

Work-From-Anywhere: The Productivity Effects of Geographic Flexibility

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An emerging form of remote work allows employees to *work-from-anywhere*, so that the worker can choose to live in a preferred geographic location. While traditional work-from-home (WFH) programs offer the worker temporal flexibility, work-from-anywhere (WFA) programs offer *both* temporal and geographic flexibility. WFA should be viewed as a nonpecuniary benefit likely to be preferred by workers who would derive greater utility by moving from their current geographic location to their preferred location. We study the effects of WFA on productivity at the United States Patent and Trademark Office (USPTO) and exploit a natural experiment in which the implementation of WFA was driven by negotiations between managers and the patent examiners' union, leading to exogeneity in the timing of individual examiners' transition from a work-from-home to a work-from-anywhere program. This transition resulted in a 4.4 percent increase in output without affecting the incidence of rework. We also report results related to a plausible mechanism: an increase in observable effort as the worker transitions from a WFH to a WFA program. We employ illustrative field interviews, micro-data on locations, and machine learning analysis to shed further light on geographic flexibility, and summarize worker, firm, and economy-wide implications of provisioning WFA.

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A nonpecuniary incentive that has attracted a lot of recent attention is the provisioning of remote work. Even prior to the forced adoption of remote work during the COVID-19 crisis, the question of how remote work affects productivity has been at the center of a managerial debate. Notwithstanding a few high-profile retreats from remote work by companies like Yahoo! and IBM (Simons, 2017; Swisher, 2013), many organizations, such as Amazon, Apple, American Express, and Glassdoor, offered remote work programs even prior to the COVID-19 crisis (Glassdoor, 2019).

In this paper, we shed light on an emerging, important, and yet understudied form of remote work—*work-from-anywhere* (WFA). Here, workers are no longer required to live in the same geographic location as the firm and have greater flexibility to choose where to live. Organizations with WFA policies include GitLab, Akamai, GitHub, Zapier, NASA, and DataStax, among others (Choudhury & Salomon, 2020; Fatherly, 2016; Glassdoor, 2018; NASA, 2018; Reynolds, 2019). However, to the best of our knowledge, there is no research on the productivity effects of WFA policies. Prior research has focused on work-from-home (WFH) and the effects of moving the worker from one workspace (within the firm’s office), to an alternative workspace (within the home of the worker, typically in the same geographic location as the firm’s office).⁴ In contrast, the unique nonpecuniary benefit of WFA to the worker is the *choice to live anywhere*.

Previous research in remote work has identified how conventional WFH programs benefit individual productivity via reduced commute times and fewer sick days (Bloom, Liang, Roberts, & Ying, 2015), which can be attributed to increased *temporal flexibility* (Evans, Kunda, & Barley, 2004). WFH also allows workers to control ambient workspace elements such as clothing, layout, music, ventilation, etc. (Gajendran & Harrison, 2007). WFA goes further by eliminating the traditional link between the geography of home and company location, resulting in *geographic flexibility*, in which a

⁴ One of the comprehensive literature reviews on telecommuting states, “Home was the primary location for telecommuting in nearly all the studies included in this meta-analysis” (Gajendran & Harrison, 2007, p. 1,525).

worker can remain employed at a firm without needing to live in or near the same city or town where the firm is located. In the case of WFA, employers cede to workers control of the geography in which they choose to live, *in addition* to ceding the temporal flexibility afforded by WFH. This unique new benefit of WFA compared to prior remote work programs, along with the general increase in both worker demand for, and employer provision of, WFA policies, lead us to our main research question: How does the geographic flexibility provided by WFA affect individual worker productivity? Bloom et al.'s (2015) research in a Chinese travel agency shows causal productivity effects of moving a worker from an in-office setting to a WFH regime. We ask whether there are causal productivity effects of moving from a WFH regime to a WFA regime for workers who self-select to do so.

Prior to conducting empirical analysis, we develop a proposed theoretical relationship between WFA and employee productivity, based on theoretical insights from literatures on nonpecuniary benefits, firm-specific incentives, and migration. We argue that WFA should be viewed as a nonpecuniary benefit that should be preferred by workers who would derive greater utility by moving from their current geographic location to their preferred location. Prior literature in migration and urban studies (e.g., Barcus, 2004) has theorized that workers may relocate due to low satisfaction with their current residential location. We theorize that workers self-selecting into WFA and moving from their current location to a more preferred location will experience greater residential satisfaction, greater utility, and based on theorizing by Sauermann and Cohen (2010), will exert greater productivity-enhancing effort. This effect might be especially salient if WFA is perceived by workers as a “firm-specific incentive” (Kryscynski, Coff, & Campbell, 2020), i.e., an incentive in short supply at other possible employers.

Our setting—the United States Patent and Trademark Office (USPTO), and in particular, the job of patent examiner—is in many ways the ideal setting for our research question. First, our

setting allows us to exploit a natural experiment related to the implementation of a WFA policy. The bureaucratic processes governing the implementation of WFA at the USPTO allow us to estimate causal productivity changes for workers who self-select from a WFH regime into a WFA regime. More specifically, the implementation of WFA was driven by negotiations between USPTO managers and the union of patent examiners, leading to a monthly enrollment quota that created exogeneity in the *timing* of individual examiners' transition to WFA. Second, the role of a patent examiner is relatively independent. Third, examiners in our sample had spent at least two years in the USPTO office and additional time in a traditional WFH program before taking on a WFA assignment. These conditions help us in three ways. First, the independent nature of the task performed by patent examiners and the mandate to spend two years in the office help us (at least partially) control for adverse effects of remote work (e.g., effects of additional coordination costs and reduced learning effects from colocated peers) that might lead to confounding concerns in a more general setting. Second, given that all WFA employees in our study first transition from being an "in-office worker" to a "WFH worker" before further transitioning into a "WFA worker," we are able to isolate a productivity effect of geographic flexibility awarded by WFA vis-à-vis WFH. Third, the exogenous timing of transitioning from WFH to WFA enables us to estimate a causal comparison of productivity for workers who self-select to make that transition. These conditions not only present a clean empirical setting, but also serve as important boundary conditions to our findings and suggest a future research agenda.

To preview, we exploit this bureaucratic-policy-induced variation and employ examiner fixed effects, finding that examiners enjoy an increase in work output of 4.4 percent when in the WFA program compared to the baseline of when the worker was in the WFH program, with no significant increase in the amount of rework. It is important to point out that to the best of our knowledge, with the exception of the Bloom et al. (2015) study, there are no other studies in the remote work

literature that document causal productivity results. Furthermore, while Bloom et al. (2015) document causal results related to WFH, this study documents causal results related to transitioning from WFH to WFA. Our secondary analysis compares WFH productivity to in-office productivity, validating insights from Bloom et al. (2015). These two analyses give a sense of the stepwise progression of productivity as USPTO workers move from in-office, to WFH, and then to WFA.

We also explore a plausible mechanism driving our results, and based on the theoretical prior articulated earlier, provide evidence that transitioning from a WFH to a WFA regime results in workers exerting greater effort. In our setting, a proxy to measuring effort is the number of first round reviews (“First Office Actions”), when the examiner has to perform a more comprehensive search of prior art compared to subsequent rounds of review. We also attempt to rule out that the observed gains in productivity when workers transition from WFH to WFA are due to mechanisms similar to those provisioned by WFH, strengthening the claim that WFA is *not* an extreme case of WFH. Using descriptive results, we document wide variation in the characteristics of locations chosen by WFA workers and validate these patterns using insights from 53 field interviews. We also summarize worker, firm, and economy-wide implications of provisioning WFA.

Our findings contribute to the literature on remote work. While prior literature has documented robust productivity effects of WFH (e.g., Bloom et al., 2015), our study documents productivity effects of granting workers *geographic flexibility* and the choice to live anywhere. Our results also contribute to the literature on nonpecuniary benefits, by drawing attention to an important, yet understudied, nonpecuniary benefit, i.e., the choice to live in a preferred geographic location. We also contribute to the literature on firm-specific incentives by studying individual productivity changes for one of the early adopters of WFA, and contribute to the literature on migration by presenting WFA as a policy that enables workers to migrate to their preferred location.