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Working Paper 19-010

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Abstract

Using a natural experiment and field interviews, this paper studies how social attachment to place imposes psychic costs on workers who experience geographic mobility. This is especially salient when workers are assigned to locations far from their hometown, which may subject them to increased psychic costs related to social attachment to their hometown. Based on semi-structured field interviews conducted with early career workers at an Indian technology firm, we propose that a key mechanism, "vacation flexibility"—that is, the flexibility to take vacation and travel back home when it matters the most—is relevant to the relation between distance from hometown and worker performance. By exploiting the Indian technology firm's policy of randomly assigning entry-level employees to eight widely scattered locations, we are able to address selection concerns and validate that distance from hometown is negatively related to worker performance under conditions of lesser vacation flexibility compared to when the worker has more vacation flexibility. To offer evidence around the key mechanism of interest, we use subsample analyses and micro-data on leave taken by workers during the major Indian festival of Diwali. Our findings inform literatures on geographic mobility and geography of work, social attachment to place, workplace flexibility, hiring, migration, and early career experiences.

Keywords: distance from hometown, social attachment to place, psychic costs, worker performance, natural experiment

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Social scientists have a rich tradition of studying human geographic mobility (Ravenstein, 1885; Ritchey, 1976; Greenwood 1997; Borjas, 1999). Geographic mobility is key to the organization of work, and starting with the seminal article by Edström and Galbraith (1977), there is a rich literature on how organizations use the geographic transfer of knowledge workers, both as a coordination and control mechanism and to facilitate knowledge transfer across geographies (Wang, 2015; Teodoridis, Bikard, and Vakili, 2019; Choudhury and Kim, 2019). Building on Saxenian (1994), Rosenkopf and Almeida (2003: 751) argue that there is wide variation in knowledge, technology, work practices, and culture between geographic regions, and geographic mobility of workers provides organizations with "bridges to distant contexts."

However, while central to the organization of work, geographic mobility also imposes costs on individual workers, with implications for job performance (Ritchey, 1976). Starting with Sjaastad (1962) and Schwartz (1973), the literature articulates a theoretically important, yet difficult to measure, form of cost to workers, i.e. the *psychic costs relative to being distant from home*, a location that likely holds a social attachment for the individual (Marquis and Battilana, 2009; Dahl and Sorenson, 2010a, 2010b, 2012; Campbell, Coff, and Kryscynski, 2012; Kulchina, 2016; Yonker, 2016, 2017).

Theoretically, it is important to study social attachment to home given that prior literature asserts that social factors might swamp economic considerations in determining where individuals choose to work and how far from home they move. As Dahl and Sorenson (2010b: 637) state, "studies uniformly find that people move far less (and far shorter distances) than one would expect—on purely economic grounds… Because these differences far exceed the financial cost of moving—particularly as the migrant pays the moving cost once but potentially receives higher income for many years—these differences have been assumed to reflect the happiness lost by moving away from family and friends."[2] Given this, in a recent

[2] Prior research has also documented other anecdotal evidence on the importance of social attachment to home for individuals. As Kerr et al. (2016) state, even with increasing geographic mobility of knowledge workers, only three percent of the world's population live in a country different from their home country. Cohn and Morin (2008) report that 57 percent of Americans have

paper, Schoenbaum (2017: 458) asserts that "place is having a moment" and Schleicher (2017: 78) laments that "America has become a nation of homebodies." While in different streams of research, *home* can signify home country, home state, or hometown, for the purposes of this paper, *home* signifies an employee's hometown; that is, the location where parents and other family members live. Dahl and Sorenson (2012: 1059) define home (for entrepreneurs) as the "regions in which they have deep roots, the places where they have family and friends;" we adopt this definition.

It is also important to point out that while social attachment to home is relevant for both stayers and movers, the psychic costs related to social attachment to home is only relevant for the movers. Thus, in a world where movers may or may not have control over how far away from home they work, it is important to explore the performance implications of moving employees closer or farther from home. Our research is also motivated by the fact that several organizations, especially in emerging markets, such as the Indian Administrative Services, SK Telecom in Korea, Bank of Communications Ltd. in China, etc., do not offer employees any choice in determining their location of employment for a host of jobs.[3]

As a way of beginning to shed light on this subject, this paper studies how the distance between employees' workplace and their hometown (henceforth called *distance from home* or DFH) affects worker performance. In the literature on geographic mobility, as Ritchey (1976) points out, the construct of distance was introduced via the Zipf (1946) gravity model. To quote Ritchey (1976: 373), "Distance is thought to capture variations in pecuniary and psychic costs of mobility." More broadly, the literature has posited three main costs imposed on movers when they are distant from home: psychic costs, information costs, and cultural costs.

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never lived outside their home states, and 37 percent have never left their hometowns. Additionally, 74 percent of the stayers cite the tug of family ties as the reason they never left their hometowns.

[3] In emerging markets where the supply and demand of human capital are imbalanced across locations, several organizations provide employees with limited control over where they work. See appendix Table A1 for details. Organizations tend to assign their employees to far-flung locations to fill critical roles and develop human capital within internal labor markets (Bidwell and Keller, 2014), a pattern often observed in expatriate assignments (Tung, 1987) and rotational assignments (Campion, Cheraskin, and Stevens, 1994).

Firstly and most importantly for our paper, the effect of DFH on the performance of movers could be driven by individuals' social attachment to their hometown and the psychic costs of being far from home, i.e. the social attachment to place theory. Prior literature has theorized about the psychic costs of being away from family and friends (Schwartz, 1973; Dahl and Sorenson, 2010b, 2012). As Schwartz (1973) explains, the psychic cost stems from geographic distance reducing the frequency of reunion with friends and family.

DFH could also impose other costs on individuals, and in this paper, we attempt to shed light on a few alternatives to psychic costs. As Schwartz (1973), Dahl and Sorenson (2010b), and Pool, Stoffman, and Yonker (2012) state, workers are less likely to have access to job-related information while working far from home, and this could constrain their performance, i.e. the information costs theory. Additionally, as prior literature has long argued, geographic distance can entail cultural dissimilarity and the liability of foreignness (Kogut and Singh, 1988; Zaheer 1995), affecting worker performance, i.e. the cultural distance theory. Though we will attempt to provide empirical evidence pertinent to social attachment to place and psychic costs, and will attempt to control for and/or rule out alternative costs, we acknowledge that in other settings, any or all three of these costs could impact worker performance.

Our empirical setting relates to 443 college graduates newly hired by an Indian IT firm (hereafter called TECHCO) in 2007. Though social attachment to place theory is relevant to all workers, it is arguably most salient for those at the beginning of their careers, when workers are particularly strongly attached to their hometowns, as well as to their parents and families. Importantly for our analyses, none of the workers in our sample got married or started their own families in the distant location during the period of study. While this allows us to cleanly estimate the psychic costs of being separated from family in the hometown, it also acts as an important scope condition that we discuss later in the paper.

Prior to conducting empirical analysis, we engaged in fieldwork and conducted 36 semi-structured field interviews with representative workers at two production centers. These interviews produced several insights that led us to propose a novel mechanism related to how DFH and social attachment to place affect the performance of early career workers—notably that workers reported psychic costs that negatively affected performance when they could not visit their hometowns during key festivals. Workers also reported lesser flexibility in being able to take vacations to travel back home during the major festivals when they were relatively more experienced. More specifically, the informal work practices of the focal organization favored workers in their first year of employment in being able to take such vacations, while individuals in their third year of employment had to stay back in order to maintain contact with U.S.-based clients during the vacation time frame. In summary, the informal norms of this organization led workers to have relatively more vacation flexibility in the first year of employment and relatively less vacation flexibility starting in the third year of employment.

With this insight, which was reiterated by several workers during the field interviews, we build on the rich literature on flexibility, temporal flexibility, and flexible work schedules (Perlow, 1999; Golden, 2001; Evans, Kunda, and Barley, 2004; Briscoe, 2006) to theorize that vacation flexibility—that is, the flexibility to take vacation when it matters the most to the individual—was an important factor impacting the relation between DFH and worker performance. Specifically, we hypothesize that DFH is negatively related to performance change when the worker transitions from conditions of greater vacation flexibility, to lesser vacation flexibility.

Estimating the effect of DFH on worker performance poses several empirical challenges. In a conventional setting, workers might prefer employment at a production center near home. It is also common for firms to hire locally and/or assign workers to production centers close to the workers' hometowns (Yonker, 2016). In other words, there is likely to be endogeneity in how workers' DFH is determined. Second, even when workers are employed far from home, self-selection based on unobservable individual characteristics could determine how far from home they choose to work. This paper overcomes such challenges by using a hand-collected personnel dataset from the Indian IT firm TECHCO to examine how DFH affects worker performance. Importantly, we exploit an employee assignment protocol unique to our setting that helps us control for the endogeneity issues noted above. TECHCO recruits recent college graduates from across India and—most importantly for our empirical analysis—randomly assigns them to production centers at eight different locations in India without regard for individual characteristics, including performance during training or DFH. The reasoning behind random assignment will be discussed in further detail, but broadly speaking, this assignment protocol eliminates endogeneity issues and enables us to estimate a causal relationship between DFH and worker performance.

TECHCO's personnel dataset contains rich employee-level description, including demographic information such as gender, proxies for ability measured during recruiting, performance during training, and performance ratings measured one and three years after initial location assignment. It also specifies an employee's hometown and the location of the production center to which he or she is assigned; thus, we can determine DFH, measured as the shortest travel time from workplace to hometown via train.[4] Our field interviews indicate that nearly all newly-hired college graduates travel to their hometowns by train. For each employee, we code travel time to home using hand-collected data from the Indian Railways timetable. We then relate workers' performance in the presence (relative absence) of vacation flexibility to their travel time from workplace to home.

As theorized, we find that DFH is negatively related to performance change when the worker transitions from conditions of greater vacation flexibility, to lesser vacation flexibility. We also utilize micro-data on number of days of leave taken during Diwali, an important Indian festival, to provide evidence on our core mechanism of interest, vacation flexibility. Though DFH is positively correlated in the first year of employment with taking leave during Diwali, there is no statistically significant relation between DFH and leaves taken during Diwali in the third year of employment.

[4] Our findings are robust to using geographic distance instead of travel time via train.

We also report several other results. Notably, under conditions of lesser vacation flexibility, we find a negative correlation between DFH and performance for all workers except for one group of employees: workers with stronger workplace friendships. In our sample such workers can be viewed as male workers who are additionally members of the major linguistic group in their cohort at the production center where they were assigned. This result could be construed as suggestive evidence that social attachment to hometown and the negative relation between DFH and performance for workers is attenuated for workers who are disproportionately likely to form workplace friendships within their production center cohort based on gender and regional language homophily. We also use each worker's fraction of working days spent on coding projects (compared to being benched), language similarity (between the language spoken in the worker's hometown and the language spoken in the broader region surrounding the production center), and attrition data to shed light on alternative mechanisms that could impact the relation between DFH and worker performance, including information costs, cultural distance, attrition, and burnout.

It is important to point out that geographic mobility can also benefit workers through higher wages, career opportunities, and human capital augmentation (Hicks, 1932; Lansing and Mueller, 1967; Edström and Galbraith, 1977; Clemens, 2013; Bidwell and Mollick, 2015; Chattopadhyay and Choudhury, 2017). We leave it to future research to reconcile the benefits of geographic mobility vis-à-vis the costs for movers. The purpose of the paper is to conduct a deep theoretical and empirical exploration on one of the costs of geographic mobility, i.e. the psychic costs of being far away from home. In light of heightened interest on how social factors, especially how *place* shapes geographic mobility (Hirschman and Massey, 2008; Dahl and Sorenson, 2010b; Schoenbaum, 2017), we build on the conceptual framework of social attachment to place and propose a novel mechanism, i.e. vacation flexibility, relevant to how DFH and social attachment to home affects the performance of movers. Our study design, which leverages a natural experiment and random assignment of workers to locations, mitigates endogeneity concerns and our findings contribute to several literatures, including those on the geographic mobility and geography of work, flexibility and temporal flexibility, hiring, migration, and early career experiences. Our results also have managerial implications for hiring managers and for individuals' management of their own careers.

SOCIAL ATTACHMENT TO HOME AND PSYCHIC COSTS OF GEOGRAPHIC MOBILITY

This section reviews core insights from the social attachment to place theory. We will utilize these insights in theorizing how DFH might affect the performance of movers. We acknowledge that other theories—including cultural distance theory and information costs theory—could also impact how DFH affects worker performance. While we will attempt to control for alternative explanations in our empirical work, this paper does not seek to elevate one theory over another; indeed, in any given empirical setting, multiple explanatory theories may apply. Instead, we will focus on generating testable predictions rooted in the theory of social attachment to place, and assessing those predictions using our TECHCO dataset.

In the sociology literature, the construct of social attachment to place and dissatisfaction with remoteness from family and friends are discussed most prominently by Dahl and Sorenson (2010a, 2010b, 2012). They write: "One commonly cited reason for why people do not move more often is that they value being near family and friends, or at least the more frequent and more extended interactions that propinquity allows" (Dahl and Sorenson 2010b: 637). Using panel data on the Danish population, Dahl and Sorenson (2010a) report a strong revealed preference on the part of scientists and engineers to live near family and friends,[5] and find a similar preference among blue collar workers (2010b). In later work, the same researchers (2012) find that entrepreneurs tend to locate their business ventures in their home regions, and that ventures survive longer and generate larger cash flows when located in entrepreneurs' home regions. Meanwhile, in a recent paper on growing immobility among American workers, Schoenbaum (2017: 467) builds on Granovetter (1973) to argue that "…place matters. People bound by stronger ties tend to live

[5] The Danish workers surveyed valued (in descending order) proximity to: (1) their current homes; (2) their parents; (3) high school classmates; and (4) college classmates.

nearer to one another." There is also a rich prior literature in sociology on community attachment (e.g. Kasarda and Janowitz, 1974).

The organizations literature, too, has long considered the importance of social attachment to place. For instance, strategic human capital literature theorizes that firms can take advantage of the individuals' attachment to place to their competitive advantage, for instance by "recruiting people who have a strong interest in the company because of its location or some other personal preference" (Campbell, Coff, and Kryscynski, 2012: 391). In entrepreneurship, Kulchina (2016) provides evidence that entrepreneurs who view a host country as an attractive location are more likely to relocate and to manage their firms personally, which jointly determine the organization form and performance of entrepreneurial firms.

There is also literature in other fields, such as environmental psychology, that have theorized about the construct of "place attachment" (Fried, 1963; Low and Altman, 1992; Hidalgo and Hernández, 2001). Low and Altman (1992: 7) assert that place attachment includes a social component, stating, "Places are repositories and contexts within which interpersonal, community and cultural relationships occur, and it is to those social relationships….to which people are attached."

Social attachment to place, especially to one's hometown, could be important for all individuals, but is arguably more salient for movers. To quote Hidalgo and Hernández (2001: 276), "The individual is frequently unconscious of place attachment and this only manifests at a conscious level when there is a break or distancing from the place of attachment." In fact, economists have long recognized the psychic costs that individuals incur when separated from their hometowns. The construct of the psychic costs of migration dates back to two seminal studies, Sjaastad (1962) and Schwartz (1973). Schwartz (1973: 1160) describes psychic cost as "a result of the departure from family and friends. The longer the distance migrated, the lower will be the frequency of reunion; hence the higher will be the psychic cost." Sjaastad (1962) argues that because people tend to be reluctant to leave familiar surroundings, migration entails a psychic cost that contributes to the private cost of migration to an individual.[6] The subsequent empirical literature offers some evidence of social attachment costs/psychic costs. Lansing and Mueller (1967) conducted a survey of 723 moves in 1962–1963 and found that a large fraction of the moves was made to be closer to family members. Other studies, such as those by Fabricant (1970), Nelson (1959), and Greenwood (1969), found evidence suggestive of psychic costs. In the more recent literature, two important studies document that individuals are motivated to work at locations they find personally attractive. Using a sample of foreign entrepreneurs in Russia, Kulchina (2016) provides evidence that entrepreneurs who view a host country as an attractive location are more likely to relocate and to manage their firms personally. Yonker (2016) finds strong evidence that a preference for living and working close to home explains why firms are five more times likely to hire local CEOs; his results indicate that local CEOs have lower turnover than nonlocal CEOs, a finding driven by unforced turnover.

So far, we have theorized that social attachment to hometown could result in psychic costs for distant workers. However, we know relatively little on *how* psychic costs of being distant from home affect worker performance. To identify possible mechanisms, we engaged in exploratory field research and conducted semi-structured interviews that revealed several insights and helped us generate formal hypotheses. Prior to describing the insights from the interviews and the hypotheses, we introduce our empirical setting.

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[6] As Sjaastad (1962) explains, given earnings levels at all other places, there is a minimum earning level at location *i* that will cause a given individual to view the choice between migrating and remaining at *i* with indifference. For any higher earnings at *i*, he or she collects a surplus, in the sense that part of the earnings could be taxed away, and that taxation would not cause him or her to migrate; the maximum amount that could be taken away without inducing migration represents the value of the surplus. By perfect discrimination, it would be possible to take away the full amount of the surplus. The psychic cost of migration is analogous to this lost consumer surplus.

EMPIRICAL SETTING, FIELD INTERVIEWS, AND HYPOTHESES DEVELOPMENT

Empirical Setting

To understand the effect of DFH on worker performance, we examine a unique administrative dataset from an Indian technology firm, which we call TECHCO. We investigated the effect of DFH on employee performance using data on newly hired entry-level employees. Such employees, hired from college campuses, are a suitable sample for several reasons. First, newly hired entry-level employees maintain strong social ties to family and friends in their hometowns. As Pool, Stoffman, and Yonker (2012) report, in making decisions, managers assign more importance to their home (states) when they are early in their careers. Second, measuring performance is more objective and reliable for entry-level employees. The tasks assigned to them tend to be homogeneous, and objective performance measures are available in our setting, allowing for comparisons across employees. Moreover, we were able to control for employees' innate abilities and prior performance using various test scores collected during recruitment and training. Additionally, and importantly for our analyses, none of the workers in our sample were married or started families in their assigned locations during the period of study.

Every year, TECHCO hires about 10,000 graduates from more than 250 colleges across India—a wider geographical distribution of colleges than many of its peer Indian IT firms. Typically, these new hires attend engineering colleges and have had no prior full-time employment experience. TECHCO assigns each employee to one of several technological areas, such as .NET, Java, or Mainframe. New hires undergo intensive four-month induction training at a centralized training center in the southern city of Mysore. The corporate training center has a 337-acre campus, 400 instructors, and 200 classrooms. Employees are trained in batches of about 50–150; starting dates range from May to November. According to our field interviews, TECHCO spends around $3,500 to train each new college graduate.

Upon completion of the training, each employee is randomly assigned to one of nine production centers scattered across India (as we explain later, we dropped one production center from our sample, as only one employee in our sample was assigned to it). TECHCO has more than 120,000 employees spread across those production centers; it serves clients from around the world. Importantly for our empirical analysis, individual-level characteristics do not affect assignment decisions. As will be described in greater detail, assignment is automated: predetermined algorithms embedded in the centralized enterprise resource planning system prevent employees from exerting influence on the process. It is highly uncommon for an employee to transfer to a different location after initial assignment.

Insights from Field Interviews

Due to the truly nascent stage of research on how DFH affects worker performance, we undertook some preliminary qualitative, inductive work to identify potential mechanisms underlying the effects of DFH on worker performance (as recommended in Edmondson and McManus, 2007).

We conducted 36 semi-structured qualitative field interviews with 16 workers at the Bhubaneshwar production center and 20 workers at the Hyderabad production center. Within each location, we selected half employees whose hometown was far away from the production center, and another half of employees whose hometown was close to the production center. Each interview lasted around 30 minutes.

The field interviews indicated a consistent and interesting theme: It was more difficult for distant workers to take leave, especially during major Indian festivals such as Diwali, when they were relatively more experienced. This inflexibility in taking vacation during major festivals was also reported to lead to psychic costs with potential performance implications.

TECHCO officially granted only one day of leave for each major festival; the official policy was that employees who wanted to travel to their hometowns must apply to use their quota of "earned leave," or paid leave, of which TECHCO granted entry-level workers 15 days per calendar year. Our interviews indicated that during their third year of employment, workers were assigned greater responsibilities, and thus, it became more difficult to take leave during the important festival of Diwali. During this festival, project managers typically preferred to grant leave to "freshers," or first-year workers. Our interviews indicated that for distant employees, being prevented from returning home during Diwali led to dissatisfaction and psychic costs. "This is my third year here. While I miss home all the time, I really missed home last year when my manager did not give me leave during Diwali," an employee from Ranchi assigned to Hyderabad told us. "I am more senior now, and the offshore team had an important milestone that needed me to be in office. On the other hand, the freshers all went home, and I had to take over their tasks for that week. This made me sad and affected my performance for several weeks, both prior to and after Diwali."

Hypotheses Development: Vacation Flexibility and Allocation of Time

We utilized insights from the field interviews to generate testable hypotheses. We first built on the insights from the literature on temporal flexibility and schedule flexibility to argue that the absence (presence) of flexibility to visit family at home during key holidays will negatively (positively) correlate with worker performance.

Evans, Kunda, and Barley (2004: 2) build on Golden (2001) and define flexibility as "ceding control to workers over the circumstances of their work by enabling them to vary those circumstances to address personal and family needs and uncertainties." The authors also define temporal flexibility as "the ability (of the worker) to determine which and how many hours one works" (Evans, Kunda, and Barley, 2004: 2). Relatedly, Briscoe (2006) argues that greater temporal flexibility implies an enhanced ability to decide how long to engage in the core work activity. The author also states that temporal flexibility encompasses both a short timescale involving daily or weekly variation—also defined as *schedule flexibility* in Golden (2001)—and a longer timescale involving work patterns, which are altered over months or years—also defined as *career flexibility* in Bailyn, Drago, and Kochan (2002), Moen (2003), and Barley and Kunda (2001).

We, however, argue that beyond schedule flexibility and career flexibility, there is yet another dimension of temporal flexibility that is pertinent to workers, especially workers employed at locations distant from their home. We call this *vacation flexibility* and build on the definition of Evans, Kunda, and

Barley (2004) to define vacation flexibility as *ceding control to the worker over when to take vacations to address personal and family needs*.

As summarized earlier, our interviews indicated that the lack of vacation flexibility during key festivals, such as Diwali, negatively affected the performance of distant workers. Here, it is important to note that TECHCO did not have any formal policy related to when employees could take vacation. The official policy was that workers wishing to take vacation and travel home during key festivals had to use their quota of paid leave; however, the reality of informal project team rules created a natural variation in how constrained workers in our sample were on vacation flexibility. While relatively inexperienced workers—i.e., workers in their first year of employment at TECHCO—had higher vacation flexibility, more experienced workers—i.e., workers in their third year of employment—had less vacation flexibility during times when almost all distant workers would like to travel back home. These employees experienced the psychic costs of being away from family when it mattered the most.

These insights are also related to Briscoe (2006), who builds on Meiksins and Whalley (2002) and Arthur and Rousseau (1996), and views "organizational controls such as rules, procedures, and hierarchy as the key barrier to temporal flexibility" (Briscoe, 2006: 90). Briscoe (2006) also gives the example of practicing physicians, who are still beholden to their patients even when they are off duty, as an example of how informal work practices can constrain temporal flexibility. Similarly, in our setting, informal work practices related to which workers were awarded greater preference in being able to take vacation when it mattered most resulted in more experienced (inexperienced) workers having lesser (greater) vacation flexibility. Also, as we have argued, for employees working far away from home, lesser vacation flexibility leads to higher psychic costs, of being separated from family when it matters most, and also leads to lower performance.

Here, we build on the literature of work-family enrichment (Rothbard, 2001; Greenhaus and Powell, 2006): The flexibility to take vacation and spend time with family and friends when it matters most—such as during key festivals—increases both worker satisfaction and worker performance. As Greenhaus and Powell (2006) assert, time spent with family and friends could buffer a worker against work-related stress, leading to more positive attitudes and greater satisfaction. A longstanding literature with roots in human relations theory has also argued that worker satisfaction is strongly related to worker performance (Vroom, 1964; Schwab and Cummings, 1970; Petty, McGee, and Cavender, 1984).

Importantly, to gain satisfaction from spending time with one's distant family back in the hometown, it is critical to be able to coordinate interactions with friends and family, because value from this leisure activity depends "on the number of social others who have the same schedule of time available" (Young and Lim, 2014: 10). The authors further state, "Few things are best done alone. Most activities are either more enjoyable or more productive when done with others. The efficacy of things like…Christmas parties, family dinners, and football games depends on how many people show up for them" (Young and Lim, 2014: 12). Building on Winship (2009), the authors further theorize that (emphasis added) "time comes with two basic kinds of limitations: the budget constraint and the scheduling constraint…..the scheduling constraint, however, shapes what individuals can do with their endowment of time. It reflects an individual's ability to coordinate *time* and *place* with the people with whom the individual wants to interact and limits how an individual can transform free time into valued social time" (Young and Lim, 2014: 11)

In other words, for movers experiencing social attachment to home, it is not just the amount of vacation that matters, but the ability to schedule vacation flexibly so that many social others, such as friends and family, can be all in the same place in same time. Being able to utilize their endowment of vacation days around major holidays significantly increases their chances to convert *free time* to *valued social time*. Thus, greater vacation flexibility helps employees to spend time with family and friends in their hometown when it matters most, which in turn, leads to greater individual satisfaction and improved worker performance.[7] We hypothesize:

> **Hypothesis 1a (H1a):** Distance from home is negatively related to worker performance under conditions of lesser vacation flexibility.

> **Hypothesis 1b (H1b):** Distance from home is negatively related to performance change when worker transitions from conditions of greater vacation flexibility, to lesser vacation flexibility.

Next, we theorize how workplace friendships based on gender and regional language homophily attenuate the effects hypothesized above. To see this logic formally, we draw on the rich literature in sociology and organizations on workplace friendship (Lincoln and Miller, 1979; Gibbons, 2004; Pillemer and Rothbard, 2018) and on homophily (Marsden, 1987, 1988; McPherson, Smith-Lovin, and Cook, 2001, Ruef, Aldrich, and Carter, 2004, Vissa, 2012). As McPherson, Smith-Lovin, and Cook (2001) state, similarity breeds connection and the homophily principle structures ties of every type including work and friendship ties. Work friendships represent a key set of relationships for movers facing psychic costs of being distant from home. To quote Gibbons (2004: 239), work friendship "has been linked with organizational commitment (Morrison, 2002), resource sharing during crisis (Krackhardt and Stern, 1988), and career-related decision making (Kilduff, 1990; Krackhardt, 1992). It enables coworkers to discuss sensitive issues that they would not share with non-friends (Sias and Cahill, 1998)." This view resonated in our field interviews and one distant mover spoke of his work friends within his cohort at his production center in the following way: "It was like a family, going through the exams, tests, and all, bad and good phases together."[8]

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[7] For workers in our sample, their families are located in their hometowns. None of the workers in our sample are married.
[8] Recent literature also discusses the "dark side" of workplace friendships including how and when such friendships may lead to harmful outcomes (e.g. Pillemer and Rothbard, 2018).

McPherson, Smith-Lovin, and Cook (2001) also summarize significant prior evidence on how gender homophily affects the formation of workplace relationships and point out that men tend to have more sex homophilous relationships especially in settings where they are a strong majority (Ibarra 1992, 1997; Brass, 1985). Workplace friendships could also be formed through common linguistic ties. In particular, Vissa (2011) studied Indian entrepreneurs and found that an entrepreneur is more likely to have intentions of forming an interpersonal tie with new people who speak the same regional Indian language as the knowledge worker. The author argues that contemporary India is a "cultural mosaic" (Vissa, 2011: 138) with significant regional language diversity[9] and speaking the same regional language enabled individuals to share "taken for granted cultural assumptions" (Vissa, 2011: 142). Furthermore speaking in the same native language could be seen as an important symbolic management action to signal similarity with the person being spoken to (Zott and Huy, 2007). In our context, the field interviews indicated that common regional language ties within one's cohort at the production center and gender were key considerations in forming workplace friendships. While workplace friendships are important for all workers, they could be particularly salient for movers facing psychic costs for being distant from home. Given this we hypothesize:

> **Hypothesis 2 (H2):** Under conditions of lesser vacation flexibility, the negative correlation between distance from home and worker performance will be attenuated for workers with stronger workplace friendships.

DATA AND VARIABLES

To understand how DFH affects employee performance, we combined several data sources about TECHCO's employees assigned to different locations. Our main data came from TECHCO's administrative employee database. It contained rich employee-level characteristics including gender, performance during

[9] As Vissa (2011) states, the 2001 census of India reports 29 different regional languages each spoken by more than a million native speakers.

induction training, test scores during recruitment, hometown location (at the district level), and production center location. It also provided employee-level performance ratings. Using the hometown and production center location measures, we constructed the shortest travel time from workplace to hometown by train, and measures of language similarity between hometown and workplace location.

We began our sample construction process using data on 1,696 graduates hired by TECHCO in 2007 and assigned to the .NET technological area. We focused on a single technological area to minimize bias arising from demand and supply fluctuations that could affect the performance ratings of employees working in different technology areas. About 17 percent of all graduates hired in 2007 were assigned to the .NET area; they were trained in 16 batches.

As some employees in this sample received no performance ratings in the first year, we further narrowed our sample to those who did receive performance ratings in the first year. If receiving a first-year rating was correlated with an employee's performance or with any factors affecting it, we would worry about potential sampling bias. This is not the case in our setting, where receiving a first-year rating is largely determined by "the nine-month work rule," which specifies that an employee receives a performance rating only if he or she has worked on a coding/testing project for at least nine months. Our field interviews with TECHCO human resources (HR) managers suggested that whether an employee worked on a project for at least nine months in 2008 (the first full year after being hired in 2007) was determined by: (1) when he or she completed induction training; and (2) the availability of new coding/testing projects at the production center where an employee was assigned. Thus, factors that might affect an employee's performance, such as performance during training and test scores at recruitment, did not affect the determination of which employees worked at least nine months in 2008. Given that whether an employee received a first-year performance rating is orthogonal to individual-level characteristics, we are confident that our estimates are not biased by dropping observations with missing 2008 performance ratings. In Appendix Table A2, we report individual-level observables of employees with and without 2008 ratings; as expected, there is no systematic difference between the two groups.

Our final sample consisted of 443 employees hired and trained in 2007 and assigned to one of TECHCO's eight production centers in 2008. These workers belonged to eight training batches that completed training by December 2007 and, hence, received a performance rating in 2008. We further dropped observations of a few employees whose hometowns were in foreign countries, in locations inaccessible by train, or missing from the personnel database. We also dropped the one employee in the cohort assigned to the Chandigarh production center, for whom within-center comparisons would have been impossible. Table 1 displays summary statistics and correlations for all variables.

---- Insert Table 1 about here ----

Dependent Variable

We use two dependent variables to test the main hypotheses. First, we use an employee's yearly performance rating in the period of relatively lesser vacation flexibility, i.e. the performance rating in year 2010, as the dependent variable relevant for hypothesis H1a. The performance rating was based on objective measures and thus, less prone to measurement errors. At the end of each year, TECHCO managers enter a performance rating for each employee. Field interviews with the head of talent development, a senior HR manager, and several employees in the sample confirmed that performance ratings for entry-level employees are based on objective measures—including quality of coding and/or testing, timeliness, and completeness in coding/testing/documentation—that are tracked by automated software. HR managers check the rating entered by the manager against the underlying scores to correct errors in computing the overall rating. In the third year, our sample employees received one of the five-point scale performance ratings based on their relative performance, from one (highest) to five (lowest). Approximately the top 13 percent and next 12 percent of employees received ratings of one and two, respectively; only eight employees, whose performance fell into the bottom two percent, received the lowest rating. The distribution of performance ratings is depicted in appendix Figure A1.

In the regression analysis, we multiplied the original performance ratings by -1 and used this transformed variable as our dependent variable. The transformation helped facilitate a more intuitive interpretation of the regression results, because positive coefficients imply a positive association between independent variables and performance. Originally, the lower an employee's performance rating, the higher his or her relative performance; after the transformation, a numerically higher rating (e.g., -1) indicated higher performance. It should be noted that the magnitude of estimated coefficients remained the same before and after the transformation.[10]

Second, given that hypothesis H1b relates to performance change when the worker moves from a regime of greater to lesser vacation flexibility, we computed a measure of performance change. To operationalize this measure, we constructed a new dependent variable $\Delta Performance_i = Performance_{i,2010} - Performance_{i,2008}$. These years represent the first full year after our sample employees were assigned to production centers—when workers had relatively greater vacation flexibility—and three years after the assignment—when workers had relatively lesser vacation flexibility. This variable is positive if the performance of an employee improves over time; it is negative if performance declines. Because TECHCO employed different performance rating scales in 2008 and 2010, it is challenging to observe how an employee's performance changed over time. To be specific, a newly hired employee receives one of three performance ratings in the first year: one (high), two (average), or four (low). In 2008, an employee received the highest rating (one) if he or she fell into approximately the top 35 percent of the relative performance distribution, the second-highest rating (two) if he or she belonged to the middle of the distribution (61 percent of employees received this rating), and the lowest rating (four) if he or she fell into

[10] We also collected data on whether an employee left the company by 2011 and coded the variable *left the firm*. About 28 percent of employees in the sample had left by 2011, when we completed data collection.

the bottom four percent of the distribution. Luckily for our purposes, we can construct rescaled performance rating scores for 2010 by exploiting the fact that a performance rating score is based on individual performance relative to that of peers, and that some cutoffs in the relative performance rating distributions are arguably consistent between 2008 and 2010. The right-hand plot in appendix Figure A1 presents the distribution of the rescaled performance rating scores that we use throughout this paper. The figure shows that the cutoffs for three performance ratings are stable over time.

Independent Variables

Our main independent variable of interest is the distance from an employee's hometown to workplace. Building on the hometown and production center location information from TECHCO's administrative database, we manually constructed a variable *Travel Time* that represents the distance. To be specific, it measures the shortest travel time—in hours, one-way—from an employee's workplace to his or her hometown by train. Our field interviews indicated that most newly hired college graduates travel to their hometowns by train. Our interviews also shed light on *why* distant employees use trains. First, distant employees often travel to their hometowns during major Indian festivals, such as Diwali, or to attend to a family emergency. Emergencies necessitate last-minute ticket purchases and, even for Diwali, uncertainty about approvals of leave applications can lead to last-minute ticket purchases as well. Even on a low-budget airline, an air ticket could cost close to 70 percent of these workers' monthly salaries, making it unaffordable.[11] Furthermore, flights are usually scheduled in the morning, while train schedules allow workers to travel in the evening or at night, thus avoiding a lost workday. As a robustness check, we examined whether the presence of flights connecting the workplace and hometown affects the relationship between DFH and performance; results remained robust.

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[11] Our field interviews revealed that, at the time of our study, workers' monthly salary was around \$569 (INR 200,000 per year at an exchange rate of INR 29.28 to the U.S. dollar). Workers in this pay bracket were subject at the time to a 20 percent tax rate. A typical last-minute round-trip fare on a low-budget airline (on the Hyderabad-Kolkata route) was around \$300.

After identifying an employee's hometown and production center, we coded the shortest travel time manually from the official Indian Railways timetable. When there is no direct train connecting the two locations, we included extra time for a transfer. On average, it takes about 15.5 hours for an employee in the sample to travel home from their assigned production center. Appendix Figure A2 shows the distribution of *Travel Time*.

Controls

We included several employee-level controls in many specifications to control for other factors potentially affecting worker performance. *CGPA Training* is an employee's cumulative grade point average at the end of the four-month induction training. High value indicates high performance during the induction training. This variable is highly predictive of an employee's on-the-job performance**.** *Male* is a dummy variable indicating an employee's gender. About 66 percent of the sample employees are male. To capture innate ability differences, we construct two test scores on standardized multiple-choice tests administered during recruitment: *Logical Score* and *Verbal Score*. This information is missing for about 30 employees; given this, we exclude these employees from baseline specifications. All main results remained robust to the inclusion of these variables.

As a proxy for cultural distance between the hometown and production center locations, we built on Berry, Guillén, and Zhou (2010) and Ghemawat (2001) and created language similarity measures in the following manner. Drawing on the recent Indian linguistics literature that classify Indian languages into a few families based on similarity (Sengupta and Saha, 2015), we created two dummy variables. *Same Language* is equal to one if the official language of an employee's hometown and the region surrounding the workplace is the same language. *Similar Language* is equal to one if the official language of an employee's hometown and the region surrounding the workplace is not the same language but in the same language family.[12]

Migration Experience is a dummy variable indicating whether a newly hired employee has prior migration experience. By including this control variable, we ruled out the alternative explanation that distant employees may have experienced geographic migration before, which may help them adjust to new environments, leading to higher performance. To construct this variable, we compared an employee's hometown location to his or her university location, and coded the variable as one if the two locations differ at the district level.

Finally, relying on the homophily literature (Marsden, 1987, 1988; Vissa, 2011) which suggests that individuals tend to form social ties when they share similar cultural backgrounds such as regional languages, we constructed a dummy variable *Majority Language Group* to measure the degree of homophily based on language within the cohort. The homophily literature implies that employees whose native language is frequently used among their cohort will tend to have a greater number of social ties in their production center than employees whose native language is less frequently used. Employees who are members of the majority native language group among the cohort in each production center may be less likely to suffer from the psychic costs of being distant from home.

We operationalized the variable *Majority Language Group* in the following manner. First, we used an employee's hometown location to infer his or her native language. We then identified the most frequent regional language among the cohort in each production center. The variable is coded as one if an employee's native language is the same as the most frequent regional language within cohort, and zero otherwise. It is important to point out that the most frequent regional language within the cohort may *not* be the same

[12] Our field interviews indicated that while English is the "official language" for work related activities at TECHCO, lack of familiarity with the local language hinders communication with local peers, neighbors, and the population at large in areas where workers live.

language as that spoken in the region surrounding the production center. For instance, Telugu is the most frequent native language among 105 employees assigned to the production center in Bangalore, though in the region surrounding Bangalore, Kannada is the dominant language. *Majority Language Group* equals one for employees whose native language is Telugu, and zero for other employees. The variable is one for about 42 percent of employees.

IDENTIFICATION STRATEGY

We used the resulting data to understand how DFH affects performance. It might be tempting to simply regress individual performance on DFH to characterize the relationship, but such an approach has two empirical shortcomings. First, as Yonker (2016) points out, firms are likely to hire employees from neighboring regions to lower search costs. This is particularly likely in the case of entry-level employees, whose skills are largely homogeneous. If this is the case, the simple regression is unlikely to produce significant results because there is little variation in DFH among employees. More seriously, the simple regression framework is likely to generate biased estimates because an unobservable is correlated with both the assignment decision and individual performance. For instance, it is possible that employees hired from Bangalore are of high quality because of knowledge spillovers from the many technology firms in that region. If TECHCO also tended to assign these employees to the production center in Bangalore simply because it was close to their hometowns, we would see a spurious correlation between travel time and individual performance in the naïve regression framework.

Luckily for our purposes, TECHCO adopted a computerized central talent assignment system in which neither DFH nor other individual-level characteristics are considered when assigning employees to production centers. The following subsections present qualitative and quantitative evidence on this assignment protocol and describe how we exploited it in the empirical analyses.

The Employee Assignment Protocol

Understanding how each employee is assigned to a production center is central to our empirical analysis. At TECHCO, employee assignment is performed by a computer application called Talent Planning, a part of the firm's enterprise resource planning software. Talent Planning matches two factors: (1) individual production center requirements (HR at each center provides data on the number of employees needed in various technological areas); and (2) data from HR at the training location. Two weeks prior to the end of a four-month training session, HR at the training location releases data on which employees are expected to complete the training. The two variables that the Talent Planning team considers while performing the matching on the automated system are: (1) the technology on which an employee was trained; and (2) the estimated date of training completion.

Most importantly for our econometric analysis, the assignment of trainees to production centers is *not* correlated with their DFH, or with other demographics, backgrounds, or test scores before or during the induction training. Field interviews with the head of talent development at TECHCO reveal that the primary rationale for this random, computer-driven talent assignment policy is to ensure that TECHCO's end customers are indifferent to the location of the production center that executes their projects. The secondary motivation is to discourage regional and ethnic cliques at production centers. "We do not want all Tamils to join the Chennai center or all Punjabis to join Chandigarh and start conversing in their regional language rather than in English," TECHCO's head of talent development told us. "If that happens, both our clients and employees from other parts of the country are adversely affected."

To provide quantitative support for our claim that DFH is not considered in the assignment process, we first conducted Monte Carlo simulations to determine whether or not the realized mean value of DFH differs from the hypothetical DFH values one would expect to see if employee assignment is truly random. We randomly drew (with replacement) from the entire employee sample the same number of employees actually assigned to one of the eight locations. We conducted 1,000 random draws and presented the sampling distribution of mean travel time values as a histogram. By comparing the sampling distribution with the realized mean value of DFH, we were able to evaluate how similar or different the realized assignment results were from a truly randomized employee assignment protocol. Figure 1 presents the sampling distribution of *Travel Time* when employee assignment is completely random. We also plot the realized mean value of *Travel Time* as a dashed line for comparison. The realized mean value of travel time—i.e., the mean value of travel time observed in our data—is not statistically different from the hypothetical mean value of travel time—i.e., where employee assignment is entirely random. This pattern strengthens our confidence in the validity of the random assignment protocol.

---- Insert Figure 1 about here ----

Second, we estimated a logit choice model with covariates, including CGPA training, male (gender), prior migration experience, logical score, and verbal score, to test whether any of the covariates are correlated with the likelihood of being assigned to Bangalore. We also included travel time from each employee's hometown to Bangalore as an independent variable. The production center in Bangalore is TECHCO's largest and is regarded as the most important one. If TECHCO strategically assigned newly hired employees based on individual-level characteristics, it would probably want to assign to Bangalore either those with higher underlying ability and/or revealed performance in order to maximize the center's performance. If workers had control over location assignment, we would observe a statistically significant correlation between DFH from Bangalore and the assignment to Bangalore.

Table 2 contains the estimation results from the logit choice model. It shows that none of the individual-level observables is systematically correlated to assignment to Bangalore. No observed performance or ability measures, such as CGPA at the end of training or standardized test scores at recruitment, are significantly related to assignment to Bangalore. Also, the decision whether to allocate an employee to Bangalore is not correlated with other observable individual characteristics, such as gender or travel time to Bangalore. This pattern validates our maintained assumption that no individual-level characteristics are considered in the employee assignment process.

---- Insert Table 2 about here ----

Model Specification

To examine H1a and H1b, i.e. how employees' travel time from their workplace to their hometown affects individual performance under conditions of low vacation flexibility and when the employee transitions from a relatively high-vacation-flexibility regime to a relatively low-vacation-flexibility regime, we estimated the following equation separately:

$$Performance_{ij} = \alpha + \beta \cdot Travel\,Time_i + \gamma' X_i + \delta_j + \epsilon_{ij}$$

$$\Delta Performance_{ij} = \alpha + \beta \cdot Travel\,Time_i + \gamma' X_i + \delta_j + \epsilon_{ij}$$

Here, $Performance_{ij}$ indicates the performance rating for an employee *i* working at production center *j* under conditions of relatively low vacation flexibility, i.e. performance measured in 2010. The variable $\Delta Performance_{ij}$ indicates the change of performance when the employee transitions from a regime of relatively high vacation flexibility to a regime of relatively low vacation flexibility. The main independent variable, $Travel\ Time_i$, is the minimum number of hours that an employee would expect to spend traveling from the production center to his or her hometown by train. Our main coefficient of interest is β, which measures how an employee's performance (or performance change) is systematically related to DFH. We include employee-level observables X_i to control for other factors that may affect performance, such as gender, migration experience, similarity of languages between hometown and workplace, and some proxies for ability/revealed performance such as cumulative grade-point average at the end of training and scores on standardized recruitment tests. In the base case, we estimated ordered logit models using maximum likelihood estimation (MLE), given that performance rating is measured in normalized bands.

We also included location fixed effects, for two reasons. First, they capture production center-level differences across locations. Though various management practices at TECHCO are designed to reduce quality differences across production centers, it is still highly plausible that some quality differences remain. For instance, a production center located near India's major technology cluster, such as in Bangalore, is likely to have a higher concentration of knowledge because of agglomeration economies. By comparing employees within the same production center, we made sure that such external forces did not affect our results. Second, and specifically for our research design, we included center fixed effects so that DFH did not differ systematically across centers. Though employees are randomly assigned to production centers, employees at certain production centers in central India are likely to have shorter travel times than those at production centers in remote areas. Including center fixed effects controlled for that possibility.

RESULTS

Testing the Hypotheses

We first present results related to testing H1a, which stated that DFH is negatively related to worker performance under conditions of lesser vacation flexibility. Table 3 reports the results on how DFH affects the performance of employees in 2010, that is, their third year of employment when workers experience conditions of lesser vacation flexibility.

---- Insert Table 3 about here ----

Column 1 shows the baseline results with *Travel Time* and location fixed effects only. Column 2 presents the main results. It tells us that even after accounting for various individual-level characteristics, there is a statistically significant negative relation between DFH and worker performance under conditions of lesser vacation flexibility. The results are similar when we include logical and verbal scores and drop a few observations with missing values, as seen in Column 3. [13] The results also show how other individual characteristics affect longer-term performance. *CGPA Training* still influences a worker's performance three

[13] Appendix Figure A3 presents descriptive evidence that travel time and employee performance in year 2010 are negatively correlated.

years after assignment. Being male is also positively correlated with higher performance. A worker's prior migration experience seems to affect longer-term performance as well.[14]

The margins plot in panel A of Figure 2 helps us understand the size of these effects. For an average employee, a hypothetical 10-hour increase in DFH lowers the likelihood of receiving the highest performance rating in 2010—when worker faces lesser vacation flexibility regime—by about three percent.

---- Insert Figure 2 about here ----

Second, we tested H1b, which stated that DFH is negatively related to performance change when the worker transitions from a regime with greater to lesser vacation flexibility. Results are reported in Columns 4–6 of Table 3 and suggest a statistically significant and negative relation between DFH and performance change when the worker moves from a regime of greater to lesser vacation flexibility.

Third, we tested H2, which stated that under conditions of lesser vacation flexibility, the negative correlation between DFH and worker performance will be attenuated for workers with stronger workplace friendships, i.e. male members of the majority linguistic group within their production center cohort. Among the 385 employees we used for testing H1a and H1b, about 28 percent are classified as having stronger workplace friendships on account of being male and members of the majority linguistic group within their production center cohort.

Using the dichotomous measure of *stronger workplace friendship*, we conducted split-sample analysis and interactions analysis, with results shown in Table 4. First, Columns 1 and 2 use the specification in Column 2 of Table 3, but separately for the two subsamples. Using the sample of workers with relatively strong workplace friendships, Column 1 shows that DFH still affects performance under lesser vacation

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[14] To our surprise, we find a strong negative correlation between migration experience and performance. Though not the focus of our study, we conducted field interviews to explore underlying reasons. A plausible explanation of this negative effect relates to selection. Our interviews indicated that the individuals who did not migrate for college are disproportionately from smaller town colleges; such individuals also belong to the extreme right tail in the distribution of ability for individuals in their towns. Additionally, given the large effect size of the point estimate of the variable "migration experience," in robustness checks, we interact migration experience with travel time. The point estimate of the interaction term is not statistically significant.

flexibility negatively, and this relationship is statistically significant for workers who have relatively less strong workplace friendships (i.e. are female or are not members of the majority linguistic group in their cohort). In contrast, Column 2 reports no significant evidence that DFH affects performance under conditions of lesser vacation flexibility. In fact, in addition to not being a statistically significant relationship (which might reflect the relatively small sample size), the point estimate is also positive, counter to our main hypothesis. Column 3 shows that the differences between the two subgroups are in fact statistically significant. Here, we use OLS for easy interpretation of interaction terms. The results tell us that while DFH is negatively correlated with performance under lesser vacation flexibility in general, having stronger workplace friendships attenuates the negative effects of DFH. The margins plot in Panel B of Figure 2 displays the relationship visually.

---- Insert Table 4 about here ----

Evidence on Mechanisms

We first present quantitative evidence that supports the assertion made in the field interviews, that workers enjoyed more vacation flexibility in their first year of employment (i.e., 2008) compared to their third year of employment (i.e., 2010). To conduct this analysis, we collected micro-data on leave days taken during Diwali. To recap, our interviews indicated that TECHCO officially granted only one day of leave for each major festival, which was not enough time for distant workers to visit their hometowns. To circumvent this problem, the official policy was that employees who wanted to travel to their hometowns during festivals must apply to use their quota of "earned leaves" (TECHCO has a policy of giving entry-level workers 15 days of "earned" or paid leave per calendar year). For employees in four of the eight batches in our sample, we collected micro-data on paid leave taken throughout an entire year at the year-month level and identified leave taken during the month of Diwali in 2008, 2009, and 2010. Diwali was celebrated on different dates each year: October 28, 2008, October 17, 2009, and November 5, 2010. Our interviews suggested that workers have decreasing vacation flexibility over time, and we posited that their leave usage in this micro-data would reflect this.

Using the micro-data on earned leave at the year-month level, Table 5 shows the relationship between DFH and a worker's propensity to spend earned leave in Diwali month over the years. First, Columns 1–3 examine how the number of leave days in Diwali month is correlated with *Travel Time* in 2008, 2009, and 2010, respectively. We find that longer *Travel Time* is associated with spending more leave days in Diwali month in 2008 and 2009, but not 2010. The finding supports our view that TECHCO employees in the sample experienced lesser vacation flexibility over time. In Columns 4–6, we repeated the analysis by using a dummy variable of whether a given worker used at least one earned leave day in Diwali month in 2008 as the dependent variable, and by estimating logit models. We did so in order to ensure that our earlier findings were not driven by a few outlier workers who took many leave days in Diwali month. Similarly, we find that workers seemed to enjoy vacation flexibility in 2008 and 2009, but less so in 2010. Finally, in Columns 7–9, we limited our sample to workers who took at least one leave day in a given year and controlled for the total number of leave days taken in each year. By doing so, we ruled out the alternative explanation that distant workers tend to use more leave days overall, which in turn, spuriously increases the likelihood that distant workers take leave days during Diwali month. Consistent with this idea, we also find that the total number of leave days taken is positively associated with the likelihood that a worker takes at least one leave day in Diwali month. Importantly for us, however, we still find that DFH increases the likelihood in early periods (i.e., 2008) but not in later periods (i.e., 2010). Together, these findings lend support to the claim that workers experience less and less vacation flexibility over the years as their careers progress. [15]

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[15] It is logical to ask why the ability to travel home during Diwali (celebrated during October or November) might affect performance, given that performance evaluations (conducted in December) are disproportionately related to the 10 months of performance prior to Diwali. Given this, we note the following: We use the ability to take leave during Diwali as a proxy for overall flexibility to take leave and visit distant family throughout the year. In addition, our interviews indicated that uncertainty

---- Insert Table 5 about here ----

Testing for Alternative Explanations

Though our study focused on exploring the effect of DFH on performance in light of social attachment to place theory, and under varying degrees of vacation flexibility, we also attempted to at least partially assess the alternative explanatory theories that focus on information costs and cultural distance.

To address cultural distance theory, we controlled for language-based cultural distance, coded *similar language* in some specifications.[16] Information costs theory encompasses a wide variety of information pertinent to opportunity identification; most crucial for the workers in our sample is information on the nature of projects. Local employees might have disproportionate access to information on better projects, and selection into such projects might be correlated to subsequent performance.[17] To test this, we used additional data on distribution of employee time between coding, waiting for the next project, training, and taking holidays. For each worker, we calculated the share of production days in 2008 and 2010 as fraction of total days worked and examined whether that fraction is correlated with DFH. Results shown in appendix Table A3 indicate no significant correlation between DFH and the probability of being assigned to a project. Though this finding suggests that local employees *did not* enjoy disproportionate informational advantages

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related to whether or not the worker will be granted leave during Diwali could affect his or her performance for weeks prior to the actual vacation.

16 A longstanding literature in strategy and international business documents how geographic DFH goes hand in hand with cultural distance from the work location. This literature has shown geographic distance to entail both cultural distance (Kogut and Singh, 1988) and the liability of foreignness (Hymer, 1993; Zaheer, 1995). As Stahl et al. (2016) state, foreignness entails challenges for individuals who work in unfamiliar territories. "People often find the unknown challenging, unsettling, and disquieting. They are unsure about appropriate behaviors and responses in strange situations, resulting in fear of distance and difference," the authors write (Stahl et al., 2016: 621). As Berry, Guillén, and Zhou (2010) point out, geographic distance between one's home and workplace can expose an individual not only to an unfamiliar language (Ghemawat, 2001), but also to unfamiliar attitudes toward authority, trust, individuality, and the importance of work and family (Hofstede, 1980). Building on this literature, we argue that DFH can entail cultural costs and the liability of foreignness which might, in turn, negatively affect worker performance.

17 Prior literature has spelled out how being local can facilitate access to information. In an entrepreneurial context, Dahl and Sorenson (2012) assert that being local can help entrepreneurs identify opportunities. Yonker (2016) argues that local workers have disproportionate knowledge of the local business environment. This line of argument dates back to Greenwood (1969), who asserts that DFH restricts the flow of information about opportunities available in the host region.

pertinent to project assignment, we cannot completely rule out that information costs theory might be relevant in our setting.

Another alternative explanation relates to burnout. It is possible that distant employees may perform worse than other local employees in the period of lesser vacation flexibility because they exerted too much effort in the first two years of employment and cannot maintain similar effort level in the third year. Note that the burnout mechanism can equally explain that 1) distant workers perform worse in the longer-term, and 2) distant workers experience negative performance change over time.

Our analysis suggests, however, that this is not the case in our setting. If the burnout mechanism were a dominant explanation, the negative relationship between travel time and performance changes over time—i.e. when workers also move from a relatively greater to lesser vacation flexibility regime—should be stronger for the high-performers in the short-term. To examine this necessary condition, we divided 385 employees with performance ratings under the lesser-vacation-flexibility regime of 2010 into two subsamples based on their performance in the first year of employment—i.e. low performers and high performers. Because of statistical power concerns, we grouped two ratings—the second-highest rating and the lowest rating—into one. As a result, the low-performer subsample consists of 234 employees and the high-performer subsample consists of 151 employees. We then estimated separately the relationship between travel time and performance change between 2008 and 2010. In both subsamples, we find a negative and significant relationship between travel time and performance changes between 2008 and 2010 (p-value < 0.1). The two estimated coefficients on travel time are not statistically distinguishable, and the point estimate is, in fact, slightly greater for the low-performer group, which does not support the necessary condition for the burnout mechanism. Therefore, the burnout mechanism is unlikely to explain our findings. These results are presented in appendix Table A4.

Another possible explanation for our results is endogenous attrition.[18] To rule out the possibility of endogenous attrition, whether related to differential career opportunities over the period of study or other reasons, we conducted the following test: we examined whether distant employees are more likely to leave the company than comparable local employees. If endogenous attrition were able to explain the results, then it should be the case that DFH is systematically correlated with attrition, and distant employees with high performance ratings in 2008 are more likely to leave the firm. We tested whether this condition was observed in the dataset, by using whether or not an employee leaves the firm as a binary dependent variable and examining whether it is correlated with the interaction term between travel time and performance in 2008. The estimated coefficients appear in appendix Table A6. The coefficient on travel time is near zero and not statistically significant, suggesting that DFH plays no role in employee attrition in our sample. The results with the interaction term appear in Column 2. We find no evidence that high-performing distant employees are more likely to leave the company. Thus, we conclude that the attrition-based mechanism does not explain the contrasting effects of travel time on employee performance over time.

For our analysis on how the effects of DFH on performance are attenuated by workplace friendships, one may question whether it is entirely driven by gender effects. For instance, if male employees are not affected by DFH and only female employees are affected, then one may get very similar results as those presented in Table 4. In appendix Table A7, we address this concern by exploring how different dimensions of social embeddedness moderate the negative association between DFH and longer-term performance change. We use OLS because we include various interaction terms throughout the exercise.

[18] To be clear, employees with missing performance ratings in 2010 have not necessarily left the firm. Of the 58 employees with missing performance rating in 2010, 51 employees had left the firm. Ratings for the other seven employees are missing because of the nine-month rule. Appendix Table A5 compares observables for employees with 2010 performance ratings to those of the seven employees with missing performance ratings in 2010. The sample size is too small to reach a concrete conclusion, but we find the two groups to be comparable except for their logical scores.

Table A7, Column 1 shows the baseline results first. As in Column 2 of Table 3, we find a negative association between DFH and performance under a regime of lesser vacation flexibility when using OLS. In Column 2 of Table A7, we include the interaction term between *Travel Time* and *Male*. The results show that the negative effect of DFH is weakened for male employees. This may suggest that our observations may arise from gender effects. In Column 3 (Table A7), we instead include the interaction term between *Travel Time* and *Majority Language Group*. We still find a positive estimate on the interaction term, which implies that the negative effect of DFH is reduced for those who speak the majority language within their cohort. Because *Male* and *Majority Language Group* are not entirely correlated, the findings imply that both dimensions of workplace friendships contribute to the moderation. We further explore this point. In Column 4 (Table A7), we use another interaction term between *Travel Time* and *Same or Similar Language*. Note that *Same or Similar Language* measures the language similarity between a worker and the region to which he or she is assigned. Therefore, it is not about workplace friendships within his or her cohort, but rather homophily within the broader region where the worker is assigned, which might help the worker interact with the broader community at the workplace location. Interestingly, we find that the estimate on this interaction term is not significant. When we include all three aforementioned interaction terms together in Column 5 (Table A7), we get similar results. Both being male and speaking the majority language within the cohort seem to reduce the negative effects of DFH. However, there is no statistically significant evidence that how linguistically similar a worker is to the assigned production center region reduces the negative effects of DFH. The findings emphasize that it is workplace friendships within the cohort that play a significant role in reducing the negative aspects of DFH in the longer-term, at least in our setting. Finally, in Column 6 (Table A7), we include three dummies representing all possible combinations of *Male* and *Majority Language Group* and their interaction terms with *Travel Time* with the exception of female employees who do not speak the majority language within their cohort, which is omitted. The results present a refined view on how the two dimensions of workplace friendships we have used contribute to the moderation effects. Female employees seem to suffer from DFH the most, regardless of whether they speak the majority language within their cohort or not. Compared to female employees, male employees seem to suffer less, but among male employees, belonging to the majority language group within their cohort additionally reduces the negative effects of DFH. Taken together, these findings bolster our belief that our results on social embeddedness are not entirely attributable to gender effects.

Additional Robustness Checks

In conducting additional robustness checks, we explored whether the estimates change with different functional form assumptions. To test this, we reran models 1-3 of Table 3 and models 1 and 2 of Table 4 using OLS rather than the ordered logit model estimated by the MLE. Estimating these models using OLS gives us substantially similar results, results are available with the authors.

To explore the possibility that a few outliers drive the main results, we performed two sensitivity tests. First, we used the winsorization technique and replaced the extreme DFH values beyond the bottom and top five percentiles with less-extreme values at each percentile; all results remain robust. Second, we dropped observations from the two smallest production centers—Mangalore and Trivandrum—and reran the analyses. Our results are robust to dropping employees assigned to these two centers, and are available with the authors.

Finally, we considered whether our findings are sensitive to our operationalization of the DFH measure. As previously discussed, we used travel time via train to measure DFH, because our field interviews indicated that almost all newly hired college graduates use trains to travel back to their hometowns. However, because we cannot fully dismiss the possibility that no employee uses airline travel, we empirically investigated whether the presence of a direct flight between workplace and hometown affects our findings. To do so, we first collected new data using the OAG Flight database (https://www.oag.com) to identify all domestic flights in India in 2010. Then we created a binary variable *Weekly Flight* indicating whether there is at least one flight per week connecting an employee's hometown and workplace. In 2010, about 26 percent of employees, or 100 employees, can potentially use a direct flight to visit their hometown.

Using the new variable, we re-estimated the main specifications, including the interaction term between *Weekly Flight* and *Travel Time*. The results are presented in appendix Table A8. If the presence of direct flights mitigates the longer-term costs of DFH, then we should see that the interaction term between *Weekly Flight* and *Travel Time* is positive and significant. However, we do not find such evidence in Column 2 (Table A8), indicating that the presence of direct flights plays a negligible role in our empirical setting. Together with our qualitative evidence from interviews, this result justifies our decision to focus on travel time via train as the main independent variable.

DISCUSSION AND CONCLUSION

This paper attempts to study the costs that geographic mobility imposes on workers relative to being distant from their hometown and tries to establish a causal relationship between DFH and individual worker performance. We exploited a unique HR protocol at a large Indian technology firm that randomly assigns entry-level employees hired from colleges across India to eight production centers, also distributed across the country. Our field interviews indicated that the informal norms of this organization led to workers having relatively more vacation flexibility in the first year of employment and relatively less vacation flexibility in the third year of employment. The interviews further suggested that vacation flexibility is a key construct relevant to the relation between DFH and worker performance. Our findings suggest that DFH is negatively related to performance change when the worker transitions from conditions of greater vacation flexibility, to lesser vacation flexibility. Additional analyses (available from the authors) show that the negative relationship between travel time and worker performance under conditions of lesser vacation flexibility is particularly salient for employees whose travel time exceeds 23 hours. Among the plethora of possible explanatory mechanisms, we hone in on exploring the effect of vacation flexibility in determining the relation between DFH and worker performance. We utilize field interviews, subsample analyses, and micro-data to shed light on this mechanism.

Our study is relevant to various literature strands focused on geographic mobility and the geography of work. The rich literature on geographic mobility of workers has documented the benefit of such mobility to workers and firms (Singh and Agrawal, 2011; Agrawal, Cockburn, and McHale, 2006; etc.). From a learning-by-hiring and knowledge flows perspective, firms can benefit from hiring distant employees (Rosenkopf and Almeida, 2003; Song, Almeida, and Wu, 2003; Dokko and Rosenkopf, 2010). As Rosenkopf and Almeida (2003) have asserted, external hires can serve as bridges to distant contexts. Song, Almeida, and Wu (2003) argue that external hiring can extend the geographical boundaries of interfirm knowledge transfer; they offer evidence that hiring distant employees, both domestic and international, is conducive to learning-by-hiring. Geographic mobility also helps firms via socialization of norms (Edström and Galbraith, 1977). Our research makes an important contribution to this literature by highlighting the *costs* that geographic mobility imposes on workers via effects of DFH on worker performance. While the costs of geographic mobility have been discussed in the broader economics, sociology, and legal literatures (e.g., Sjaastad, 1962; Dahl and Sorenson, 2010a, 2010b; Schleicher, 2017), to the best of our knowledge, this study represents the first attempt to unpack how DFH and psychic costs of being spatially separated from family when it matters most affect worker performance. Also, we make an important contribution to the conceptualization of psychic costs related to DFH. The prior literature in economics assumes that psychic costs related to distance depend on two variables alone: DFH and frequency of visits. To quote Schwartz (1973: 1160), "Assuming that a given frequency of visits to the old location will suffice to eliminate psychic cost, we can compute the annual transportation cost required to do so." However, our study points out that psychic costs of distance not only depend on DFH and frequency of travel, it also matters that the worker travels back to the hometown *when* it matters most.

For the broader research agenda in geographic mobility, future research should study how firms can reconcile the important trade-off by measuring the benefits of hiring distant employees against the costs imposed by geographic mobility. An interesting question is whether firms should encourage temporary relocation. In fact, a recent study (Choudhury, 2017) highlights the effect of "temporary mobility," or intrafirm assignments to a distant location that last for a few weeks, on subsequent individual-level innovation outcomes.

Our findings are also relevant to the emerging literature on migration and organizations (Hernandez, 2014; Wang 2015; Choudhury and Kim, 2019). Though the concept of psychic costs was prominent in the economics of migration literature in the 1960s and 1970s, to our knowledge, there has been no empirical study of how psychic costs affect migrants' long-term individual productivity. Borjas' seminal 1994 study of migration, for instance, discusses the transportation costs of migration, but does not discuss psychic costs. Our results indicate that the underlying model of self-selection in the context of migration (i.e., Roy, 1951) should acknowledge the psychic costs of migration. Borjas (1994) does, in fact, urge the field to consider an extension of the Roy (1951) model by incorporating variable migration costs.

Though workers in our sample *do not* have a say in where they work, our study makes a valuable contribution to the nascent literature on how personal preferences drive the geography of work for individuals (Dahl and Sorenson, 2010a, 2010b, 2012; Kulchina, 2016; Yonker, 2016). As Marquis and Battilana (2009: 284) state, "individuals…are typically embedded in their home localities." Not only do we establish a causal relationship between DFH and individual performance, we also provide a framework that synthesizes three theories about possible drivers of the relationship between the two. Though our study focuses on social attachment to place theory, it is plausible that, in other settings, information costs theory and/or cultural distance theory could be more salient. For example, Dahl and Sorenson (2010a) suggest the particular importance of opportunity identification and access to locally relevant information in entrepreneurs' choices of location. Future research on how DFH affects the location choices of CEOs, workers, entrepreneurs, and scientists could utilize our framework to specify the relative importance of competing theories on the geographic preferences of different types of knowledge workers.

By theorizing the importance of vacation flexibility for distant workers, we make a contribution to the organizational literature on flexibility, temporal flexibility, and schedule flexibility (Perlow, 1999; Golden, 2001; Evans, Kunda, and Barley, 2004; Briscoe, 2006). As Briscoe (2006: 102) states, "the field of work and employment research needs to better understand changes occurring in professional labor markets…therefore a central question for understanding professional labor markets continues to be, 'Where and how will career flexibility be found?'" While the prior literature on temporal flexibility has outlined the importance of managing the weekly or daily schedule (Golden, 2001) and longer-term work patterns (Bailyn, Drago, and Kochan, 2001; Barley and Kunda, 2001; Moen, 2003), we argue that for employees working far from home, managing the schedule of vacations is also an important dimension of temporal flexibility that affects worker performance. To generalize this insight beyond the context of the present study, we highlight the psychic costs of not being able to travel back to one's hometown during the Chinese New Year, reported by a Chinese migrant working in Kenya (Elkins, Choudhury, and Khanna, 2020). To quote the authors, the migrant says, "A resident of the Anhui Province in China, William, came to Kenya in 1997 to work for a Chinese state-owned company, Golden Bell International Limited. In his early twenties then, he felt lonely and miserable during the first Chinese New Year spent on the Kenyan coast" (Elkins, Choudhury, and Khanna, 2020: 4).

Our findings also contribute to the literature on work in emerging economies (Ranganathan, 2018a, 2018b) and literature streams in strategic human capital that focus on hiring, employee mobility, and early career experiences. That literature has long explored the topic of external hiring (Dokko, Wilk, and Rothbard, 2009; Bidwell, 2011). The theory literature on hiring is based largely on models matching workers to jobs (Schein, 1978; Heckman and Sedlacek, 1985; Hall, 1986). The rewards offered by a job, including wages and personal happiness, might be a good match for a worker's preferences, leading to "horizontal fit" between worker preferences and job traits (Bidwell and Mollick, 2015). As Bidwell and Briscoe (2010) suggest, a job that offers greater flexibility, more autonomy, and better work-life balance might be a superior match with worker preferences and might lead to superior individual performance. Our study suggests that factors related to individual worker-level characteristics, such as the location of the individual's hometown and the distance between hometown and workplace, might be salient to a job-worker match.[19] Our results also contribute to a third stream of the human capital literature, focused on early career experiences (Dokko, Wilk, and Rothbard 2009; Tilcsik, 2014; Chattopadhyay and Choudhury, 2017) by highlighting the importance of DFH for the performance of early-career workers.

Our study has several limitations. Given that we focus on a single firm (in keeping with the insider econometrics approach), the external validity and generalizability of our results are open to question. First, our findings might not be applicable to smaller countries or to countries whose transportation systems are more developed than that of India. The mean travel time for individuals in our sample is about 16 hours, and the maximum is 49 hours. It would be interesting to determine whether a relationship between DFH and worker performance exists in smaller countries where air travel is more economical and feasible or in international settings where employees are assigned to foreign workplaces. Second, given that the psychic costs of remoteness from family and friends might be higher early in employees' careers versus later, a follow-up question for research is whether the pattern we found changes when employees acquire families of their own.[20] It is plausible that the negative effect of distance on individual performance under lesser vacation flexibility is reversed when an employee marries and begins a family. This possibility recalls the theory of U-curve adjustment in the field of cross-cultural adjustment (Lysgaard, 1955; Adler, 1983), which

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[19] Firm locations are subject to agglomeration economies with respect to location (Shaver and Flyer, 2000; Alcacer and Chung, 2014), and being hired by a given firm often entails relocation (Song, Almeida, and Wu, 2003). Our results suggest that DFH might lead to better or worse matches between the worker and the job and to variation in worker performance.
[20] It is noteworthy that *none* of the employees in our sample were married or had children during the period of our study. We confirmed this observation in our field interviews.

posits four phases in migrants' cultural adjustment: (1) honeymoon, (2) culture shock, (3) adjustment, and (4) mastery. It is plausible that our 2008 and 2010 results correspond to the honeymoon and culture shock phases, respectively. Future work should explore whether costs related to social attachment to place undergo inversion over longer periods of time. Most importantly, though we focus on a single theory—social attachment to place—and do attempt to control for alternative explanations given the limitations of our setting and the data, we do not rule out the possibility that other theories and mechanisms may also impact our findings.

Our insights open up several other avenues for future research. It would be interesting to study substitutes for and complements to family and friends. It would also be enlightening to study interventions that firms could implement to mitigate the psychic costs incurred by employees hired from far away. Finally, it would be worthwhile to determine whether the effects of DFH on employee performance vary across countries (on dimensions such as size of the country, travel infrastructure, and homogeneity in languages spoken) and career stages of the worker. Organizational scholars could also conduct longer-term longitudinal studies to examine the antecedents and consequences of workers returning (or not returning) to their native hometowns over the course of their careers. While biology has an advanced understanding of *natal philopatry*, or the phenomenon of animals returning to the location in which they were born (Waser and Jones, 1983; Weatherhead and Forbes, 1994), future research could embark on understanding natal philopatry of workers who have moved between and across regions.

Our study has several managerial implications for firms, especially firms in emerging markets that hire at scale and do not offer post-employment choice of location. Such organizations include the Indian Administrative Services in India, SK Telecom in Korea, and Bank of Communications Ltd. in China. Our findings are also pertinent to two trends that shape individuals' location choices. Several recent articles in general interest U.S. periodicals indicate that individuals increasingly prefer to live near their hometowns. In one such study, 61 percent of U.S. respondents said their likelihood of relocating for work was low—41 percent said that doing so was not at all likely (White, 2015). Also, given the current policy environment for skilled immigration, it is plausible that knowledge workers will be even less likely to migrate far from home in the future. If future research corroborates this pattern, managers would be well served to hire locally and/or mitigate the psychic costs incurred by distant employees by awarding them more vacation flexibility. Our study suggests that in deciding the vacation calendar at organizations, one size may not fit all workers, and managers might be better served by granting leave to distant employees for important holidays when their psychic costs of separation from family is likely to be high. As an example, Chinese migrants might want to take vacation time during the Chinese New Year rather than during Christmas.

In summary, our study provides important causal evidence on how social attachment to home and DFH affects individual performance in the presence (relative absence) of vacation flexibility. While attempting to control for alternative explanations, we exploit random assignment of workers to locations within the firm, as well as field interviews and micro-data to explore one theory—social attachment to place—and a single mechanism—workers' ability to take vacation and visit family when it matters the most—to advance our understanding of this subject. Our results speak to the literatures on geographic mobility and the geography of work, the organizational literature on migration, workers' geographic preferences, temporal flexibility, hiring, early career experiences, and migration, and they also have several valuable managerial implications. In conclusion, our study responds to the call of Barley and Kunda (2001) for more detailed work studies and for "bringing work back in," doing so in an emerging market context.

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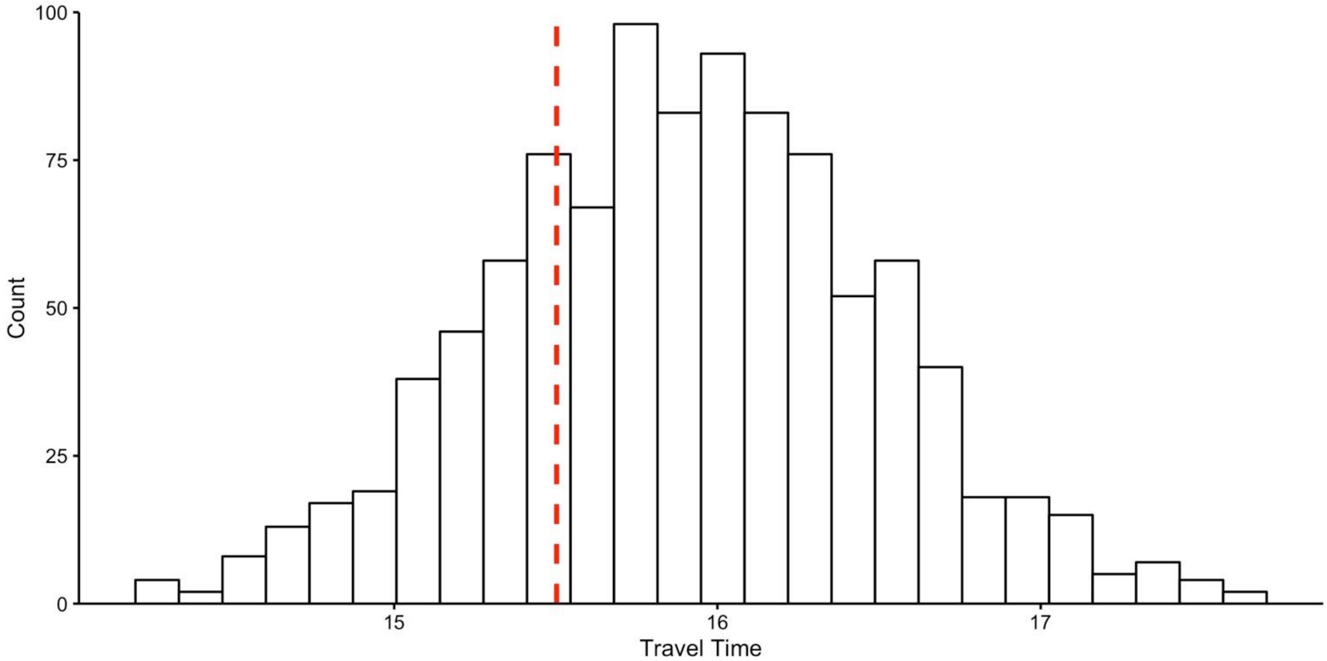
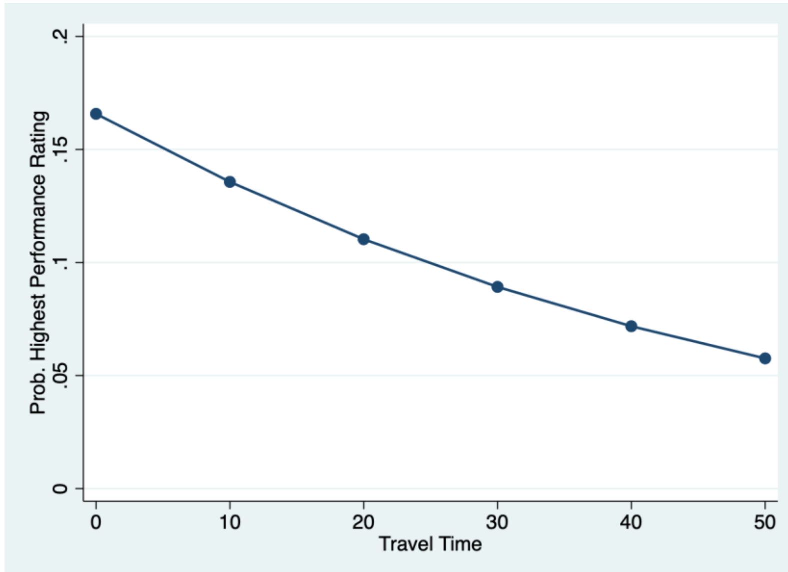
Figure 1. Simulated vs. Realized Distribution of Travel Time



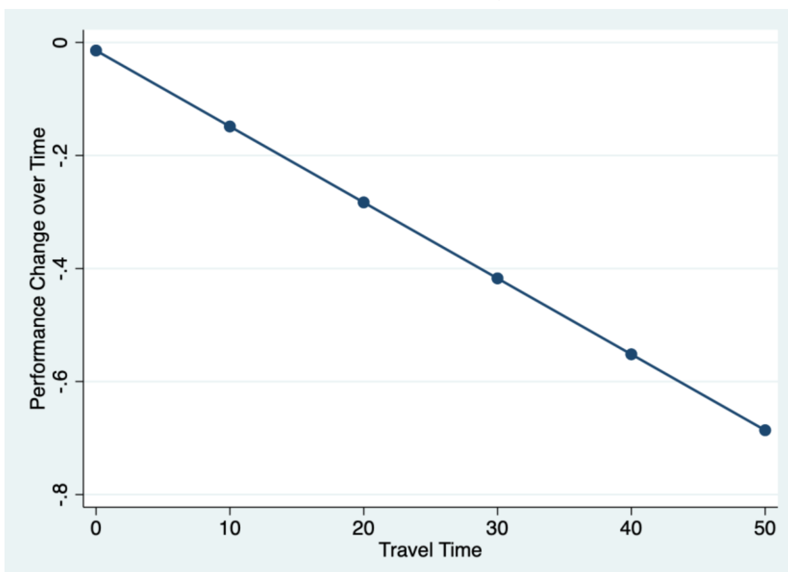
Note: This figure compares the distribution of *Travel Time* from Monte Carlo simulation to the realized mean value of *Travel Time*. For the simulation, we randomly drew (with replacement) from the entire employee sample the same number of employees actually assigned to one of the eight locations. We conducted 1,000 random draws and present the sampling distribution of mean *Travel Time* values in the histogram. The realized mean value of *Travel Time* is presented as a thick dotted line. The realized mean value of *Travel Time* is not statistically different from a hypothetical mean value of *Travel Time* when employee assignment is entirely random, thus providing additional quantitative evidence that the employee assignment process is random.

Figure 2. Margins Plots

Panel A: Main Effects under Lesser Vacation Flexibility Period



Panel B: Performance Change over Time



Note: Panel A presents the margins plot depicting the relationship between DFH and the likelihood of receiving the highest performance rating in periods with lesser vacation flexibility. We calculated the adjusted predicted values by plugging in different values of *Travel Time* for an average employee. The negative slope implies that DFH affects longer-term worker performance negatively. Panel B presents the linear relationship between DFH and performance change over time, based on the results presented in Column 5 of Table 3.

Table 1. Summary Statistics and Correlations

	Variables	N	Mean	Sd	Min	Max	1	2	3	4	5	6	7	8	9	10
1	Travel Time	443	15.50	10.38	0.33	48.97										
2	CGPA Training	443	4.55	0.33	2.89	5.00	0.04									
3	Male	443	0.66	0.47	0.00	1.00	0.04	0.04								
4	Same Language	443	0.33	0.47	0.00	1.00	-0.56**	0.15**	-0.06							
5	Similar Language	443	0.07	0.26	0.00	1.00	0.16**	-0.01	0.17**	-0.20**						
6	Majority Language Group	443	0.42	0.49	0.00	1.00	-0.41**	-0.07	0.04	0.50**	0.29**					
7	Migration Experience	443	0.63	0.48	0.00	1.00	0.06	0.01	-0.13*	0.02	0.13*	0.02				
8	Logical Score	413	5.07	3.29	-4.00	9.00	-0.08	0.09+	-0.05	0.12*	-0.01	0.07	-0.11*			
9	Verbal Score	413	4.32	3.78	-8.00	15.00	-0.01	0.08	-0.00	-0.03	-0.08	-0.07	-0.12*	0.36**		
10	1st Year Performance Rating	443	1.72	0.66	1.00	4.00	-0.06	-0.34**	-0.06	-0.09+	-0.02	0.02	0.22**	-0.17**	-0.12*	
11	3rd Year Performance Rating	385	2.75	0.90	1.00	5.00	0.07	-0.21**	-0.16**	-0.04	-0.04	-0.03	0.13*	-0.07	-0.11*	0.22**

Note: p-values are indicated as follows: +p < .1; *p < .05; **p < .01. The variable *Travel Time* represents the shortest travel time (in hours, one-way) from an employee's workplace to hometown by train. In the first year after assignment, a newly hired employee receives one of three performance ratings: one (high), two (average), or four (low). The rating represents the employee's performance relative to that of his or her peers. In 2008, an employee received the highest rating (one) if he or she fell into approximately the top 35 percent of the relative performance distribution and the second-highest rating (two) if he or she fell into the top 96 percent. The lowest rating (four) was given only if an employee fell into the bottom four percent of the distribution. In the third year after assignment, the employees in the sample receives on of the five-point scale ratings, from one (highest) to five (lowest). Approximately the top 13 percent of employees received ratings of one; only eight employees, whose performance fell into the bottom two percent, received the lowest rating. In the regression analysis, we multiplied the original performance ratings by -1 and use this transformed variable as our dependent variable to interpret the estimates more intuitively. Originally, the lower an employee's performance rating, the higher his or her relative performance; after the transformation, a numerically higher rating score indicates higher performance. After transformation, we can interpret a positive coefficient as a positive association between an independent variable and performance. It should be noted that the magnitude of estimated coefficients remains the same before and after the transformation. *Logical Score* and *Verbal Score* can take negative values because of penalties for incorrect answers to questions in the recruitment test. Drawing on the recent Indian linguistics literature that classify Indian languages into a few families based on similarity (Sengupta and Saha, 2015), we created two dummy variables. *Same Language* is equal to one if the official language of an employee's hometown and the region surrounding their assigned workplace is the same language. *Similar Language* is equal to one if the official language of an employee's hometown and the region surrounding their assigned workplace is not the same language but in the same language family. The dummy variable *Migration Experience* indicates whether a newly hired employee has prior migration experience. To construct this variable, we compared an employee's hometown location to his or her university location, at the district level, and coded the variable as one if the locations differed.

Table 2. Validity of Random Assignment

Dependent Variable	Assigned to Bangalore = 1				
	(1)	(2)	(3)	(4)	(5)
Travel Time to Bangalore	-0.014	-0.014	-0.014	-0.014	-0.011
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
CGPA Training		0.034	0.029	0.029	-0.089
		(0.373)	(0.376)	(0.376)	(0.372)
Male = 1			0.111	0.111	0.107
			(0.241)	(0.241)	(0.247)
Migration Experience = 1			-0.323	-0.323	-0.308
			(0.228)	(0.228)	(0.236)
Logical Score					-0.048
					(0.037)
Verbal Score					0.016
					(0.036)
Log Likelihood	-242.016	-242.011	-240.854	-240.854	-228.750
Observations	443	443	443	443	413

Note: Logit regression is used for estimation. Robust standard errors are presented in parentheses. Column 5 has a smaller sample size because of missing values in logical and verbal scores.

Table 3. Distance from Hometown and Worker Performance

Dependent Variable:	Performance Under Lesser Vacation Flexibility Ordered Logit			Performance Change when Worker Transitions from Greater to Lesser Vacation Flexibility OLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Travel Time	-0.018+	-0.024+	-0.023+	-0.011**	-0.013**	-0.013**
	(0.010)	(0.012)	(0.014)	(0.003)	(0.004)	(0.005)
CGPA Training		1.497**	1.318**		-0.160	-0.164
		(0.333)	(0.337)		(0.102)	(0.108)
Male = 1		0.686**	0.627**		0.103	0.092
		(0.226)	(0.236)		(0.073)	(0.078)
Same Language = 1		0.024	0.116		-0.157	-0.134
		(0.325)	(0.339)		(0.105)	(0.112)
Similar Language = 1		0.217	0.103		-0.331+	-0.314+
		(0.558)	(0.551)		(0.180)	(0.182)
Majority Language Group = 1		-0.253	-0.175		0.053	0.058
		(0.286)	(0.288)		(0.096)	(0.098)
Migration Experience = 1		-0.521*	-0.497*		0.101	0.104
		(0.229)	(0.240)		(0.075)	(0.078)
Logical Score			0.003			-0.021+
			(0.037)			(0.012)
Verbal Score			0.048+			0.010
			(0.029)			(0.010)
Location FE	Yes	Yes	Yes	Yes	Yes	Yes
Log Likelihood	-461.640	-440.173	-405.657			
R-squared				0.055	0.081	0.089
Observations	385	385	358	385	385	358

Note: Robust standard errors are presented in parentheses; +p < .1; *p < .05; **p < .01. Columns 3 and 6 have a smaller sample size because of missing values in logical and verbal scores.

Table 4. Heterogeneity in Negative Effects of Distance from Hometown on Worker Performance

Dependent Variable:	Performance Rating under Lesser Vacation Flexibility		
Sample:	Have stronger workplace friendships=0	Have stronger workplace friendships=1	All Employees
	Ordered Logit	Ordered Logit	OLS
	(1)	(2)	(3)
Travel Time	-0.034**	0.030	-0.013*
	(0.013)	(0.049)	(0.005)
Have stronger workplace friendships x Travel Time			0.046**
			(0.016)
CGPA Training	1.798**	1.156+	0.706**
	(0.422)	(0.657)	(0.138)
Male = 1	0.884**		0.344**
	(0.302)		(0.118)
Same Language = 1	0.248	-1.510	0.069
	(0.366)	(1.115)	(0.146)
Similar Language = 1	-2.727**	-0.435	-0.442
	(0.769)	(1.867)	(0.283)
Majority Language Group = 1	-0.300		-0.100
	(0.374)		(0.155)
Migration Experience = 1	-0.577*	-0.640	-0.226*
	(0.272)	(0.496)	(0.096)
Have stronger workplace friendships = 1			-0.515*
			(0.238)
Location FE	Yes	Yes	Yes
Log Likelihood	-309.169	-123.348	-475.926
R-squared			0.144
Observations	276	109	385

Note: The variable 'have stronger workplace friendship' takes the value of 1 for workers who are male and additionally members of the major language group in their production center cohort. Robust standard errors are presented in parentheses; +p < .1; *p < .05; **p < .01.

Table 5. Leave Days in Diwali Month over Time

Dependent Variable:	# Leave Days in Diwali Month			Taking Leave in Diwali Month = 1			Taking Leave in Diwali Month = 1		
	OLS			Logit			Logit		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Travel Time	0.055*	0.061*	0.020	0.055*	0.036*	-0.019	0.055*	0.036	-0.011
	(0.026)	(0.027)	(0.034)	(0.022)	(0.018)	(0.023)	(0.028)	(0.023)	(0.023)
Leave Days in 2008							0.030*		
							(0.014)		
Leave Days in 2009								0.066**	
								(0.024)	
Leave Days in 2010									0.011
									(0.019)
Location FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.117	0.028	0.062						
Log Likelihood				-73.810	-91.365	-69.341	-49.036	-63.056	-51.056
Observations	213	194	144	212	188	142	89	112	86

Note: Robust standard errors are presented in parentheses; +p < .1; *p < .05; **p < .01. TECHCO made available administrative data on leave taken for four out of the eight training batches related to employees in the sample; as a result, we have almost complete data for workers within these batches, but we do not have data for workers in every training batch. TECHCO did this to simplify the workload at their end; the training batches for which data was made available were admittedly selected randomly. Columns 7, 8, and 9 use a subsample of employees who took any leave days in a given year.