

It is notable that already 57.3 million people freelance in the US, and this workforce grew at a rate 3 times faster than the overall workforce. Nearly half of working millennials freelance, and within 10 years the majority of US workers will be freelancers.[152]

What will the "21st Century Workplace" look like?

The architecture and design firm Gensler sees a "next-gen" workplace emerging.[153] As the younger generation hits the workforce, workspaces will be transformed—office blocks and campuses will blend with the city and local communities. Co-working spaces will continue to scale up and diversify, and "smart" environments—both cities and workplaces—will develop and be enhanced by AI. In addition to the creation of facilities that enable mobility and flexibility, consultants ISG see a future workplace that will empower users and provide a "weekend experience during the week".[154] Cities and employers will need to work together to attract young and creative talent.

Why aren't more people working from home?

As highlighted in *GO-Virtual South Bay: A Primer on Flexible Workplace Practices*, the percent of residents working from home in South Bay Cities increased by only 0.5% between 2009 and 2016, to a total of 5.1%. If we look at the bigger picture, overall there was relatively little change in commuting patterns during this period. Between 2009 and 2016, public transit use increased by 0.3% and mean travel time to work increased by around 1 minute. It may be that instead of allowing remote working, companies and organizations are encouraging flexibility start times and other practices such as the use of co-working spaces.

The growth in co-working spaces has been remarkable, both in the US and worldwide. 542,000 people worked in co-working spaces in the US in 2017, a number expected to double over five years. [155] Over the past ten years, co-working space has grown from 40,000 square feet to 26.9 million square feet, and is currently 1.2% of office space in the major markets.[156] In 2018, 3 million square feet of flexible workspace were added worldwide. By 2022, it is expected there will be 30,000 co-working spaces worldwide.[157]

What's happening in the South Bay?

The South Bay Cities Council of Governments, South Bay Workforce Investment Board and CSU Dominguez Hills among others are working to guide policy and programming around flexible workplace practices. One major approach is to improve internet connectivity with the South Bay Broadband Initiative. The Workforce Investment Board and CSUDH are collaborating on efforts to train and retrain the future workforce in specialist areas such as Blockchain and Six Sigma. Co-working spaces are thriving in the South Bay. Here are some of the options in the current market place:

BizHaus	1730 E. Holly Ave, El Segundo, CA 90245 (310) 870-1730	Flex/Open Desk $175-$275/mo Dedicated Desk $375+/mo
CrossCampus	840 Apollo Street, Ste 100 El Segundo, CA 90245 (424) 325-6212	Hot Desk $350/mo Reserved Desk $550/mo
El Camp	2150 Park Pl #100, El Segundo, CA 90245 (442) 224-3702	Cafe Membership $300/mo Dedicated Desk $575/mo
nuwork	618 Cypress Ave #201, Hermosa Beach, CA 90254 (310) 374-4300	Dedicated Desk $375/mo
Social Workplace	2315 Lomita Boulevard, Ste 200 Lomita, CA 90717 (888) 432-7624	Social Desk $265/mo Reserved Desk $365/mo
WeWork	1240 Rosecrans Ave #120, Manhattan Beach CA 90266 (646) 491-9060	Hot Desk $175-$275/mo Dedicated Desk $375+/mo

This table aims to provide a brief comparison of some company prices for solo workers. Prices are those publicized on company websites as of January 2019. Other pricing and payment schedules are available. Please contact companies for specific quotes.

ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
AQMD	South Coast Air Quality Management District
CHTS	California Household Transportation Survey
FWP	Flexible Workplace Practices
GSA	General Services Agency
ICT	Information and Communications Technology
OPM	US Office of Personnel Management
SBCCOG	South Bay Cities Council of Governments
SBWIB	South Bay Workforce Investment Board
South Bay	The South Bay Region of Los Angeles County
VMT	Vehicle-Miles Traveled

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