Geographic Mobility, Immobility, and Geographic Flexibility – A Review and Agenda for Research on the Changing Geography of Work

Prithwiraj (Raj) Choudhury[1]

Abstract

I review and integrate a wide range of literature that has examined how *geographic mobility* of high-skilled workers creates value for organizations and individuals. Drawing on this interdisciplinary literature, I document that geographic mobility creates value by facilitating the transfer and recombination of knowledge, transfer of social capital, organizational norms, and financial capital, as well as by creating opportunities for individuals to develop skills, seek resources, and experience wage increases. I also review the literature around *geographic immobility* and synthesize this body of research under a framework of *geographic mobility frictions* that constrain and add costs to geographic mobility. I enumerate four key types of frictions: regulatory frictions, occupational/organizational frictions, personal frictions, and economic/environmental frictions, which act as impediments to geographic mobility. I then propose a research agenda around studying whether and how provisioning *geographic flexibility* through 'work-from-anywhere' (WFA) policies might help individuals and firms capture value from geographic mobility and mitigate adverse effects of geographic mobility frictions. I also outline future research questions related to how adoption of geographic flexibility might alter future patterns of geographic mobility, and the future geography of work.

[1] Email: pchoudhury@hbs.edu. The author acknowledges Isin Guler, Exequiel Hernandez, William Kerr, and Tarun Khanna for constructive comments and suggestions on a prior draft. All errors and omissions are mine.

INTRODUCTION

Geographic mobility of individuals has long been a topic of interest in the social sciences. In this vast literature, the questions studied have ranged from quantifying mobility at a regional or global level (e.g., Ravenstein, 1885; UN DESA 2019), to exploring reasons why people move or stay (e.g., de Haas, 2011; Massey et al., 1998; Schwartz, 1973), to studying the effects of mobility on the sending and receiving organizations, economies, and societies (e.g., Borjas, 1999; Edström & Galbraith, 1977; Portes & Sensenbrenner, 1993; Ritchey, 1976). Prior research also suggests that individuals with higher levels of education, i.e., tertiary-educated workers, are disproportionately represented in global talent flows (Artuc, Docquier, Özden, & Parsons, 2015; Docquier & Marfouk, 2006; Kerr, 2020; Kerr, Kerr, Özden, & Parsons, 2016). However, even for highly educated workers—who retain relatively greater agency over their decision to migrate compared to low-skilled workers—barriers to mobility emerge. Geographic mobility frictions (which may be related to regulatory, occupational, organizational, personal, economic, or environmental factors) often lead to *geographic immobility* of high-skilled workers and/or lead to costs when workers relocate.[2] Given this, an interesting question pertains to whether *geographic flexibility*, awarded by remote work policies such as work-from-anywhere (WFA), helps workers and firms reap the benefits of geographic mobility, while mitigating the frictions to mobility. WFA allows workers to relocate to their preferred locations (rather than where the firm has an office) and this review explores the promise (and pitfalls) of geographic flexibility, in the context of geographic mobility and immobility.

[2] The Covid-19 pandemic presents a stark illustration of these concerns. However, even prior to the crisis, there was significant geographic immobility both between and within countries. Kerr (2020) estimates that only 3.5% of the world's population live outside their home country. Within the U.S., the decline of inter-state mobility serves as a backdrop for a vibrant policy debate over the best policies to either reinvigorate domestic mobility (Foster, 2017; Schleicher, 2017a, 2017b) and/or provide support to "stayers", i.e., individuals who do not move (Austin, Glaeser, & Summers, 2018; Joint Economic Committee, 2019; Schoenbaum, 2017).

To that end, this review first develops synthesizing frameworks on geographic mobility and immobility, and then proposes a research agenda around studying geographic mobility and immobility in light of awarding workers geographic flexibility.

The literature on geographic mobility and immobility of high-skilled workers is fragmented across discussions in management, economics, sociology, and law, and lacks a synthesizing framework for both *how geographic mobility creates value for organizations and individuals* and *how geographic mobility frictions impede geographic mobility*. This article seeks to fill this gap. Drawing on this interdisciplinary literature, I identify a series of mechanisms through which the geographic mobility of high-skilled workers creates value, for the mobile individuals themselves, the organizations where they work, and for others in their social and professional networks. I find that geographic mobility creates value by facilitating the transfer and recombination of knowledge, transfer of social capital, organizational norms, and financial capital, as well as by creating opportunities for individuals to develop skills, access resources, and seek opportunities that increase their wages.

Based on an interdisciplinary literature, I then outline a framework of factors that inhibit the individual geographic mobility of high-skilled workers, which I refer to as *geographic mobility frictions*. Conceptually, these frictions could constrain geographic mobility and/or result in costs to the individual during or after relocation. I enumerate four types of frictions: *regulatory frictions,* i.e., legal limitations on mobility at the international, national, or local level; *occupational/organizational frictions*, i.e., job- or firm-specific barriers to mobility; *personal frictions,* i.e., the inter-personal, familial, or social factors that limit mobility; and *economic/environmental frictions,* i.e., financial, and other macro-level impediments to mobility.

Given the value created by geographic mobility and the array of barriers to mobility, I propose an agenda for studying how organizations and individuals can mitigate the adverse effects of geographic mobility frictions. Specifically, I discuss the potential for *geographic flexibility* awarded by remote work policies such as *work-from-anywhere* (Choudhury, Foroughi, & Larson, 2021) to help individuals mitigate the adverse effects of mobility frictions and relocate to their preferred location, creating value for themselves, their organizations, and society at-large. I also discuss temporary colocation (resulting from short-term geographic moves) as an alternative to longer-term mobility and permanent colocation, as well as how organizations can leverage place-based policies to encourage mobility and/or counterbalance the effects of geographic mobility frictions. These mechanisms do not represent an exhaustive set of solutions to mitigate mobility frictions, and other solutions, such as firms lobbying for the reform of immigration policy, remain outside the scope of this article.

In view of these mechanisms, I discuss opportunities for future research. Future scholarship should assess the productivity effects, as well as costs and benefits of each of these mechanisms, in addition to studying conditions needed to maximize value creation in each case. Geographic flexibility and work-from-anywhere (WFA), in particular, provides a rich topic for future research. Possible research questions range from determining what task and worker characteristics are best suited for such flexibility, to assessing how patterns of future geographic mobility might differ for organizations and teams that embrace geographic flexibility, as compared to physically colocated organizations and teams, to how the provisioning of WFA could affect value creation and value capture for organizations and individuals, from the mobility decisions of individuals.

The remainder of this article is organized as follows. Section 2 details the scope of the literature review, including an explanation of the search parameters and key thematic exclusions. Section 3 synthesizes the mechanisms through which geographic mobility creates value for individuals and firms. Section 4 develops a novel framework for organizing the various geographic mobility frictions that impede geographic mobility. Section 5 proposes a series of organizational responses to mitigate the effects of these geographic mobility frictions. Section 6 discusses questions for future research and concludes.

REVIEW SCOPE

This article will first engage in a comprehensive review of the literature on geographic mobility and immobility across the fields of strategy and management, organizational science, sociology, economics, and law. Within these fields, I reviewed the following journals: *Academy of Management Journal, Administrative Science Quarterly, American Economic Review, American Journal of Sociology, American Sociological Review, Journal of Economic Geography, Journal of International Business Studies, Journal of Urban Economics, Management Science, Organization Science, The Quarterly Journal of Economics, Research Policy, Strategic Management Journal,* and *the Yale Law Journal*.

Within these journals, I used several key phrases to bound my Boolean search: migration; mobility; "knowledge transfer" AND mobility; recombination AND mobility; "social capital" AND migrant; entrepreneur AND migrant; knowledge AND transnational; "location choice"; "geographically dispersed"; "international experience"; and expatriate. I limited results to articles published between 2000 and 2020.

For the purposes of this article, I define the nature of *geographic mobility* along three intersecting dimensions. First, I consider the nature of the political border being crossed during

mobility, i.e., mobility between countries or mobility between states or regions within a country. Second, I consider the organizational context of the geographic mobility, i.e., whether it is intrafirm mobility between two locations of a firm or whether it is between two firms. Third, I consider the duration of the move, whether temporary, i.e., a designated period of days, weeks, or months, or permanent, i.e., without an intended return date, even if return migration may eventually occur. In summary, I will consider within-country and cross-border geographic mobility, inter- and intra-firm geographic mobility, and both permanent and temporary moves.

I will also limit my review in several ways, choosing to focus on high-skilled (i.e., tertiary-educated) individuals who engage in geographic mobility. To that end, I will exclude discussion on forced migration, i.e., geographic mobility motivated by conflict, persecution, or other exigencies (for a helpful overview of the evolution of the literature on forced migration and refugees, see Black, 2001; Zetter, 1991, 2007). I will also exclude micro-geographic mobility, such as within buildings or between buildings in close proximity (e.g., Allen, 1977; Catalini, 2018). Finally, as the focus of this discussion is on geographic mobility, I will also exclude any articles whose discussion centers on career mobility and inter-organizational mobility, if that mobility does not also include a geographic component.

SYNTHESIZING THE VALUE CREATION MECHANISMS OF GEOGRAPHIC MOBILITY

Prior literature on how the geographic mobility of high-skilled workers creates value for individuals and organizations emerges in a range of academic disciplines, with authors using economic, sociological, and management lenses to identify value creation mechanisms. Across disciplines, however, a range of value creation mechanisms emerge. Specifically, the literature shows that geographic mobility of high-skilled workers can create value for individuals and

firms through knowledge transfer, knowledge recombination, social capital transfer, socialization of organizational norms, capital transfer and entrepreneurship, skills development, resource seeking, and wage effects (see Tables 1 and 2 for details). In this section, I will summarize each mechanism in turn.

Knowledge transfer

The literature on how geographic mobility by high-skilled workers creates value often begins with a discussion of the role of geographic proximity in facilitating knowledge transfers. In their seminal work, Jaffe, Trajtenberg, and Henderson (1993) argue that knowledge spillovers tend to be geographically localized—a finding echoed at the regional level by Almeida and Kogut (1999). A series of later articles further explores these findings, arguing alternatively that social proximity (rather than geographic proximity) facilitates knowledge transfer (Breschi & Lissoni, 2003) or that social proximity can mitigate the negative effects of geographic distance (Singh, 2005). Others provide examples of how mobile individuals can help overcome the baseline localization of knowledge transfer (Agrawal, Cockburn, & McHale, 2006; Gibson & McKenzie, 2014; Levin & Barnard, 2013; Lissoni, 2018; Saxenian, 2006; Thompson, 2006). Agrawal, Kapur, and McHale (2008) argue that both geographic and social proximity can affect knowledge transfer, but argue that they act as substitutes. Meanwhile, other scholars began to question the causality of these findings, arguing that likelihood of knowledge transfer only appears localized because scientists and inventors tend to be immobile, meaning that their social networks tend to be geographically localized as well (Breschi & Lissoni, 2009; Verginer & Riccaboni, 2021).

One way firms can overcome the geographic localization effect of knowledge transfer is to hire geographically distant individuals (Rosenkopf & Almeida, 2003; Song, Almeida, & Wu,

2003) or immigrants, due to their access to broader information networks (Agrawal, McHale, & Oettl, 2019; Almeida, Phene, & Li, 2014; Singh, 2005). Firms could also seek to hire individuals with cross-border experience, which has been shown to positively relate to creativity and innovation (Carpenter, Sanders, & Gregersen, 2001; Daily, Certo, & Dalton, 2000; Godart, Maddux, Shipilov, & Galinsky, 2015; Jang, 2017; Le & Kroll, 2017). For multi-location firms, knowledge transfer may also be facilitated through global staff rotations (Beaverstock, 2004; Criscuolo, 2005; Edström & Galbraith, 1977) or other forms of intra-firm mobility (Choudhury, 2020b; Edler, Fier, & Grimpe, 2011; Kolympiris, Hoenen, & Klein, 2019; Marino, Mudambi, Perri, & Scalera, 2020; Oettl & Agrawal, 2008). However, some scholars note limitations to mobility-facilitated intra-firm knowledge transfer, including the stickiness of knowledge transfer (Szulanksi, 2002), the ability of mobile employees to transmit knowledge and willingness of the organizational unit to receive that knowledge (Chang, Gong, & Peng, 2012; Oddou, Osland, & Blakeney, 2009), and mobile employees' embeddedness fit (i.e., perceived fit between the worker's skill set and the requirements of the assigned job) in both expatriate and home country placements (Froese, Stoermer, Reiche, & Klar, 2020).

More broadly, there are several examples of cross-border, migrant-facilitated knowledge transfers in economic history, among them the experiences of displaced Huguenots in 15th century Prussia (Hornung, 2014), displaced German Jewish scientists in the U.S. in the 1930s (Moser, Voena, & Waldinger, 2014), and Russian scientists following the collapse of the Soviet Union (Borjas & Doran, 2012; Ferrucci, 2020; Ganguli, 2015). In each case, these human mobility events spurred innovative production in the destination country using tacit knowledge transferred by the migrant groups.

This phenomenon is also discussed in the context of contemporary economies, including work on the contributions of foreign graduate students to innovation in their destination country (Blit, Skuterud, & Zhang, 2019; Crown, Faggian, & Cocoran, 2020; Gaulé & Piacentini, 2013) and the effect of cross-border migrants on patenting, innovation, and entrepreneurship (Canello, 2016; Hunt, 2011; Wadhwa, Jasso, Rissing, Gereffi, & Freeman, 2007). Notably, two recent papers seek to assess the effects of migration on knowledge transfer globally, based on migration flows between country-pairs. Bahar, Choudhury, and Rapoport (2020) find evidence that an increase of migrant inventors in a country correlates to an increase in patenting in sectors in which the migrant inventors' home country specializes, and Miguélez and Noumedem Temgoua (2019) similarly find some evidence of bilateral knowledge flows, as measured through patent citations and migration flows of STEM professionals.

Geographic mobility can also facilitate individual workers' knowledge acquisition, allowing them to serve as a conduit for information flows between distant firms or subsidiaries (Agrawal et al., 2006; Corredoira & Rosenkopf, 2010; Edström & Galbraith, 1977; Oddou et al., 2009; Oettl & Agrawal, 2008), between countries (Carpenter et al., 2001; Kerr, 2008), or within professional and diasporic networks (Almeida et al., 2014; Baruffaldi & Landoni, 2012; Levin & Barnard, 2013; Scellato, Franzoni, & Stephan, 2015). According to Singh and Agrawal (2011), that acquired knowledge is retained by the mobile individual, even as they engage in further mobility. A key example of this further mobility is returning to their country of origin, and several scholars highlight the value these return migrants can create, whether through prompting innovation (Choudhury, 2016; Fry, 2019; Gibson & McKenzie, 2014; Jonkers & Cruz-Castro, 2013), creating new businesses (Nanda & Khanna, 2010), or establishing sectoral hubs in emerging markets (Saxenian, 2005, 2006). Using personnel and patenting data from an Indian

R&D center, for example, Choudhury (2016) finds that the direct reports of return migrant managers file more patents than those reporting to non-migrant managers, and posits that this is because the return migrant managers transfer knowledge to their direct reports. Some authors, however, note limitations on the ability of return migrants to effectively transfer knowledge acquired overseas, among them low social capital transfer and weak inter-firm trust (Chen, 2008), limited firm absorptive capacity (Filatotchev, Liu, Lu, & Wright, 2011), and low social embeddedness in the host country (Wang, 2015). Wang (2015) also notes a country-level factor that may impede effective knowledge transfer from return migrants: xenophobia, which he argues can affect how home-country counterparts assess the value of return migrants' overseas experiences and any knowledge they acquire there.

Knowledge recombination

Knowledge recombination is another mechanism through which the geographic mobility of high-skilled workers creates value. Recombination entails the synthesis of existing knowledge in novel ways and is a key part of the process of innovation and creative production. A number of studies examine the ways that migrant inventors and scientists can facilitate knowledge recombination and foster innovation in their destination country (Borjas & Doran, 2012; Choudhury & Kim, 2019; Ferrucci, 2020; Ferrucci & Lissoni, 2019; Ganguli, 2015; Hunt & Gauthier-Loiselle, 2010; Moser et al., 2014). Choudhury and Kim (2019), for example, use changes to the H-1B visa process to show that increases in the rate of first-generation ethnic migrant inventors in the U.S. is associated with positive knowledge transfer and knowledge recombination outcomes for U.S. firms engaged in the production of herbal medicinal patents. Others focus on knowledge recombination in the migrants' home country (Breschi, Lissoni, &

Miguélez, 2017; Edler et al., 2011; Fackler, Giesing, & Laurentsyeva, 2019; Gibson & McKenzie, 2014).

Knowledge recombination may also be facilitated through cross-border collaborations. Mobile individuals may be more likely to engage in cross-border collaborations than their immobile peers (Baruffaldi & Landoni, 2012; Jonkers & Cruz-Castro, 2013; Scellato et al., 2015), and travel to international conferences can be one key pathway to expanded cross-border collaboration (Chai & Freeman, 2019). Meanwhile, work has also shown that collaboration by diverse teams results in higher quality innovation (Ferrucci & Lissoni, 2019; Freeman & Huang, 2014; Kerr & Kerr, 2018). This can result from teams made up of individuals from a range of areas of expertise and geographic backgrounds, which can facilitate the broader information search and atypical connections necessary to effective recombination (Schilling & Green, 2011). Teams may similarly benefit from including individual team members with international and cross-cultural experiences, who have also been shown to play a key role in facilitating innovation and other positive team outcomes (Carpenter et al., 2001; Fitzsimmons, 2013; Godart et al., 2015; Haas, 2006; Jang, 2017; Le & Kroll, 2017; Seo, Kang, & Song, 2020).

Social capital transfer

The transfer of social capital is yet another way that high-skilled workers' geographic mobility can create value. Portes and Sensenbrenner (1993) use a series of cases to discuss how social capital moderates the economic behavior of migrants. Specifically, they highlight the ways that discrimination upon arrival can reinforce in-group solidarity, which in turn leads migrants to accumulate both social capital and social debts within their in-group network. More recent scholarship has shown how geographic mobility can expand academics' social capital—and in some cases, facilitate access to financial resources as well (Chai & Freeman, 2019; Kolympiris et al., 2019).

Mobile individuals can serve as access points to novel social networks, and thus create value for their colleagues and firms. This can take the form of connecting colleagues to distant knowledge or individuals with whom those colleagues may collaborate (Agrawal et al., 2006; Fry, 2019; Oettl & Agrawal, 2008). They can also facilitate access to resources, as in the case of global venture capital networks (Madhavan & Iriyama, 2009). Dokko and Rosenkopf (2010) note that this social capital may even remain accessible to colleagues and firms after the mobile individual leaves the firm. Mobile individuals can also benefit from these social networks, using them to access distant or novel information (Agrawal et al., 2019; Baruffaldi & Landoni, 2012). However, scholars caution that overreliance on social networks to facilitate search can have negative consequences on innovation quality (Almeida et al., 2014).

Firms employing mobile individuals, as well as individual migrant entrepreneurs, can leverage this social capital to establish and grow their businesses. This can take the form of entrepreneurs using local connections to market their products (Wahba & Zenou, 2012) or diasporic connections to identify business opportunities (Nanda & Khanna, 2010; Saxenian, 2006; Wang, 2020). It can also take the form of firms leveraging the support of existing co-national communities when considering foreign mergers and acquisitions (Useche, Miguélez, & Lissoni, 2020), expanding into new markets (Foley & Kerr, 2013; Hernandez, 2014), or surviving in those markets (Hernandez & Kulchina, 2020; Kalnins & Chung, 2006; Kulchina & Hernandez, 2016; Morgan, Sui, & Malhotra, 2020). Hernandez (2014), for example, shows that firms seeking to open subsidiary offices in the U.S. are more likely to select cities with higher co-national populations, and survive longer when they do so. Firms with multiple locations can also generate value through the intrafirm geographic mobility of high-skilled workers. This mobility can allow workers to better access firm-level social capital, whether financial resources

(Choudhury, 2017) and other support (Edström & Galbraith, 1977), and to tap into intrafirm collaboration networks (Choudhury, 2016; Criscuolo, 2005).

Socialization of organizational norms

Geographic mobility of high-skilled workers can also create value through the transfer of organizational norms. These norms may consist of firm-specific policies, or other tacit knowledge about a specific organization (e.g., how to best present quarterly funding requests). Norms may also include structural or managerial policies that are not firm specific: flat versus hierarchical firm structure and associated decision-making styles, venture capital versus traditional financing methods, assessing productivity through hours worked versus tasks accomplished, etc.

These norms vary from one firm to another and from one sector to another, and the ability of any given firm to effectively communicate its unique combination of norms is central to the firm's ability to replicate itself in a new location (Edström & Galbraith, 1977). It is also crucial to employee learning, particularly when a single firm employs workers with a diverse set of geographic, educational, and cultural backgrounds (Madsen, Mosakowski, & Zaheer, 2003).

Geographically mobile workers can serve as a conduit through which firms transmit these norms. Socialization of norms can occur in a multidirectional fashion, and the literature highlights cases where norms transmission is facilitated by mobile workers moving temporarily from branches to headquarters (Choudhury, 2017), by mobile managers moving from headquarters to branches (Edström & Galbraith, 1977), and by mobile workers rotating through different locations throughout the course of their careers (Criscuolo, 2005). Mobile workers may also transmit organizational norms when they leave a firm to establish new entrepreneurial ventures. One oft-cited example of this is the case of migrant technology workers in Silicon Valley, many of whom returned to their home countries and established firms that adhered to the

Silicon Valley norms of strict meritocracy and flat organizational structure (Chen, 2008; Luo, Chen, & Chen, 2016; Saxenian, 2005, 2006).

Capital transfer and entrepreneurship

Geographic mobility by high-skilled individuals also creates value through capital investments, whether into existing businesses or new ones. Migrants to the U.S. have been shown to be more entrepreneurial than non-migrants, with as many as one in four new businesses in the U.S. in 2007–2012 founded by first-generation immigrants, including upwards of 40% of new ventures in California and New York (Kerr & Kerr, 2020: 1). Wahba and Zenou (2012) show similar patterns in Egypt, finding that return migrants are more likely to start businesses than their non-migrant counterparts. Migrant entrepreneurs are a repeated theme in the literature, whether they are founding companies in their destination region or country (Banerjee & Munshi, 2004; Canello, 2016; Hornung, 2014; Kerr & Kerr, 2020; Kulchina, 2016a), upon return to their home region (Kenney, Breznitz, & Murphree, 2013; Kulchina, 2016b; Nanda & Khanna, 2010; Wahba & Zenou, 2012; Wang, 2020), or in the transnational entrepreneurship space (Portes, Guarnizo, & Haller, 2002; Saxenian, 2005, 2006). Scholars have identified a number of factors that affect the performance and survival of migrant-run businesses, including owner tenure in the host country (Mata & Alves, 2018), level of host-country embeddedness (Morgan et al., 2020), and proximity to peer companies run by co-nationals (Kalnins & Chung, 2006).

Mobile individuals can also benefit their employing firm. When firms seek to expand into new or foreign markets, employees with ties to the local community can facilitate market entry, particularly in institutionally dissimilar contexts or locations with weaker legal protections (Clark, Li, & Shepherd, 2018; Foley & Kerr, 2013; Hernandez, 2014; Hernandez & Kulchina, 2020; Kulchina & Hernandez, 2016). Similarly, Useche et al. (2020) find that migrant inventors can leverage their international social networks to facilitate mergers and acquisitions by their

employing firms in their home countries, an effect that increases with cultural distance and for home countries with weak legal systems, among other conditions.

Migrant networks also facilitate the global flow of financial capital. Studies have shown that the relative size of immigrant population in a community is associated with increased exports to and foreign direct investment in the migrants' home country (Burchardi, Chaney, & Hassan, 2019; Herander & Saavedra, 2005). Burchardi et al. (2019: 1449) sought to quantify this effect, and found that a 50% population increase of migrants in a given U.S. county prompted a 4% increase in likelihood of FDI flowing from that county to the migrants' home country. At the national level, remittance flows from immigrant communities abroad have also been shown to be associated with greater availability of venture capital and higher frequency of new ventures in their home countries (Vaaler, 2011). Global venture capital flows are also tied to migrant networks, according to scholarship by Madhavan and Iriyama (2009), and co-nationality with venture capitalists can also be a predictor of access to funding (Hegde & Tumlinson, 2014).

Individual-level value creation

There are also several mechanisms through which geographic mobility benefits individual mobile workers, rather than their employers. Geographic mobility can help workers increase their value to the firm, and thus improve their bargaining position in negotiations (Freeman & Huang, 2014; Kerr & Kerr, 2018; Singh & Agrawal, 2011; Song et al., 2003). One way of achieving this is by developing additional skills during global rotations or other distant placements. Saxenian (2006) highlights the communications skills required in inter-cultural exchange, while Edström & Galbraith (1977) note that distance from headquarters (and thus infrequent communications) can lead expatriate managers to develop better problem-solving skills. Developing these skills can accelerate career progression among mobile individuals (Chattopadhyay & Choudhury, 2017; Kerr et al., 2016). Chattopadhyay & Choudhury (2017) use

the case of Indian bureaucrats, who are randomly assigned to their early postings, to show that those assigned to more challenging regions (i.e., higher rates of crime, and proxies for high crime, including high rates of poverty or political violence, or presence of intensive mineral mining) are promoted, on average, two years sooner than their counterparts assigned to lower-crime districts.

Geographic mobility may also benefit mobile individuals by facilitating access to distant resources. This can take the form of intrafirm mobility improving access to resource distributors in firm headquarters, and thus facilitating access to project funding (Choudhury, 2017, 2020b). It can also take the form of cross-border mobility that generates improved understanding of international grants funding for academic research (Fry, 2019). Kulchina (2016a) demonstrates that migrant entrepreneurs can gain a competitive advantage over their competitors due to their access to unique human capital resources—specifically lower-cost labor from their country of origin.

Finally, perhaps the most direct way that mobility creates value for individual workers is through its impact on wages. Studies have found that place alone affects wages (Clemens, 2013; Hendricks & Schoellman, 2018), and that these wage effects can be greater in the case of migrants moving to cities (Glaeser & Maré, 2001), and living in ethnic enclaves (Edin, Fredriksson, & Åslund, 2003). Further, some scholars posit that the *type* of mobility affects the wage effects of migration, with permanent and high-skilled migrants more likely to outperform native counterpart wages than other types of migrants (Hunt, 2011).

There is also extensive literature on the impact of in-migration on the wages of native workers, and in some cases, the wages of existing migrant communities, often referred to as *incumbent migrants* (as in Piyapromdee, 2020). Economists have long debated whether in-

migration causes a crowding-out of comparable native workers, with migrants taking native worker jobs and driving down wages, or a crowding-in effect, with migration prompting economic growth and job and wage increases. Subsequent scholarship has added market segmentation based on education level and worker experience (Borjas, 2003, 2005; Friedberg, 2001), and job search parameters (Dustmann, Frattini, & Preston, 2013; Llull, 2018) in an effort to fine-tune models of the wage effects of in-migration. Results vary, with some finding evidence of crowding out, or crowding out of specific education levels or market segments (Borjas, 2003, 2005; Bound, Braga, Golden, & Khanna, 2015; Boustan, Fishback, & Kantor, 2010; Glitz, 2012; Mithas & Lucas, 2010). Others find that shifts in both native and migrant worker behavior, whether in type of job or work specialization, mitigate these effects (Kerr & Lincoln, 2010; Peri, 2012), particularly over longer time horizons (Peri, Shih, & Sparber, 2015; Sequeira, Nunn, & Qian, 2020). Recent scholarship has also shown how these findings may not be mutually exclusive, with a single migration policy (e.g., skill-selective migration) having variable effects on worker cohorts based on their skill level (low or high-skill), job type (complementary to in-migrants or not), and even city-level housing elasticity (Piyapromdee, 2020).

FRAMEWORK OF MOBILITY FRICTIONS THAT CONTRIBUTE TO GEOGRAPHIC IMMOBILITY

Despite the multitude of ways that the geographic mobility of high-skilled workers creates value for individuals and firms, the literature also acknowledges the high incidence of worker immobility. Synthesizing the literature on immobility from economics, law, sociology, and management, there are a range of factors that *constrain*, and/or add *costs* to, individual geographic mobility, which can be referred to as '*geographic mobility frictions*'—factors which inhibit geographic mobility. I organize these frictions into four categories: regulatory, occupational/organizational, personal, and economic/environmental. Broadly speaking,

regulatory frictions entail legal limitations to mobility at the global, national, or local level, occupational/organizational frictions include occupation-specific and firm-specific limitations, personal frictions consist of individual, and family-level limitations, and economic/environmental frictions combine financial barriers with other macro-level effects. In this section, I will discuss each of these frictions in turn, drawing on a range of literature in the economic, legal, sociological, and business management fields (see Tables 3 and 4 for additional details).

Regulatory frictions

Regulatory frictions consist of legal limitations to geographic movement. These limitations exist at the supranational (between groups of countries), national (between countries), and subnational (between regions within a single country) levels. In addition to laws specifically governing geographic mobility, there are also local regulations seemingly unrelated to mobility, but which differ from place to place and therefore increase the potential costs associated with a move. These, too, I characterize as regulatory frictions.

Visa regulations are examples of regulatory frictions that limit cross-border mobility. As Cooke, Wright, and Ellis (2018) argue, in his theory of the mobility transition, Zelinsky (1971) predicted that the final stage of that transition would see a world with limited and highly-restricted mobility—a prediction that proved prescient. The extent to which visa regulations restrict global mobility is so significant, Clemens (2011) argues, that the negative economic effects of visa regulations dwarf those of regulatory restrictions on trade or capital flows. Visa regulations inhibit the mobility of all kinds of migrants, including students (Kato & Sparber, 2013), scientists (Kahn & MacGarvie, 2019), academics (Orazbayev, 2017), and other workers (Rissing & Castilla, 2016). The travel ban implemented by the Trump administration in 2017, which was effectively an extreme version of visa regulation, had a similarly negative effect on

the mobility of academics from affected countries (Chinchilla-Rodríguez, Bu, Robinson-García, Costas, & Sugimoto, 2018).

In addition to directly preventing mobility, visa regulations can also inject uncertainty into the lives of individuals who engage, or intend to engage, in geographic mobility. Wadhwa et al. (2007) estimate that upwards of one million U.S. residents holding temporary work visas are currently awaiting processing of their permanent residence applications—a process that can stretch for years. This uncertainty may lead people to change their mobility intentions, whether in their initial selection of destination (Kato & Sparber, 2013) or in prompting return migration (Kahn & MacGarvie, 2016) or onward migration (Kahn & MacGarvie, 2019).

Workers can also face regulatory constraints to intra-country mobility. The case of the Chinese *hukou* system is one often-studied case of internal mobility restrictions. Though the policy has relaxed somewhat, Chinese citizens are governed by both an urban-or-rural resident designation (also referred to as agricultural or non-agricultural designation), and an area-specific designation (Song, 2014). Historically, these designations limited rural to urban migration, which also limited socio-economic mobility (Wu & Treiman, 2007). As *hukou* restrictions were relaxed in the late 20th century, increased migration into cities led to nominal wage reductions, even as individual welfare improved in many Chinese cities (Ma & Tang, 2020). Even today, area-specific *hukou* registrations continue to govern access to a range of public goods, including schooling, health care, and housing subsidies, which increases the cost of mobility for those unable to transfer their registrations (Song, 2014).

The literature discusses many local regulations that affect individual geographic mobility decisions. Tax rates can affect the locational decisions of both individuals (Akcigit, Baslandze, & Stantcheva, 2016; Moretti & Wilson, 2017) and firms (Rohlin, Rosenthal, & Ross, 2014),

particularly if they are already located in border regions. Land use regulations (Foster, 2017; Schleicher, 2017b; Zhao, 1999), bankruptcy laws (Schleicher, 2017b), and child custody agreements (Cooke, Mulder, & Thomas, 2016) have all been shown to restrict mobility as well.

Geographically-limited benefits awarded by federal and regional governments may also serve as a barrier to mobility, particularly if the threshold for access to those benefits differs from one place to another, as is the case with access to the Supplemental Nutritional Assistance Program (SNAP; previously referred to as food stamps) in various U.S. states (Austin et al., 2018: 154). Access to food benefits in India is similarly distributed at the state-level, and has been shown to affect domestic mobility (Choudhury, Koo, Li, Kishore, Balsari, & Khanna, 2020; Kone, Liu, Mattoo, Özden, & Sharma, 2018). Other geographically-limited benefits may include housing vouchers (Austin et al., 2018; Schleicher, 2017b), health care access (Kone et al., 2018; Song, 2014), and public sector jobs (Kone et al., 2018).

Occupational and organizational frictions

Occupational frictions include job-specific limitations to geographic movement. A key example is occupational licensing requirements, which affect a range of professions, from doctors and lawyers to trade workers and manicurists. Organizational frictions, meanwhile, can be conceived as firm-specific occupational frictions, and include firm-level policies that can impede geographic mobility, such as non-compete clauses and non-transferable benefits. Firm norms and policies that discourage mobility are also organizational frictions.

Scheffler and Nunn (2019) discuss the proliferation of professional licensing in the U.S., and emphasize its primary aims are ensuring public safety (e.g., allowing only licensed professionals to work as medical doctors) and delineating between professions (e.g., what tasks are carried out by a doctor versus a nurse). Though they concede that a wide range of jobs now require licensing, they argue that the public safety and quality control benefits of licensing

outweigh the negative effects, including higher costs of goods and reductions in worker mobility. However, Peterson, Pandya, and Leblang (2014) argue that, rather than being a secondary effect of professional licensing, the higher costs and mobility restrictions are, in fact, the primary aim of licensing restrictions, which they argue act as a protectionist barrier to high-skilled in-migration. This is borne out by the scholarship on licensing and mobility, with a series of works finding that professional licensing requirements affect cross-border mobility (Johnson & Kleiner, 2017; Kugler & Sauer, 2005; Peterson et al., 2014) and inter-state mobility (Johnson & Kleiner, 2017; Schleicher, 2017b).

Organizational frictions to geographic mobility should be understood as a sub-set of firm-specific policies that discourage employee turnover. The literature on job embeddedness provides a useful starting point for understanding these frictions, despite that literature focusing on policies that limit movement between firms, rather than between geographies (Lee, Burch, & Mitchell, 2014). Many of the factors that reduce employee turnover, including the accumulation of seniority status and benefits, firm-specific skills, and interpersonal connections to colleagues and the local community, serve to limit the likelihood of geographic mobility as well.[3] Examples of these policies include employer-provided health insurance (Buchmueller & Valletta, 1996) and non-transferrable employee pensions (Costrell & Podgursky, 2010). Though not a legal barrier to mobility, the way that value accrues to pension plans over time means that employees opting to stop and re-start their pension benefits in another location face a stiff financial penalty for doing so. Indeed, Costrell and Podgursky (2010: 519) estimate that a teacher with a thirty-year career in one school district will retire with net pension wealth worth twice that of a teacher with a thirty-year career split between two school districts.

[3] Notably, the interpersonal and family-community ties discussed in the job embeddedness literature dovetail with the personal frictions category, and will be discussed in further depth in that section.

Firm-specific norms may also contribute to worker immobility, and a range of literature discusses the organizational factors and management policies that facilitate or impede effective expatriate placement (Bolino, 2007; Tung, 1987). Employee expectations during overseas assignments and upon return are a major challenge for MNCs, and workers' belief that overseas assignments will stifle career growth may act as a barrier to participation in those assignments (Yan, Zhu, & Hall, 2002). Reiche, Kraimer, and Harzing (2011) expand on this, arguing that worker perceptions of organizational trust and fit during expatriate assignments also play a central role in employee retention.

In addition to norms, there can also be firm-specific legal policies that limit both geographic and inter-firm mobility, notably non-compete clauses. Starr, Prescott, and Bishara (2020) assert that firms use non-compete clauses to decrease worker mobility, in addition to their stated aim of protecting proprietary information. Whether the intent of the policies or not, multiple studies have shown that non-compete clauses reduce mobility, particularly among highly specialized workers (Marx, Strumsky, & Fleming, 2009; Starr, Ganco, & Campbell, 2018). Scholarship has shown that this immobility effect can extend to workers who are not themselves subject to non-compete clauses in their contracts, if they are employed in industries and states with enforceable non-compete clause legislation (Starr, Frake, & Agarwal, 2019). However, other studies suggest that the localized nature of non-compete clauses (i.e., that they occur at the state or firm level) means they contribute to *greater* geographic mobility, with workers subject to (or likely to become subject to) such clauses more likely than other workers to engage in out-of-state job search and inter-state mobility (Belenzon & Schankerman, 2013; Marx, Singh, & Fleming, 2015).

Personal frictions

Personal frictions include socio-cultural and interpersonal factors that affect geographic mobility decisions. These may include social barriers, the psychic costs of moving away from family and friends, homesickness, and cultural distance, among other concerns. Family-level decisions about mobility and immobility—or decisions about which family members engage in mobility—also fall under the category of personal frictions.

A range of social factors can limit mobility. Several scholars highlight the ways that race in the U.S. acts as a barrier to mobility, showing that Black workers are less likely to engage in mobility than comparable white workers (Bowles, 1970; Greenwood, 1975; Ritchey, 1976). Raphael and Riker (1999) argue that this immobility also has downward effects on wages, contributing to the country's racial wage gap. Outside the U.S. context, Munshi and Rosenzweig (2005) posit that members of historically disadvantaged castes in India are less likely to engage in inter-state mobility, while Korinek, Entwisle, and Jampaklay (2005) find that level of social embeddedness affects the mobility trajectories of rural-urban migrant workers in Thailand. Accumulated social debts may also limit mobility, as in the cases of migrant groups with location-specific in-group obligations (Portes & Sensenbrenner, 1993) or potential migrants seeking to retain access to informal insurance networks (Munshi & Rosenzweig, 2016).

Homesickness and the psychic costs of moving away from friends and family may also limit worker mobility. The effects of proximity to family and friends on mobility decision-making are first highlighted in a series of academic works on domestic migration in the U.S., even as these scholars continue to argue that economic drivers are the primary determinants of migration (Fabricant, 1970; Greenwood, 1969; Lansing & Mueller, 1967; Nelson, 1959; Sjaastad, 1962). Subsequent literature suggests that social and economic determinants of mobility may be interdependent (Greenwood, 1975; Ritchey, 1976).

However, later empirical work by Speare, Kobrin, and Kingkade (1982), finds that social embeddedness, but crucially *not economic embeddedness,* acts as a barrier to mobility. The centrality of personal considerations in locational decision-making also remains salient in contemporary scholarship, with authors finding that psychic costs affect the mobility choices of technical workers (Dahl & Sorenson, 2010), CEOs (Yonker, 2017), and entrepreneurs (Kulchina, 2016b), among others (Bertoli & Ruyssen, 2018; David, Janiak, & Wasmer, 2010). Debate over U.S. domestic policy also includes a psychic cost component, with Schoenbaum (2017) arguing in favor of policies that support workers who wish to remain "rooted" in their home communities, while Schleicher (2017a, 2017b) argues in favor of focusing policies on facilitating migration and urban growth, and letting market forces and worker preferences determine the fate of shrinking cities. Meanwhile, in the management literature, Choudhury, Dutta, and Kwon (2021) highlight the impact of homesickness on worker performance, and suggest that these negative effects may be overcome, or at least mitigated, through management policies—specifically flexible vacation policies.

Cultural distance between home and destination can also add costs to mobility, and act as a deterrent to mobility for some individuals. Cultural distance entails the inter-cultural differences that complicate interactions between individuals in distant locations. Among those differences can be perceptions of authority, trust, individuality, and work-life division (Berry, Guillén, & Zhou, 2010; Hofstede, 1980), as well as linguistic, administrative, and economic differences (Ghemawat, 2001). The costs of cultural distance are often discussed as accruing to firms in the strategic literature (Dahl & Sorenson, 2012; Hymer, 1960; Kogut & Singh, 1988; Zaheer, 1995), but cultural distance can also negatively affect the adjustment of specific expatriate workers (Black & Mendenhall, 1991; Lazarova, Westman, & Shaffer, 2010; Stahl,

Miska, Hyun-Jung, & De Luque, 2017), which may dissuade some individuals from engaging in long-distance geographic mobility.

This basket of frictions also includes family-level mobility decision-making. Family units often balance a range of considerations when assessing the costs and benefits of engaging in geographic mobility. Income maximization of the unit is one key determinant of whether a family unit, or specific individuals within the family unit (Chen, Chiang, & Leung, 2003), will move. Family life cycle events (e.g., marriage, childbirth, or end of childrearing) can also affect the likelihood of family-level mobility, particularly as these considerations shift over time (Peterson, 1979). Due to the gendered nature of income inequality, this can often mean prioritizing the husband's income in deciding to move (Blackburn, 2010; Schoenbaum, 2017; Sorenson & Dahl, 2016; Widiss, 2012). Even so, the increased opportunity costs of moving for two-income households (i.e., if both husband and wife will need to find new jobs upon arrival) makes them less likely to engage in mobility overall (Mincer, 1978; Sandell, 1977). Studies also find that when two-income households *do* engage in geographic mobility, women tend to bear the brunt of income losses (Blackburn, 2010; Schoenbaum, 2017), and take longer to rebound to pre-move income levels (Sandell, 1977). Family-level community embeddedness can also act as a barrier to mobility, as children's involvement in schools, sports, and friendships are cited as key reasons why employees choose not to move (Lee et al., 2014) or why expatriate families may struggle during distant assignments (Lazarova et al., 2010). Conversely, however, expatriate workers whose families *do* successfully embed in overseas communities may adjust more easily to their new environment (Lazarova et al., 2010).

Economic and environmental frictions

Economic frictions include the financial considerations associated with moving, including financial outlays (i.e., moving costs) and forgone income (i.e., opportunity costs)

during the move itself, costs upon arrival (i.e., housing or commute costs), and the information costs associated with identifying market opportunities in a new location. Environmental frictions, meanwhile, entail macro-level considerations that can impede mobility, such as pandemics, natural disasters, and climate change.

When deciding whether to engage in mobility, workers face a range of financial incentives and disincentives. Those most likely to receive a higher wage at a given destination may thus be more likely to move (Bowles, 1970; Dahl, 2002). Intending migrants may also select their destinations based on where they are likely to receive a wage premium (Glaeser & Maré, 2001; Grogger & Hanson, 2015; Joint Economic Committee, 2019). The reverse can also be true, with potential migrants with higher costs and opportunity costs less likely to engage in mobility (Ritchey, 1976; Sandell, 1977). Even among those who could expect a wage premium elsewhere, these factors may combine to restrict mobility (Raphael & Riker, 1999; Schmutz & Sidibé, 2019), particularly for workers who prioritize family-level considerations (Speare et al., 1982).

The cost of living at destination may also be a barrier to mobility for potential migrants (Austin et al., 2018; Glaeser, Saiz, Burtless, & Strange, 2004), specifically the high cost of housing (Foster, 2017; Ganong & Shoag, 2017) and the cost and duration of commute (Heuermann & Schmieder, 2019). Relatedly, home liquidity can also affect mobility decisions, and those facing the threat of home sale losses (Ritchey, 1976) or a drawn-out sales process (Head & Lloyd-Ellis, 2012) may opt out of long-distance mobility. Indeed, Moretti (2013) argues that the difference in cost-of-living can reduce the urban wage premium for high-skilled workers, relative to low-skilled workers.

Information costs, or the ability to identify new market opportunities, can also limit geographic mobility (Bowles, 1970; Greenwood, 1975; Schmutz & Sidibé, 2019). Jensen (2012)

uses a randomized experiment to illustrate that improved access to information about job opportunities can lead to significant changes in worker behavior (from increasing their human capital investment to postponing marriage and childbearing) and facilitate mobility decisions. One way that potential migrants can overcome information gaps is through improved transport infrastructure, as physical transport can mitigate the effects of distance on information flows (Agrawal, Galasso, & Oettl, 2017; Belenzon & Schankerman, 2013; Catalini, Fons-Rosen, & Gaulé, 2020; Choudhury & Khanna, 2012). Another path to overcoming information gaps is accessing social networks in distant locations (Greenwood, 1969; Schwartz, 1973), which can help migrants identify job opportunities, improve job-match, and increase wages (Patel & Vella, 2013).

Environmental frictions entail regional- or global-scale shocks that can impede mobility. Pandemics (like Covid-19) and the subsequent regulatory response (e.g., lockdowns) are one such shock. Notably, the effects of pandemic policies on mobility can vary, with travel restrictions prompting broad reductions in mobility (OECD, 2020), even as they may also prompt limited upticks in mobility, either out of hot spots or ahead of expected travel bans (Mesnard & Seabright, 2009). Climate change may be another such shock, although like pandemics, the scholarship demonstrates varied mobility effects. Various studies have shown that responses to climate-change-related temperature increases or natural disasters can range from adaptation (Farbotko & Lazrus, 2012), to short-term displacement (Black, Arnell, Adger, Thomas, & Geddes, 2013; Farbotko & Lazrus, 2012), to longer-term shifts in mobility (Biermann & Boas, 2010). Work by Bosetti, Cattaneo, and Peri (2020), argues that this out-migration from climate-change-affected areas may serve to mitigate other negative effects of climate change, namely the association between climate-change-driven temperature increases in

a region and the increased likelihood of violent conflict in that region. Meanwhile, in addition to the ways that climate change may prompt new mobility, recent scholarship by Entwisle, Verdery, and Williams (2020) considers the ways that climate change may disrupt existing seasonal migration patterns, effectively prompting immobility in affected populations.

MITIGATING MOBILITY FRICTIONS

Given the multitude of mechanisms through which geographic mobility creates value for both firms and individuals, as well as the litany of ways that geographic mobility frictions inhibit mobility, a key question emerges: how can the adverse effects of mobility frictions be mitigated?

Explicit policy changes and reforming laws that lead to immobility is one way forward. To complement policy change at the national or local level, there are a range of organizational policies and practices that firms and individuals may pursue as they seek to create value for the organization and workers. I highlight three such organizational practices: awarding geographic flexibility to workers, focusing on temporary colocation of workers, and leveraging place-based policies.

Geographic flexibility

Firms may seek to create value and mitigate the effects of geographic mobility frictions by provisioning *geographic flexibility*,—a term Choudhury, Foroughi, and Larson (2021) use to define the type of flexibility that allows workers to choose where to live. In awarding geographic flexibility, organizations could fundamentally alter the paradigm of geographic mobility, i.e., *instead of requiring workers to move to where the firm is located, the worker could now relocate to their preferred location*.

It is important to point out that in the paradigm where firms require workers to move to the firm location, the worker might face the adverse effects of mobility frictions both during the

move (e.g., regulatory, or personal frictions constraining the move) as well after the move (e.g., economic frictions imposing a cost on the worker post-move). Awarding the worker geographic mobility mitigates these adverse effects and potentially creates value for both the firm and the worker. Organizations can provision geographic flexibility to workers by adopting remote work practices such as *work-from-anywhere* (WFA). The emergence of WFA should be viewed in light of decades of research on geographically distributed work (notably Hinds & Kiesler, 2002).[4]

Choudhury et al., (2021) build on the literature on workplace flexibility (Evans, Kunda, & Barley, 2004) and nonstandard work (Ashford, George, & Blatt, 2007; Bidwell, Briscoe, Fernandez-Mateo, & Sterling, 2013; Cappelli & Keller, 2013; Pfeffer & Baron, 1988), and argue that when organizations award workers with geographic flexibility, workers are able to relocate to their preferred location. Enabling this choice may lead to workers expending greater productivity-enhancing effort. Choudhury et al., (2021) test this proposition by exploiting a natural experiment at the U.S. Patent Office, which led to exogeneity in timing of when the examiners could transition from a traditional work-from-home (WFH) to the work-from-anywhere (WFA) program, and report productivity gains to the tune of 4.4 percent when workers transition from WFH to WFA. Subsequently, Choudhury (2020a) argues that WFA mitigates mobility frictions related to immigration, dual careers, and high cost-of-living at the firm location, and argues that provisioning WFA enables value creation for the focal firm by opening up the potential of hiring globally, even from locations where the firm does not have a physical office.

[4] Other notable papers include O'Leary, Orlikowski and Yates (2002), Bailey, Leonardi and Barley (2012).

A particularly extreme form of geographic flexibility is also emerging, particularly among companies in the technology sector, known as *all-remote* operations (Choudhury, Crowston, Dahlander, Minervini, & Raghuram, 2020). These companies eschew a physical office entirely, and every employee, from entry-level to CEO, is awarded geographic flexibility. The example of GitLab illustrates how geographic flexibility enables firms to tap into a global talent pool (Choudhury & Salomon, 2020a)—highlighting how the all-remote model can mitigate the effects of mobility frictions by avoiding mobility to a designated "firm-location" altogether.

Temporary colocation

Fostering temporary colocation among workers, instead of requiring workers to move to a firm location permanently, is another way that firms may mitigate the adverse effects of mobility frictions. For those unable to engage in permanent mobility, whether due to regulatory constraints like visas, or due to personal constraints like those of dual-career couples, temporary colocation can act as a substitute to longer-term mobility. Scholarship has shown that physical colocation increases the likelihood of collaboration by reducing search costs for collaborators (Catalini, 2018), and that this can be achieved even through short periods of interaction and colocation (Boudreau et al., 2017).

To maximize the benefit of temporary colocation, however, firms must consider the duration of colocation, timing of travel and colocation, and the quality of interactions facilitated. Choudhury (2017) shows that the timing of short-term intrafirm trips matters, and workers who were able to travel to the headquarters just prior to budget allocation meetings were more productive. Boudreau et al. (2017), meanwhile, argue that the ability to interact with individuals with overlapping but disparate expertise, and therefore efficiently engage in distant knowledge search, is a key mechanism for deriving value from short periods of colocation. The ability to

meet individuals engaged in similar types of work, but from distant geographies, may therefore be one of the most efficient ways to facilitate useful information exchange during periods of temporary colocation—an argument supported by work on academic conferences (Chai & Freeman, 2019) and distributed R&D networks (Singh, 2008).

Place-based policies

In broader social sciences, especially economics, declining rates of inter-regional geographic mobility have motivated calls for geographically focused place-based employment policies to stimulate employment in regions facing the brunt of geographic immobility (Austin, et al., 2018; Kline & Moretti, 2013, 2014). Leveraging such place-based policies might be yet another mechanism through which organizations can help workers mitigate mobility frictions and create value for the individual and the organization.

For firms with employees facing regulatory or occupational frictions, facilitating talent to relocate to a place without those same challenges may enable value creation. Canadian all-remote firm MobSquad provides an example of how this may play out in practice (Choudhury, Kerr, & Ma, 2020). The firm was founded in response to the growing regulatory challenges for migrant technology workers in the U.S., and facilitates those workers' relocation to Canada. MobSquad was able to leverage a unique place-based policy in Canada, i.e., "Express Entry", which enabled foreign workers (many of whom were previously rejected for a U.S. H-1B visa) to receive expedited Canadian work permits starting in 2015 (Choudhury, Kerr, & Ma, 2020).

Similarly, organizations can create business models that leverage place-based policies and enable value creation for workers facing personal or economic frictions at their current location. An example of this is that of Tulsa Remote, a non-profit that leveraged a unique place-based policy that offered remote workers $10,000 to relocate to Tulsa, OK and work remotely. As Choudhury and Salomon (2020b) document, this facilitated several hundred workers and

their families to relocate to Tulsa, a decision that led to significant cost-of-living savings for the movers. In other words, workers relocating to Tulsa were often moving from a higher cost of living location to a cheaper location, creating value for themselves. By participating in prosocial activities at their new location, these workers were also arguably creating value for the broader community in Tulsa, and importantly, they did so without changing employers.

FUTURE RESEARCH DIRECTIONS

The mechanisms to mitigate the adverse effects of geographic mobility frictions cited above— i.e., geographic flexibility, temporary co-location, and leveraging place-based policies—raise a range of questions to motivate future research. These questions are relevant to several bodies of literature, including on firm-induced migration, value capture from human capital, business travel and productivity, the spatial agglomeration of talent, and organization design of remote organizations (for a summary, see Table 5).

Patterns of Firm-induced migration

All three mechanisms have the potential to substantially alter patterns of workers' geographic mobility. Existing literature on firm-induced migration (e.g., Choudhury & Kim, 2019; Kerr, Kerr, & Lincoln, 2015) documents how visa constraints limit the hiring of immigrants by U.S. firms. However, the mechanisms cited above have the potential to fundamentally shift patterns of worker geographic mobility, and could (partially) alleviate the need for firms to move workers across borders. Whether and how these patterns of firm-induced migration change—i.e., workers relocate to their preferred location or continue to move to the firm location—provides a rich area for future research. Researchers may also consider the ways these changing patterns could differ between firms that pursue permanent WFA policies versus

those that implement hybrid-remote models that allow for WFA for part of the year (e.g., Google's policy to extend four weeks per year of WFA to all employees, see Novet, 2021).

Value capture from human capital

Evolving patterns of geographic mobility also raise important questions relevant to the literature on how firms capture value from mobile and/or immobile human capital (e.g., Chadwick, 2017). This may be particularly true for firms that rely on local labor market monopsonies to capture value from workers with a strong preference for living in a specific region (as in the cases of small-town hospitals in Campbell, Coff, & Kryscynski, 2012, and company headquarters in Shaver, 2018). How would the human capital available to these firms change if workers gained the flexibility to engage in inter-organizational mobility *without relocating geographically*?

In the context of WFA specifically, researchers could also examine the interplay of firm compensation policies and value capture from human capital. Firms provisioning WFA could link worker wages either to their task/role (i.e., location-independent wage) or to their geographic location and cost-of-living therein (i.e., location-dependent wage). Existing research suggests that location-independent wages could help increase workers' real income (if workers relocate to cheaper locations, e.g., Moretti, 2013), which could, in turn, raise productivity (as discussed in Leana & Meuris, 2015). Future research could investigate whether these findings hold true in the context of firms provisioning WFA, and whether they differ between firms offering location-independent and location-dependent wages.

Business travel

Shifting worker mobility patterns also raise questions related to the literature on business travel and productivity (e.g., Campante & Yanagizawa-Drott, 2018; Catalini, et al., 2020;

Choudhury, 2017). On one hand, greater geographic flexibility for workers might prompt an increase in geographic mobility in the short-term, as workers move to their preferred locations or engage in the 'digital nomad' lifestyle that greater flexibility allows (Thompson, 2019). On the other hand, the increased use of synchronous and asynchronous digital communication technologies might reduce the need for business travel. Meanwhile, over the course of a worker's career, increased geographic flexibility may prompt less geographic mobility, as mobility decisions begin to be driven more by changing personal preferences (e.g., Barcus, 2004) than as a requirement for career advancement. Future research can help better assess these countervailing effects, measuring the extent of their impact and determining what factors may intensify, mitigate, or change future patterns of geographic mobility related to business travel.

Spatial distribution and agglomeration of talent

Future research could also consider how increased adoption of WFA, and temporary colocation (rather than permanent moves) might affect the global sourcing and spatial distribution of talent (e.g., Hernandez & Kulchina, 2020; Manning, Massini, & Lewin, 2008). These questions may prove particularly salient for dual-career couples, who continue to see inequitable career outcomes following long-distance mobility (e.g., Lersch, 2016). If talent grows more geographically dispersed (as may occur as more firms provision geographic flexibility through WFA), it will also be important to study whether workers feel more distant—culturally, linguistically, temporally, etc.—from their colleagues, and whether there are any resultant productivity implications (as discussed in Berry, et al., 2010; Mell, Jang, & Chai, 2020; Neeley, 2013).

Efforts to mitigate geographic mobility frictions also raise questions relevant to the literature on the spatial agglomeration of talent and brain drain (e.g., Carr & Kefalas, 2009;

Docquier & Rapoport, 2006). Extant literature on clusters and human capital agglomeration has documented how clusters are formed when talent relocates into clusters from other geographic regions (e.g., Bresnahan & Gambardella, 2004; Glaeser, 1999; Saxenian, 2000; Shaver, 2018). A related literature has focused on spatial agglomeration of talent in cities (e.g., Glaeser, 2008) and the emergence of the creative class (Florida, 2003). However, as the example of Tulsa Remote mentioned earlier illustrates, increasing geographic flexibility enables talent to move away from clusters to peripheral locations. It would be intriguing to study whether broader shifts towards geographic flexibility could help reverse the trends of brain drain from peripheral geographies to cities/ clusters, and what form these migration pathways might take.

Organization design

Finally, for scholars of organization design, changing patterns of geographic mobility, adoption of geographic flexibility, and the emergence of all-remote and hybrid-remote organizations lead to several interesting questions. First, much work is needed to understand the scope conditions for provisioning geographic flexibility. Future research should validate whether provisioning of geographic flexibility creates value for organizations in settings that exhibit sequential and reciprocal interdependence (Thompson, 1967) and/or settings that exhibit epistemic interdependence (Puranam, Raveendran, & Knudsen, 2012). Second, it is important to study the set of complementary policies and norms that would allow firms to maximize value capture from provisioning such flexible arrangements, while minimizing the coordination and learning costs of distributed teams.[5] It is especially important to study the organizational costs of

[5] There is some evidence to suggest that flexibility may affect workers' intrinsic motivation (Gajendran & Harrison, 2007). Greater flexibility may also affect worker productivity, although this may have boundary conditions based on work type and other considerations (Bloom, Liang, Roberts, & Ying, 2015; Choudhury, et al., 2020). Conversely, increased geographic flexibility may increase some costs for firms, namely coordination costs (Cramton, 2001; Gibson & Gibbs, 2006; Srikanth & Puranam, 2014) and learning costs (Argote, 1999; Grant, 1996; Myers, 2018; Singh & Marx, 2013).

provisioning geographic flexibility in both all-remote and hybrid-remote organizations. Future scholarship should be guided by prior theoretical insights from the organizational literature that discusses how issues like team-level conflict (e.g., Hinds & Bailey, 2003), knowledge sharing in teams and relational attachment (e.g., Golden & Raghuram, 2010), and professional and social isolation of remote workers (e.g., Bartel, Wrzesniewski, & Wiesenfeld, 2012) could affect the productivity of geographically-distributed teams. Also, while prior research points to the interplay of shared identity, shared context, and spontaneous communication in distributed teams (e.g., Hinds & Bailey, 2003; Hinds & Mortensen, 2005), future scholarship could further explore the theme of effective communication for all-remote and hybrid-remote organizations that provision geographic flexibility. Relatedly, in a recent commentary, Kevin Crowston and Sumita Raghuram raise important questions related to coordination, asynchronous collaboration, and the mentoring of employees who work in all-remote firms (see Choudhury, Crowston, et al., 2020). These questions relate particularly to studying temporary co-location, and how it can facilitate mentoring, knowledge sharing, and social interactions for geographically distributed workers.

Conclusion

In a world where the increased adoption of remote work practices seems poised to change patterns of geographic mobility and immobility, this review has highlighted the importance of integrating the research on geographic mobility, immobility, and geographic flexibility currently occurring across academic disciplines. This range of work highlights themes that repeat throughout the literature. Geographic mobility can generate value for both firms and individuals, through the transfer of knowledge, social capital, organizational norms, and financial resources. Common factors that inhibit mobility across a range of geographies, legal contexts, and migrant identities include regulatory frictions, occupational/organizational frictions, personal frictions,

and economic/environmental frictions. As organizations seek to overcome these barriers to individual geographic mobility, they might consider management practices that provision geographically flexible work arrangements such as work-from-anywhere. These solutions may provide ways to mitigate the adverse effects of mobility frictions, while preserving and enhancing the value created for firms and workers. However, the efficacy of these policies, boundary conditions for productivity gains, and the management practices needed to effectively support them, as well as how provisioning these policies might alter patterns of geographic mobility, remain salient areas for further research.

----- INSERT TABLES 1 TO 5 HERE -----

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Table 1: Value creation mechanisms: inter- vs. intra-firm mobility

	Knowledge transfer	Knowledge recombination	Social capital transfer	Socialization of organizational norms	Capital transfer and entrepreneurship	Skills development	Access to firm resources	Wage effects
Inter-firm mobility	✓	✓	✓		✓			✓
Intra-firm mobility	✓	✓	✓	✓		✓	✓	✓

Table 2: Geographic mobility: Value Creation Mechanisms

Mechanism	Evidence
1. Knowledge transfer	Edstrom and Galbraith (1977) assert that circulatory migrant managers act as communication bridge between HQ and branch offices. Jaffe et al. (1993) argue that knowledge spillovers (unintended knowledge transfers between firms) tend to be geographically localized. Almeida and Kogut (1999) assert that increased inter-firm engineer mobility within a region is associated with increased regional knowledge transfer. Szulanski (2002) argues that knowledge "stickiness" can inhibit the transfer of knowledge and organizational norms between firm locations. Breschi and Lissoni (2003) argue that social proximity has a greater impact on knowledge transfers than geographic proximity. Rosenkopf and Almeida (2003) argue that worker mobility allows firms to expand searches beyond their established geography or area of expertise. Song et al. (2003) argue that firms are more likely to engage in "learning-by-hiring," to include hiring migrant workers, when they are seeking to acquire specific knowledge outside their existing area of specification. Beaverstock (2004) discusses the location-based variations in knowledge transfer and collaboration between expatriate and local staff within MNEs. Criscuolo (2005) finds that inventors' short-term intrafirm mobility facilitates the transfer of limited, project-specific knowledge, while longer-term assignments facilitate the transfer of broader tacit and organizational knowledge. Saxenian (2005) argues that high-skilled return migrants engage in multi-directional knowledge transfers, and posits that 'brain circulation' is a more appropriate term than 'brain drain' in some contexts. Singh (2005) asserts that social ties between inventors mitigate the negative impact of geographic distance on the likelihood of knowledge transfer. Agrawal et al. (2006) argue that migrant inventors serve as a conduit for two-way knowledge transfers between their origin and destination locations and organizations. Saxenian (2006) argues that transnational networks established by circulatory and return migrant inventors and entrepreneurs have developed into conduits for multilateral knowledge flows among various global innovation hubs. Thompson (2006) finds evidence for localized knowledge transfer by comparing inventor-added and examiner-added patent citations. Chen (2008) argues that low social capital transfer, weak inter-firm trust, and poor transmission of organizational norms undermine the potential for knowledge transfer in the case of return migrants to Beijing's ZSP. Wadhwa et al. (2007) quantify the contributions of migrant inventors to knowledge creation in the US, based on US patent data.

Mechanism	Evidence
	Agrawal et al. (2008) show that while geographic proximity and 'social proximity' both increase the likelihood of knowledge transfer, the two are substitutes, not complements, and geographic proximity has a stronger effect overall. Kerr (2008) argues that migrant inventors in the US act as a conduit for knowledge transfer to their country of origin. Oettl and Agrawal (2008) argue that the social ties of migrant inventors, at both their previous and current firms, facilitate two-way knowledge transfers. Breschi and Lissoni (2009) argue that inventor immobility causes social networks (and thus, knowledge transfers) to appear localized. Oddou et al. (2009) argue that effective knowledge transfer by repatriate managers is dependent on the willingness and ability of the repatriates to transfer knowledge gained during expatriate assignments and the ability and willingness of the home work unit to receive that knowledge. Corredoira and Rosenkopf (2010) find that mobile workers facilitate knowledge transfer flows from their current to their former firms, particularly across large geographic distances. Dokko and Rosenkopf (2010) argue that mobile workers transfer tacit knowledge to their new firm upon being hired. Singh and Agrawal (2010) argue that although firms may hire individuals in order to gain access to their specific knowledge, that knowledge tends to remain 'locked' within the individual hire rather than transferred to the firm. Edler et al. (2011) find that scientists engaged in short-term overseas placements facilitate knowledge transfer both to their home and host countries. Filatotchev et al. (2011) argue that firm absorptive capacity limits firms' ability to take advantage of knowledge spillovers in Beijing's ZSP. Hunt (2011) finds that migrants to the US who arrive through study/work programs outperform native counterparts on innovative production, while those arriving though family reunification do not. Barrufaldi & Landoni (2012) find that international migrant inventors with deeper linkages to their home country produce more knowledge than inventors without such linkages. Borjas and Doran (2012) show that mathematicians that migrated to the US from the former Soviet Union engaged in knowledge transfer and recombination in their new geographic context. Chang et al. (2012) assert that effective intrafirm knowledge transfer is affected by the specific human capital of expatriate managers and the absorptive capacity of overseas subsidiaries. Gaulé and Piacentini (2013) show that Chinese chemistry PhD students in the US produce more work output than their native counterparts. Giuri and Mariani (2013) demonstrate that inventor education level may mitigate the localization effects of knowledge spillovers. Jonkers and Cruz-Castro (2013) find that return migrant researchers are more likely to engage in international collaboration than their non-migrant counterparts, and that their research tends to be higher-impact.

Mechanism	Evidence
	Levin and Barnard (2013) show that access to diasporic networks can assist managers in novel search, particularly when migrants in their network have access to knowledge that is "new-to-the-industry" in their home country. Almeida et al. (2014) argue that membership in an ethnic network can benefit immigrant inventors by acting as a source of knowledge, but caution that overreliance on these networks can restrict novel search. Freeman and Huang (2014) show that collaborative work between academics with diverse geographic backgrounds is more impactful. Gibson and McKenzie (2014) find that migrant researchers from small Pacific Islands produce more research than either non-migrant or return migrant researchers, but argue that return migrant researchers are the primary conduit for knowledge transfers to their home countries. Hornung (2014) assesses the long-term impact of knowledge transfers facilitated by the 15th century migration of Huguenots to Prussia. Moser et al. (2014) show that in-migration of German Jewish chemists to the US in the 1930s boosted total innovation production in the field. Ganguli (2015) argues that the influx of scientists from the former Soviet Union to the US facilitated knowledge transfers and unlocked knowledge formerly trapped in the Soviet context. Scellato et al. (2015) find that permanent and return migrant scientists have larger international collaboration networks than non-migrant scientists. Canello (2016) finds that whether migrant-run firms in Italy engage in effective knowledge transfer depends on their level of local embeddedness. Choudhury (2016) argues that return migrant managers facilitate greater innovation among their direct reports because they serve as a bridge for communication and knowledge transfers between firm HQ and branch office. Lissoni (2018) typologizes the diffusion of innovation resulting from permanent cross-border migration, specifically identifying four potential directions of knowledge transfer: origin to destination, at destination, destination to origin, and cross-destination. Breschi et al. (2017) find that while the patents of foreign-born inventors in the US are disproportionately cited by co-ethnic inventors in some cases, co-nationality is generally less likely to facilitate knowledge transfer than direct social or organizational ties. Carpenter et al. (2001) argue that CEOs with international experience improve firm performance due to their access to unique knowledge. Jang (2017) argues that individuals with cross-cultural experience play a key role in facilitating knowledge transfer on multicultural teams. Le & Kroll (2017) posit that CEOs with international experience improve firm performance due to their unique skills and access to knowledge. Kerr and Kerr (2018) argue that migrant inventors facilitate higher quality international patent collaborations. Agrawal et al. (2019) assert that migrant scientists do not negatively affect expected rates of knowledge spillovers by crowding out native scientists, due to differences in social embeddedness and social capital between migrant and native scientists. Bahar et al. (2020) show that knowledge transfer facilitated by migrant inventors can affect nation-level patenting trends.

Mechanism	Evidence
	Blit et al. (2019) argue that increased levels of university-educated immigrants had only a modest positive impact on Canadian patenting rates overall, which they attribute, in part, to underemployment among immigrant STEM graduates. Chai and Freeman (2019) find that temporary mobility for conferences prompts increased academic collaboration among participants. Choudhury and Kim (2019) show that migrant inventors can access and transfer knowledge formerly 'locked' in other cultural contexts. Fackler et al. (2019) find that out-migration of high-skilled individuals has a positive effect on innovation in the home country, because high-skilled migrants act as a conduit for knowledge and technology transfers to their home countries. Ferrucci and Lissoni (2019) find that migrant inventors increase team diversity and are associated with higher quality patents. Fry (2019) shows that return-migrant scientists at African institutions increase local innovation by facilitating access to knowledge from overseas. Kolympiris et al. (2019) argue that academics seconded to the NSF serve as a conduit for information and social capital flows to their colleagues, increasing colleagues' subsequent NSF funding. Miguélez and Noumedem Temgoua (2019) find that there is a positive association between in-migration of skilled migrants from lesser developed countries and bilateral knowledge flows at the country level. Wang (2015) argues that that the ability of return migrants to engage in knowledge transfer is limited by several factors, namely their level of social embeddedness, the absorptive capacity of their new firm, and levels of xenophobia in the origin country. Choudhury (2020b) shows how temporary intrafirm mobility can help MNEs overcome coordination challenges by facilitating knowledge flows. Crown et al. (2020) find that increased foreign graduate student in-migration to Australia increases regional patent application rates. Ferrucci (2020) argues that the influx of scientists to Europe from the former Soviet Union prompted an increase in patents in fields where the Soviets had competitive advantage. Froese et al. (2020) show that efficacy of intrafirm knowledge transfer may be limited by embeddedness fit of return migrant employees. Marino et al. (2020) demonstrate that migrant inventors facilitate intrafirm knowledge transfer between MNE branch and headquarters. Verginer and Riccaboni (2021) show that high-performing migrant scientists tend to live in high-performing cities, even when they move, generating local innovation spillover clusters.
2. Knowledge recombination	Haas (2006) argues that transnational teams engage in the most effective collaboration and knowledge recombination when they contain a mix of members with local and international experience, but notes that this is the result of the specific expertise those team members add to a given project and *not* the result of improved search capacity by the team as an entity. Wadhwa et al. (2007) quantify the contributions of migrant inventors to knowledge recombination in the US, based on US patent data.

Mechanism	Evidence
	Hunt and Gauthier-Loiselle (2010) show that migrant college graduates boost regional innovation, filing twice the patents of native college graduates. Edler et al. (2011) find that scientists engaged in short-term overseas placements facilitate knowledge recombination in home and host countries. Hunt (2011) finds that migrants to the US who arrive through study/work programs outperform native counterparts on innovative production, while those arriving though family reunification do not. Barrufaldi & Landoni (2012) find that international migrant inventors with deeper linkages to their home country engage in more scientific collaboration than inventors without such linkages. Borjas and Doran (2012) argue that the in-migration of Russian mathematicians to the U.S. led to an uptick in publications in fields where the Soviet Union previously held comparative advantage. Freeman and Huang (2014) demonstrate that international academic collaborations with diverse authorship and inputs perform better than papers published by single-nationality teams. Moser et al. (2014) show that in-migration of German Jewish chemists to the US in the 1930s boosted total innovation production in the field. Ganguli (2015) argues that Russian scientists in the U.S. facilitated knowledge recombination, by unlocking information in Russian publications. Godart et al. (2015) show how creative professionals' international experience facilitates innovation and knowledge recombination. Bahar et al. (2020) assert that migrant inventors affect destination-country patenting in fields where their home country has competitive advantage. Blit et al. (2019) argue that increased levels of university-educated immigrants had only a modest positive impact on Canadian patenting rates overall, which they attribute, in part, to underemployment among immigrant STEM graduates. Chai and Freeman (2019) find that temporary mobility for conferences prompts increased academic collaboration among participants. Choudhury and Kim (2019) argue that knowledge 'unlocked' from various cultural contexts by migrant inventors is then recombined by teams that can include a combination of migrant and native inventors. Fackler et al. (2019) find that out-migration of high-skilled individuals has a positive effect on innovation in the home country, because high-skilled migrants act as a conduit for knowledge and technology transfers to their home countries. Ferrucci and Lissoni (2019) find that migrant inventors increase team diversity and are associated with higher quality patents. Ferrucci (2020) argues that the influx of scientists to Europe from the former Soviet Union prompted an increase in patents in fields where the Soviets had competitive advantage.

Mechanism	Evidence
	Seo et al. (2020) argue that, among distributed teams, those with broad geographic diversity and similar technical expertise generate more innovation (notably teams with broad diversity of technical expertise and limited geographic spread show similar innovative gains).
3. Social capital transfer	Edstrom and Galbraith (1977) assert that circulatory migrant managers act as a bridge for social ties between HQ and branch offices. Portes and Sensenbrenner (1993) discuss how social capital can affect economic actions, specifically focusing on the ways that migration can reinforce in-group solidarity and exaggerate the importance of social embeddedness, to both positive and negative ends. Criscuolo (2005) notes that temporary intrafirm mobility by inventors creates social ties between researchers that facilitate future collaboration. Agrawal et al. (2006) argue that migrant inventors serve as a conduit for social ties between their origin and destination. Kalnins and Chung (2006) find that migrant-run hotels have better survival rates when located within clusters of branded hotels run by co-nationals, due to the increased local social capital those clusters provide. Saxenian (2006) argues that transnational networks established by migrant inventors and entrepreneurs have developed into conduits for multilateral flows of social capital among various global innovation hubs. Oettl and Agrawal (2008) argue that the social networks of migrant inventors facilitate two-way knowledge transfers. Madhavan and Iriyama (2009) argue that migrant entrepreneurs' embeddedness in the social networks of both their home and destination contexts facilitates the expansion of global venture capital networks. Nanda and Khanna (2010) argue that return migrant entrepreneurs are better able than their non-migrant peers to leverage their social capital among the Indian diaspora to access business opportunities and financing. Dokko and Rosenkopf (2010) argue that not only do new hires transfer social capital to their new firm, but that the impact of that social capital persists even after a worker leaves the firm. Barrufaldi & Landoni (2012) find that migrant inventors' ability to tap into international social networks facilitates greater knowledge production. Wahba and Zenou (2012) argue that return migrant entrepreneurs in Egypt are less able to access social capital in their country of origin, due to the erosion of that social capital during their time overseas. Foley and Kerr (2013) argue that employing migrant inventors increases the likelihood that a MNE invests in their country of origin by facilitating social capital and financial capital transfers to their employers. Almeida et al. (2014) argue that membership in an ethnic network can benefit immigrant inventors by acting as a source of knowledge, but caution that overreliance on these networks can restrict novel search. Hernandez (2014) argues that the presence of co-national migrant groups in areas of a new country where a MNE hopes to open can increase the likelihood of firm survival by facilitating social embeddedness in the new location.

Mechanism	Evidence
	Kulchina and Hernandez (2016) argue that the presence of co-national migrant communities positively affects the profitability of foreign firms by facilitating firms' social embeddedness in the new location, but note that firm type and manager nationality may moderate these effects. Choudhury (2016) argues that return migrant managers facilitate greater innovation among their direct reports because they serve as a bridge for social ties between the MNE HQ and branch offices. Carpenter et al. (2001) argue that CEOs with international experience improve firm performance due to their access to unique social networks. Choudhury (2017) argues that temporary worker visits between branch offices and HQ facilitate expanded social ties, with the worker receiving greater visibility for their work and access to firm resources in the subsequent period. Agrawal et al. (2019) assert that migrant scientists do not crowd out native scientists, due to their different levels of social capital and embeddedness. Chai and Freeman (2019) find that temporary mobility for conferences creates new social network connections among participants. Fry (2019) shows that return-migrant scientists at African institutions increase local innovation by facilitating access to overseas social networks. Kolympiris et al. (2019) argue that academics seconded to the NSF serve as a conduit for information and social capital flows to their colleagues, increasing colleagues' subsequent NSF funding. Hernandez and Kulchina (2020) find that firms can improve foreign performance by accessing co-national (to firm or CEO) migrant networks. Morgan et al. (2020) show that level of host-country embeddedness affects migrant-run firm performance, if engaged in trade to their home country. Useche et al. (2020) find that migrant inventors can leverage their international social networks to facilitate firm mergers and acquisitions in their home countries, an effect that increases with cultural distance and for home countries with weak legal systems, among other conditions. Wang (2020) argues that return migrants are more likely to become entrepreneurs if they retain strong cross-border ties to former colleagues, particularly if home and host country are institutionally dissimilar.
4. Socialization of norms	Edstrom and Galbraith (1977) assert that circulatory migrant managers transfer organizational norms between headquarters and branch offices. Madsen et al. (2003) argue that the effective transmission of organizational norms is central to a firm retaining personnel, particularly when hiring personnel from a range of geographic and organizational backgrounds. Criscuolo (2005) finds that inventors' long-term intrafirm mobility facilitates the transfer of organizational norms within a given MNE. Saxenian (2005) argues that high-skilled migrants facilitated the spread of Silicon Valley's organizational norms – including the venture capital finance model and emphasis on meritocracy and flat team structure – to emerging innovation hubs. Saxenian (2006) argues that transnational networks established by migrant inventors and entrepreneurs facilitate multilateral transmission of organizational norms among various global innovation hubs.

Mechanism	Evidence
	Chen (2008) argues that local institutions and regulations may undermine effective transfer of organizational norms in a new context. Choudhury (2016) argues that return migrant managers facilitate greater innovation among their direct reports because they serve as a bridge to transfer organizational norms between the firm headquarters and branch office. Choudhury (2020b) shows how temporary intrafirm mobility can help MNEs overcome coordination challenges by facilitating norms transfer. Luo et al. (2016) argue that return migrants can serve as conduits for organizational norms and drive institutional change, but that their efficacy is moderated by their level of embeddedness in both host and home countries.
5. Capital transfer and entrepreneurship	Daily et al. (2000) find that the international experience of CEOs has a positive impact on firm financial performance. Portes et al. (2002) discuss the characteristics of transnational entrepreneurs. Banerjee and Munshi (2004) explore the difference between local and migrant textile entrepreneurs in southern India, finding that while local entrepreneurs make greater capital investments, migrant entrepreneurs are more productive. Herander and Saavedra (2005) show that the size of an immigrant community in a firm's home state affects firm export rates to that country. Saxenian (2005) argues that businesses founded by high-skilled migrants facilitate innovation in emerging technological hubs. Kalnins and Chung (2006) find that locating nearby branded hotels owned by co-nationals increases firm survival rates of migrant-run hotels. Saxenian (2006) argues that transnational networks established by migrant inventors and entrepreneurs have developed into conduits for multilateral capital flows of among various global innovation hubs. Madhavan and Iriyama (2009) assert that migrant entrepreneurs have facilitated the creation of the global venture capital networks responsible for the increasing globalization of capital flows. Nanda and Khanna (2010) argue that return migrant entrepreneurs are better able to leverage their social capital among the Indian diaspora to access business opportunities and financing than non-migrants. Vaaler (2011) demonstrates that increased levels of remittance flows from overseas migrants to their home countries is associated with greater availability of venture capital funds in those home countries, as well as a higher rates of new venture founding. Wahba and Zenou (2012) assert that capital accumulated during time spent abroad allows return migrant entrepreneurs in Egypt to overcome reductions in social capital that could otherwise undermine their businesses. Foley and Kerr (2013) argue that the employment of migrant inventors by a firm increases the likelihood that the firm will invest in their country of origin, because the migrant employees can facilitate market access for their employers. Kenney et al. (2013) argue that return migrants did *not* play a major role in the initial development of the information technology sector in Taiwan, China, and India, but did play a role in the sector's subsequent expansion. Hegde and Tumlinson (2014) find that venture capitalists are more likely to work with start-ups with a co-national executive.

Mechanism	Evidence
	Hernandez (2014) argues that the presence of co-national migrant groups in areas of a new country where a firm hopes to open can increase the likelihood of firm survival by facilitating knowledge transfer and social embeddedness. Hornung (2014) assesses the long-term impact of capital transfers facilitated by the 15th century migration of Huguenots to Prussia. Canello (2016) finds that the survival rates of migrant-run firms in Italy depend on their ability to establish linkages to other local firms. Kulchina (2016a) finds that migrant entrepreneurs can access lower cost labor than native entrepreneurs, by tapping into their home labor market. Kulchina (2016b) finds that entrepreneurs make locational decisions about where to invest based on personal factors more than profit maximization. Kulchina and Hernandez (2016) argue that the presence of co-national migrant communities positively affects the profitability of foreign firms by facilitating firms' social embeddedness in the new location, but note that firm type and manager nationality may moderate these effects. Burchardi et al. (2019) find that historical in-migration from a country to a US county is associated with increased bilateral capital flows. Clark et al. (2018) show that manager experience in a given country increases the likelihood of MNE foreign expansion to that country. Mata & Alves (2018) find that immigrant-founded firms' survivability is correlated with the immigrants' work experience tenure in the host country. Hernandez and Kulchina (2020) find that firms can improve foreign performance by accessing co-national (to firm or CEO) migrant networks. Kerr and Kerr (2020) find that migrant entrepreneurs in the US account for about 25% of all new firms founded between 2007 and 2012, though these firms tend to employ fewer individuals overall than native-founded firms. Morgan et al. (2020) show that level of host-country embeddedness affects migrant-run firm performance, if engaged in trade to their home country. Useche et al. (2020) find that migrant inventors can leverage their international social networks to facilitate firm mergers and acquisitions in their home countries, an effect that increases with cultural distance and for home countries with weak legal systems. Wang (2020) argues that return migrants are more likely to become entrepreneurs if they retain strong cross-border ties to former colleagues, particularly if home and host country are institutionally dissimilar.
6. Skills development	Edstrom and Galbraith (1977) assert that overseas transfers are a key mechanism to develop managers' problem-solving and communications skills, as well as expand their independent decision-making. Saxenian (2006) argues that migrant inventors and entrepreneurs have developed the communications skills to effectively navigate inter-cultural miscommunications and other challenges associated with transnational organizations and value chains. Kerr et al. (2016) note that the growing importance of the skillsets developed through cross-border intrafirm placements has led many multinationals to make such placements a prerequisite to career advancement at the senior executive level.

Mechanism	Evidence
	Chattopadhyay and Choudhury (2017) argue that individuals assigned to challenging distant early-career posts advance more rapidly due to the problem-solving skills they acquire. Le & Kroll (2017) posit that the skills CEOs gain through international experience play a key role in their later ability to improve firm performance.
7. Resource seeking	Kulchina (2016a) finds that migrant entrepreneurs can access lower cost labor than native entrepreneurs, by tapping into their home labor market. Carpenter et al. (2001) argue that CEOs with international experience improve firm performance due to their access to unique resources. Choudhury (2017) argues that short-term worker visits to firm headquarters provide an opportunity to establish social connections and secure additional resources, which positively affects subsequent short-term productivity. Fry (2019) shows that return-migrant scientists at African institutions increase local innovation by facilitating access to foreign resources.
8. Wage effects	Raphael and Riker (1999) demonstrate that worker immobility is associated with lower wages in the case of American laborers. Friedberg (2001) asserts that although Israel experienced reduced native wage and employment growth after a spike in in-migration, these estimated changes are biased by the immigrants' occupational distribution, which largely mitigates these negative effects. Glaeser and Maré (2001) find that workers in cities earn higher wages due to location-driven productivity increases, but note that workers retain the benefits of this wage premium even if they move elsewhere. Borjas (2003) argues that, when comparing between comparable human capital levels, increased in-migration negatively affects native wages. Edin et al. (2003) find that refugee workers in Sweden living in ethnic enclaves earn more than those living elsewhere. Borjas (2005) asserts that an increase in immigrant PhD holders has negative wage effects on both native and incumbent migrant PhD holders. Boustan et al. (2010) find that rural-urban migration in 1920s US did not affect local workers' hourly wage, but did decrease total hours worked. Kerr and Lincoln (2010) find that increased in-migration by foreign inventors and engineers to the US had no effect on native counterpart wages, and was associated with a slightly higher employment rate overall. Mithas and Lucas (2010) find that, controlling for human capital levels, migrant IT professionals in the US earn more than their native counterparts. Hunt (2011) finds that migrants who arrive through study/work programs outperform native counterparts on wages, while those arriving though family reunification programs do not. Glitz (2012) finds evidence of native worker displacement in response to in-migration of comparable migrant workers. Peri (2012) argues that in-migration prompts better task specialization of migrant and native workers, increasing total factor productivity.

Mechanism	Evidence
	Clemens (2013) argues that there is a significant wage differential between software workers in the US and India, even within a single multinational, suggesting that location alone has a significant impact on wages. Dustmann et al. (2013) seek to account for migrant workers' tendency to work in jobs below their apparent skill level when modeling the effects of in-migration on native worker wages, and find variable wage effects, with low-skilled jobs seeing negative effects and high-skilled jobs positive ones. Bound et al. (2015) demonstrate that in-migration of computer scientists to the US in the 1990s-2000s was associated with lower wages in the field and a decrease in the number of native computer scientists in the market. Peri et al. (2015) assess the long-term wage effects of high-skilled in-migration, finding positive effects for college-educated native workers and weaker, but still positive, effects for non-college educated native workers after 20 years. Hendricks and Schoellman (2018) apply development accounting to the wage gains noted by immigrants from middle or low-income countries to the US and argue that location change accounts for 40% of the wage increase, with the remaining 60% the result of human capital differences. Llull (2018) adjusts labor market models to account for behavioral adjustments by migrant and native workers in response to labor market changes (i.e., increasing education, shifting search parameters, leaving the market), and finds this mitigates negative wage effect findings from prior models. Piyapromdee (2020) adjusts labor market models to account for housing elasticity and worker city preferences, and finds welfare gains for low-skilled workers, losses for native high-skilled workers, and greater losses for incumbent migrant high-skilled workers. Sequeira et al. (2020) assess the long-term impacts of mass migration to the US, finding higher in-migration associated with higher income and educational attainment, and lower poverty and unemployment 100 years later.

Table 3: Mobility frictions: inter- vs. intra-firm mobility

	Regulatory frictions	Occupational frictions	Organizational frictions	Personal frictions	Economic frictions	Environmental frictions
Inter-firm mobility	✓	✓	✓	✓	✓	✓
Intra-firm mobility	✓		✓	✓	✓	✓

Table 4: Geographic Mobility Frictions

Regulatory	Constraints: Visa regime • Zelinsky (1971) proposes a theory of the mobility transition, whereby societies go through several phases of mobility, ending at a stable phase under which there is limited, highly-regulated mobility, both within and between countries. • Wadhwa et al. (2007) estimate that 1m people on valid visas in the US are waiting for their permanent residence applications to process. • Clemens (2011) argues that regulatory restrictions on mobility have a larger effect on the global economy than trade or capital flow restrictions. • Kato and Sparber (2013) show that stricter visa restrictions in the US prompted a decrease in high-performing foreign student university applicants. • Rissing and Castilla (2014) find that immigrant nationality affects the likelihood of the US DoL granting a labor certification, and note that this nationality bias is reduced where an application audit grants reviewing agents additional information on specific migrant workers. • Kahn and MacGarvie (2016) argue that scientists who leave the US after their studies due to visa restrictions are more likely to create a brain gain effect in their home countries if that home country has a relatively weak scientific base. • Orazbayev (2017) argues that visa regulations limit global knowledge flows by restricting researchers' ability to travel to international conferences. • Chinchilla-Rodríguez et al. (2018) show that researchers affected by the Trump travel ban were less likely to move during the subsequent period, and were more likely to engage in international collaboration without a mobility component. • Cooke et al. (2018) assess Zelinsky's theory given the developments in the global economy over the past 40 years, highlighting its prescience regarding the modern visa regime and the expanded role played by information technology in mobility decision-making. • Kahn and MacGarvie (2019) find that STEM PhD graduates subject to permanent residency restrictions are more likely to leave the US than their counterparts not subject to similar restrictions. Household registration laws • Wu and Treiman (2007) demonstrate that the hukou registration system governing rural-urban and cross-regional mobility effectively reified social stratification in Chinese society. • Song (2014) discusses the role of hukou registration in determining access to social services and labor markets, arguing that they remain a barrier to rural-urban and cross-regional mobility despite recent relaxations of legal restrictions on movement. • Ma and Tang (2020) find that despite negative effects on nominal wages and congestion, the relaxation of hukou restrictions had an overall positive effect on individual welfare in China's medium and large cities. Local regulations • Zhao (1999) argues that land allocation laws are a key driver of immobility in rural China, even absent legal restrictions on movement. • Griffith and Macartney (2014) find that variations in employment protection laws affect how MNCs make locational decisions. • Cooke et al. (2016) argue that state-specific child custody stipulations are a barrier to post-divorce interstate mobility. • Schleicher (2017a) argues that regulations on land use contribute to declining interstate mobility in the US. • Foster (2017) adds to Schleicher's (2017a) discussion, asserting that land use regulations must be changed at both the origin and destination to mitigate negative impacts on mobility, an addition that Schleicher (2017b) welcomes.

	Costs: Taxation rates • Rohlin et al. (2014) find that state tax rates affect the locational decisions of firms in border regions. • Akcigit et al. (2016) find that high-performing inventors tend to live in locations with lower top marginal tax rates. • Moretti and Wilson (2017) find that high-performing scientists tend to move to states with lower top marginal tax rates. Loss of public benefits • Schleicher (2017a) argues that state-specific benefits and tax subsidies negatively affect interstate mobility. • Austin et al. (2018) argue that the difficulty of transferring public benefits across states contributes to worker immobility. • Kone et al. (2018) demonstrate that inter-state migration in India is significantly less likely than within-state migration, and attribute the variation to access to state-specific benefits.
Occupational & Organizational	Constraints: Licensing • Kugler and Sauer (2005) demonstrate that relicensing requirements for migrant doctors in Israel can act as a barrier to market entry. • Peterson et al. (2014) demonstrate that occupational licensing regimes act as a protectionist barrier to high-skilled in-migration. • Johnson and Kleiner (2017) show that workers subject to state-specific licensing requirements are less likely to engage in interstate mobility than workers with no or national-level-only requirements. • Schleicher (2017a) argues that occupational licensing negatively affects interstate mobility, and notes that the professions subject to licensing requirements has expanded. • Scheffler and Nunn (2019) emphasize the positive impact of occupational licensing on public safety, while acknowledging that licensing regulations can be a barrier to mobility and increase the cost of services. Firm-specific barriers to mobility • Lee et al. (2014) discuss how organization-level policies, benefits, and norms can reduce worker turnover and increase job embeddedness: Non-compete clauses • Marx et al. (2009) argue that state enforcement of non-competes limits inventors' interstate mobility. • Belenzon and Schankerman (2013) argue that non-compete clauses force job-seekers to move further to find new opportunities. • Marx et al. (2015) show that inventors engaged in collaborative and high-impact patenting tended to leave states that enforce non-compete clauses. • Starr et al. (2018) assert that firms use non-compete clauses to protect proprietary information and to decrease inter-firm mobility of workers. • Starr et al. (2019) argue that industries with highly specialized skills and widespread non-compete clause usage see increased worker immobility. • Starr et al. (2020) show that states and industries where enforceable non-compete clauses are more common see reduced job mobility and lower wages, even among workers not personally subject to non-compete clauses. Place-specific firm benefits

	• Buchmueller and Valletta (1996) demonstrate how employer-provided health insurance can reduce worker mobility. • Costrell and Podgursky (2010) assess the effects of teacher mobility on pension value, finding that over a 30-year career, a teacher in one school district may amass a pension worth double that of a teacher that works in two districts. Firm-specific norms • Tung (1987) reviews the range of organization-level challenges faced by expatriate assignees, focusing on adjustment and repatriation. • Yan et al. (2002) discuss a range of factors that affect successful expatriate assignments, and highlight the importance of aligning firm and worker expectations of career advancement upon repatriation. • Bolino (2007) finds that organizational factors affect expatriate assignment success, which in turn affects firm ability to retain repatriated staff and recruit future expatriates. • Reiche et al. (2011) show that expatriate employee perceptions of organizational trust and fit affect their perceived career prospects, and are predictive of two- and four-year retention rates.
Personal	Constraints: Social barriers • Bowles (1970) finds that race affects out-migration from the American South. • Ritchey (1976) notes that race impacts mobility in the US, with Black workers significantly less mobile than comparable white workers. • Portes and Sensenbrenner (1993) discuss how mobility or membership in migrant communities can result in the accumulation of social debts. • Raphael and Riker (1999) argue that Black worker immobility is associated with negative wage impacts in the US. • Korinek et al. (2005) show that level of social embeddedness at destination can affect subsequent mobility decisions by urban-rural migrants in Thailand. • Munshi and Rosenzweig (2005) posit that caste can act as a barrier to interstate migration in India. • Munshi and Rosenzweig (2016) argue that sustaining access to informal caste-based insurance networks limits rural-urban migration for Indian men.
	Costs: Psychic costs • Nelson (1959) argues that social factors also contribute to mobility decisions, along with wage differentials. • Sjaastad (1962) expands on the various 'non-money' factors that impact mobility decisions, specifically the psychic cost of distance from family/friends and personal preferences like climate. • Lansing and Mueller (1967) demonstrate that a significant portion of mobility involves moving closer to family. • Greenwood (1969) argues that workers are more likely to move to places with an established community from their place of origin, reducing the psychic costs of mobility. • Fabricant (1970) highlights the impact of social factors in mobility decisions. • Schwartz (1973) challenges the literature on psychic costs of mobility, arguing that while people do tend to move to places with established co-communities, this is due to improved information transfer to new migrants, not due to their desire to mitigate psychic costs. • Greenwood (1975) surveys existing literature to highlight the interdependence of economic, psychic, and informational factors on mobility. • Speare et al. (1982) use panel data to demonstrate that social embeddedness can reduce the likelihood of mobility.

	• Dahl and Sorenson (2010) argue that technical workers prioritize proximity to family/friends when making mobility decisions. • David et al. (2010) argue that workers that live in close proximity to, and regularly see, their family are less mobile. • Kulchina (2016b) argues that entrepreneurs making locational decisions about where to start a business prioritize personal factors. • Schoenbaum (2017) argues that Schleicher's (2017a) regulatory explanation for immobility underemphasizes the impact of social embeddedness on mobility decisions – a criticism that Schleicher (2017b) rejects. • Yonker (2017) finds that CEO turnover and compensation are both lower for CEOs from the same area as the companies they run, suggesting that non-economic factors affect CEOs' decisions to take these jobs. • Bertoli and Ruyssen (2018) find that having a close personal contact in a given country increases the likelihood of an intending migrant moving to that country over other potential destinations. • Choudhury and Kwon (2018) argue that worker distance from home can have long-term negative impacts, even if it can also prompt short-term productivity boosts, variation they attribute to differences in employee time allocation and the ability to visit family at key times. Cultural costs • Hymer (1960) argues that nation of origin impacts firm behavior, and that cultural distance increases firm operational costs elsewhere. • Hofstede (1980) develops a four-vector theory of assessing cultural distance and asserts that greater cultural distance can be associated with differing perceptions of authority, trust, individuality, and work-life divisions. • Kogut and Singh (1988) use firm-level data to argue that cultural distance between home country and target market impacts the likelihood of successful multinational market entry. • Black and Mendenhall (1991) argue that cultural distance poses a barrier to successful integration for expatriate workers. • Zaheer (1995) uses data from firms trading on the foreign exchanges in New York and Tokyo to argue that firms operating outside their home environment face a *liability of foreignness*. • Ghemawat (2001) seeks to expand how MNEs estimate the cost of entering new markets, taking into account cultural, administrative, political, and economic distance between the MNE home country and target market. • Berry et al. (2010) seek to develop a new method of estimating distance that accounts for economic, financial, political, administrative, cultural, and demographic distance alongside geographic distance. • Dahl and Sorenson (2012) find that businesses founded by locally-embedded entrepreneurs perform better and survive longer. • Stahl et al. (2017) argue that literature on the impact of cultural difference on multinational management overemphasizes the costs and underestimates the benefits of personnel diversity and intercultural exchange. Family costs • Sandell (1977) argues that households where the wife works are less mobile than other families because the costs of mobility are higher. • Mincer (1978) finds that family units are less mobile than individuals, and female labor force participation is associated with lower family mobility. • Peterson (1979) argues that life cycle events – graduation, marriage, end of childrearing – are associated with shifting likelihood of mobility. • Chen et al. (2003) argue that maximization of collective family income can explain counterintuitive migration patterns (e.g., dependent migration). • Blackburn (2010) finds that despite societal changes, family-level migration decisions continue to be driven by the increased income potential of the husband, and wives, on average, earn less immediately following the move.

	• Lazarova et al. (2010) highlight the role of family-level adjustment in determining the success and productivity of expatriate assignments. • Widiss (2012) argues that within any family unit, breadwinning and caretaking responsibilities tend to break down along gender lines. • Lee et al. (2014) discuss how high levels of family-member community embeddedness can restrict worker mobility. • Sorenson and Dahl (2016) find that family-level migration decisions in the Netherlands tend to favor maximizing the husband's potential income, especially in families with young children or where the husband's income makes up a large portion of total family income. • Schoenbaum (2017) applies Widiss' (2012) argument to mobility, demonstrating that family unit mobility decisions tend to benefit the breadwinner (usually husband) income at the expense of the secondary partner income.
Economic & Environmental	Constraints: Opportunity costs • Ritchey (1976) highlights a variety of financial costs associated with mobility, including income forgone during a move. • Sandell (1977) argues that households where the wife works are less mobile than others due to the higher opportunity costs of mobility. • Speare et al. (1982) find that economic embeddedness (i.e., already being employed) does not impede mobility to a statistically significant extent. • Dahl (2002) argues that mobile workers self-select, with the highest educated more likely to move to areas where they can maximize wages. • Grogger and Hanson (2015) demonstrate that economic conditions in home or destination country can affect migrants' locational decisions. • Schmutz and Sidibé (2019) argue that *spatial frictions* (i.e., moving costs, opportunity costs, and information costs) combine to prompt immobility, even among workers who would see a wage premium elsewhere. • The US Senate's Joint Economic Committee (2019) demonstrates that high-skilled US workers tend to move to specific high-performing states, creating inter-state brain drain. Environmental factors • Mesnard and Seabright (2009) discuss the impacts of quarantine measures on individual mobility decisions, noting that in some cases, limitations on movement can have unintended consequences and increase mobility intentions for those at the pandemic epicenter. • OECD (2020) summarizes OECD members' migration policy response to the COVID-19 pandemic, finding that immediate effect was one of immobility, with most countries' response characterized by border closures and de facto suspension of visa processing due to consulate closures. • Biermann and Boas (2010) propose modifying and extending the 1951 Geneva Convention Relating to the Status of Refugees to apply to individuals fleeing the effects of climate change, which they claim will reach millions of people within a century. • Farbotko and Lazrus (2012) contest the narrative of climate change prompting widespread long-distance migration, instead using the case of Tuvalu to argue that climate change will more likely lead to short-distance mobility and other efforts to adapt locally. • Black et al. (2013) argue that mobility responses to extreme weather events vary, and can include short-term migration, longer-term displacement, or immobility, suggesting that the discourse of climate change necessarily prompting large-scale migration is an oversimplification. • Bosetti et al. (2020) argue that out-migration mitigates the link between climate-change-driven temperature spikes and increased chance of conflict. • Entwisle et al. (2020) argue that efforts to assess the impact of climate on migration must consider not only if it prompts climate-driven mobility, but also the ways that climate may disrupt existing mobility patterns or prevent return migration.

	Costs: Cost of living • Greenwood (1969) argues that workers are more likely to move to places with an established community from their place of origin, which reduces the moving costs associated with mobility. • Ritchey (1976) highlights a variety of financial costs associated with mobility, including transport costs and potential losses from home sales. • Glaeser et al. (2004) argue that growing populations and increasing cost of living in 'skilled cities' are due to correlations between worker education, productivity, and city-level growth. • Head and Lloyd-Ellis (2012) show how home liquidity (i.e., how quickly a home can be sold) affects likelihood of homeowners taking distant jobs. • Moretti (2013) argues that high-skilled worker concentration in high-cost-of-living cities reduces their real wage premium with low-skilled workers. • Foster (2017) highlights the need to address the high cost of housing and growing inequity in high-wage cities in order to implement Schleicher's (2017a) policies to encourage mobility effectively—a suggestion Schleicher (2017b) acknowledges his initial work overlooked. • Ganong and Shaog (2017) argue that high housing costs deter potential migrants from engaging in geographic mobility. • Austin et al. (2018) attribute falling worker mobility in the US, in part, to high moving costs and high cost of living at destination. • Choudhury et al. (2019) find that workers with geographically flexible jobs may move to places with lower cost of living. • Heuermann and Schmieder (2019) find that reducing travel time between nearby cities and towns through the expansion of high-speed rail routes increased the number of workers commuting between the two locations, although notably they find more urban dwellers shifting their place of work to smaller towns than urban dwellers moving to lower cost-of-living locations. Informational costs • Greenwood (1969) argues that workers are more likely to move to places with an established community from their place of origin, which can help new migrants overcome information shortfalls. • Bowles (1970) argues that expected income at destination—and not general wage differentials—is the primary determinant of mobility decisions, and shows that as a result, younger and more educated workers are more likely to engage in mobility. • Schwartz (1973) argues that easier information transfer to new migrants is the primary reason that people tend to move to places with an established community from their region of origin. • Greenwood (1975) highlights the interdependence of economic, psychic, and informational factors on mobility decision-making and outcomes. • Choudhury and Khanna (2012) demonstrate a significant correlation between access to education and the likelihood of worker mobility. • Dahl and Sorenson (2012) posit that greater access to market information is one explanation for the tendency of firms founded by local entrepreneurs to outperform other firms. • Jensen (2012) demonstrates that increased access to information about job opportunities can affect individual behavior, including expanding investment in education and professional development, and postponing life cycle events. • Belenzon and Schankerman (2013) demonstrate how state borders can restrict information flows. • Patel and Vella (2013) argue that migrants can use their networks to overcome information costs, identify work opportunities, and maximize wages. • Agrawal et al. (2017) show how the construction of physical transport infrastructure facilitates increased information flow between regions. • Schmutz and Sidibé (2019) argue that *spatial frictions* (i.e., moving costs, opportunity costs, and information costs) combine to prompt immobility, even among workers who would see a wage premium elsewhere.

	• Catalini et al. (2020) find that market entry of a low-cost airline reduced transport costs, facilitating information transfer among scientists.

Table 5: Future research directions

Literature	Questions for future research
Firm-induced migration and global talent sourcing	• How will adoption of WFA affect patterns of firm-induced migration? • How will patterns of firm-induced migration be affected by permanent-WFA versus partial-WFA (e.g., work-vacations)? • How will adoption of WFA alter spatial distribution of talent being sourced by firms? • How will adoption of WFA alter temporal, cultural, linguistic, and other dimensions of distance between workers hired by firms? • How will WFA affect the mobility patterns of dual-career couples?
Value creation and value capture from human capital	• For firms adopting WFA, should wages/salaries be linked to task and/or place of employee? • How will implementing WFA with location-independent versus location-dependent salaries affect worker performance and turnover? • How will adoption of WFA affect patterns of employee turnover within regional labor markets and/or at labor market monopsonies?
Business travel and productivity	• How will adoption of WFA affect patterns of business travel? • How will adoption of WFA affect the relation between business travel and productivity?
Spatial agglomeration of talent	• How will WFA affect spatial agglomeration of talent and patterns of urban agglomeration? • Will WFA trigger patterns of reverse brain-drain from large cities to smaller towns and/or from developed countries to emerging markets?
Organization Design (of All-remote and Hybrid-remote organizations)	• What are productivity implications of provisioning WFA within settings that exhibit sequential, reciprocal, and epistemic interdependence? • For organizations adopting WFA, what are effective means of coordination, collaboration, knowledge codification? • For organizations adopting WFA, what are effective means of orchestrating informal interactions and mentoring organizational newcomers?