Perspectives on the geographic stability and mobility of people in cities

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A class of questions in the human environment sciences focuses on the relationship between individual or household behavior and local geographic context. Central to these questions is the nature of people's geographic mobility as well as the duration of their locational stability at varying spatial and temporal scales. The problem for researchers is that the processes of mobility/stability are temporally and spatially dynamic and therefore difficult to measure. Whereas time and space are continuous, analysts must select levels of aggregation for both length of time in place and spatial scale of place that fit with the problem in question. Previous work has emphasized mobility and suppressed stability as an analytic category. I focus here on stability and show how analyzing individuals' stability requires also analyzing their mobility. Through an empirical example centered on the relationship between entrepreneurship and place, I demonstrate how a spotlight on stability illuminates a resolution to the measurement problem by highlighting the interdependence between the time and space dimensions of stability/mobility.

entrepreneurship | gender | geographic mobility | locational stability | geographic context

The continuum of human spatial immobility–mobility at varying geographic and temporal scales poses fascinating questions and challenges for sociospatial analysts. People move, and they stay put: Geographically, they move over scales ranging from a few meters to hundreds of thousands of kilometers; temporally, they move or stay put over scales ranging from a few minutes to many years. In this paper, I focus on those human movements and spells of stability that have to do with the spaces of everyday life, namely locations where people live, work, learn, shop, and socialize. Research on mobility/stability at this scale holds relevance for understanding housing markets, labor markets, criminal activity, transportation systems, and, as I explain later in the paper, entrepreneurship.

The problem for researchers is that the processes of mobility/stability are temporally and spatially dynamic and therefore difficult to measure. The ideal data would preserve the spatiotemporal continuity of people's lives, as, for example, would the data gained from tagging individuals with a global positioning system unit that would continuously record the person's movements in time (by minutes) and space (by latitude–longitude coordinates). Although this ideal, which would provide maximum flexibility to the analyst, is now technologically feasible, it is not politically feasible, and the analyst would still need to confront how best to aggregate these data in the context of particular research questions. The solution lies in selecting a level of aggregation for both the time (length of time in place) and space (spatial scale of the place) dimensions that corresponds to the processes under investigation.

Although geographers appreciate the problems of analyzing dynamic spatial processes (1), research on mobility/stability to date has tended to emphasize mobility and to treat stability as the absence of an event (mobility) rather than as an occurrence worthy of analysis. In this paper, I focus on stability as an analytic category and demonstrate that highlighting stability, rather than suppressing it, illuminates the measurement problem posed above. In particular, focusing on stability highlights the interdependencies between stability and mobility and the need to conceptualize and measure the two together.

Two types of mobility are of concern here: residential mobility (change in individual/household residential location) and daily-to-weekly mobility (individual/household travel within cities). By contrast, locational stability refers to people's duration of stay in place and has been of interest primarily as an indicator of the depth of local knowledge and local ties. Stability and mobility are linked inasmuch as it is precisely through repetitious daily mobility in a place that a person's locational stability acquires meaning; through their rounds of daily activities, individuals become familiar with the people, institutions, spatial structures, and norms in a place. The term "residential stability" has been applied to places to indicate the collective level of locational stability among an area's population (2). Residential mobility and daily mobility complicate attempts to measure individuals' locational stability; people can return to live in a place that they had moved away from, so that duration of current stay may not accurately indicate the extent of local knowledge, and, because the spatial extent of people's daily travels may not correspond with the boundaries of the place (e.g., county) in which they live, the place that someone knows may not match the administrative unit in which s/he resides.

In the remainder of the paper, I first demonstrate the importance of stability as an analytic category and the interdependence of stability and mobility through a few examples of human environment questions in which stability/mobility are central. Next, a review of studies of locational stability highlights the importance of geographic scale and the reasons that stability matters to urban life. After a section on data and measurement issues, I illustrate how a focus on stability illuminates potential solutions to the measurement challenges posed by mobility/stability; I do this with an empirical example that deals with the relationship of entrepreneurship to place.

Considering Stability and Mobility

Human spatial mobility and locational stability intersect in the class of problems that have to do with the relationship between individual/household behavior or well-being and local geographic context. Does living in a certain kind of place lead to a higher probability of individuals' being exposed to pollutants, committing crimes, becoming social activists, or engaging in physical activity? The idea that environment affects the human condition has a long history (3), although the notion that the relationship is in any way simple, one-way, or deterministic has long been

Abbreviations: MSA, metropolitan statistical area; LED, local economic development; CS, Colorado Springs.

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discredited. Instead, social scientists have sought to explore the nature of the complex links between environment and behavior; in unraveling these connections, the roles of mobility and stability are central. As examples, I note three research areas, each of which requires paying attention to mobility as well as locational stability: air pollution exposure, segregation, and criminal activity. In each, interest centers on how an individual's locational stability increases exposure, but problems arise from a mismatch between processes that are dynamic in time and space and the use of data/measurements that are not.

Studies of human exposure to air pollutants require data on the spatial and temporal distributions of populations and of pollutants. Although pollution data are available at varying degrees of spatial and temporal resolution, for population data most studies rely on demographic data from the Census of Population and Housing (4, 5). The use of these population data not only ignores residential mobility taking place during the decades between censuses, but it also assumes, even if census population data were updated daily, that people remain at home all day, i.e., that residential location is a viable surrogate for the range of locations (and accompanying different air qualities) an individual encounters throughout the day. Schwab (6) demonstrated empirically at the individual level the importance of incorporating exposure to CO in the course of daily travel along with exposure at the residential location.

Measures of segregation aimed at indicating the degree of contact between and among members of different racial or ethnic groups also rely, by and large, on population data from the decennial census (7). Again, because these data describe residential locations, indicators of segregation derived from these data ignore interactions taking place at other locations where people spend time. Examples of such locations that are important sites of intergroup contact include the workplace (8, 9), public transportation (10), and public parks (11).

The third example concerns criminal activity. Sampson and Morenoff (12) show that understanding the geographic occurrence of violent crime requires considering patterns of residential stability of both neighborhoods and individuals as well as patterns of individuals' daily mobility. A certain level of locational stability is needed to familiarize the people living in a place (e.g., an urban neighborhood) with the conditions there that are associated with criminal activity (e.g., the lack of informal social controls). Criminals' daily mobility means that the incidence of crime should be linked not to the characteristics of the criminal's place of residence but to the conditions in the place where the crime occurred. In addition, Sampson and Morenoff provide convincing evidence that, again because of individual daily mobility and the diffusion of information, the level of criminal activity in a place depends not only on the attributes of that place but also on those of surrounding places.

The larger point in all of these examples is a simple one: In studying the relationship between individuals' locational stability and local spatial context, ignoring daily mobility yields answers that are likely to be significantly different from those obtained by taking stability as well as mobility into account.

Locational Stability

Locational stability is embedded in two literatures with long pedigrees; one has focused on the residential mobility of individuals and households, and the other has been concerned with the stability of populations in neighborhoods. I engage with these literatures to highlight two issues: geographic scale and why the locational stability of individuals, on which the literature is more recent, matters.

One indicator of the relative inattention paid to locational stability, compared with residential mobility, is that Rossi's classic *Why Families Move* (13) has no companion volume titled *Why People Stay*, although the 2004 appearance of a journal article with that title (14), as well as of other recent papers on stability, suggests the tide may be turning. Studies of residential mobility have focused on the reasons for households' change in residential location and the process by which people search for and select a new residence (15). Although the decision to stay is just as much a conscious decision as the decision to move (16), and although the majority of people do not move house in any 5-year period, duration of residence in one place has been of little interest to mobility researchers except as it affects the probability of the next move. Owing to "cumulative inertia" (16), this probability has been found to decrease with increasing time in place. Although embedded in some mobility models (17), then, stability has remained essentially an implicit, not explicit, part of mobility research.

But how have such studies operationalized "place"? For most of the literature on residential mobility that has considered the household's length of stay in place, the answer is the dwelling unit (house or apartment) rather than some larger spatial unit or area such as the neighborhood or metropolitan area. Anily *et al.* (18) provide a recent example of studies in which the focus is on the duration of stay in one location but the conceptualization of that location is geographically limited to the dwelling unit.

Interest in the residential stability of neighborhoods dates back to the urbanization theories of the early Chicago School of urban sociology. In this context, a high level of population turnover within a neighborhood was seen as being harmful to neighborhood social cohesion and as leading to a range of social pathologies. The analytical focus was on the level of residential stability of the neighborhood as a whole, operationalized as the census tract, not the household or individual. Shifting the focus to the individual opens up a range of questions having to do, for example, with the relationship between locational stability and familiarity with and commitment to place.

For many research questions, therefore, it is desirable to measure the individual's duration of stay in place for areas larger than that of the dwelling unit or the neighborhood. Questions such as how residential stability is related to patterns of civic participation or economic investment at varying spatial scales require thinking about individuals' locational stability within larger community areas, such as metropolitan areas, rather than at the scale of the house or neighborhood. People may in fact change residential location within a community, but at this scale such mobility would not count against a measure of stability. Because most residential moves are over short distances [the median distance is 10 km (19)], length of residence in a place obviously depends on the scale at which place is defined.

A number of recent studies have documented the impacts of individuals' residential rootedness-to-place at varying spatial scales, from the neighborhood to the county. At the submetropolitan scale, Kasarda and Janowitz (20) built on the tradition of the Chicago School to demonstrate that an individual's length of residence in a community (dichotomized into those who had lived in the community for <20 years or >20 years) is positively related to the individual's local social ties and level of community attachment. Sampson (2) extended these findings to show that community-level residential stability (the proportion of people who had lived there for at least 20 years) also, and independently, is associated with individual-level social ties and community attachment. These studies used British data in which "communities" were local authorities (20) or polling places (2). Using different areal units (Madison, WI, was divided into three neighborhoods), Kang and Kwak (21) found that the average length of individuals' neighborhood residence, as well as the proportion of people in each neighborhood that had lived there

at least 20 years, were both positively related to individuals' civic participation.

Also at the submetropolitan scale, recent studies have examined the impact of residential stability within census tracts on individual health. Ross *et al.* (22) show, for a sample of Illinois residents, that residential stability reduces depression and anxiety for those living in nonpoverty tracts. Similarly, Boardman (23) found that neighborhood stability, measured as the proportion of people in each census tract who owned their own homes and had lived in the same dwelling unit for at least 5 years, buffered the effects of stress on health among a sample of Detroit residents. In their review of recent studies examining the neighborhood effect (the idea that individual-level outcomes are related not only to individual/household characteristics but also to characteristics of the local environs), Sampson *et al.* (24) record other spatial units at the submetropolitan scale, e.g., police beats, that have been used as indicators of local context.

Other studies have conceptualized the impacts of individuals' locational stability within spatial units of larger scale, such as metropolitan areas and counties. Hanson and Pratt (ref. 25, pp. 191 and 246) demonstrated that long-term residents of the Worcester, MA, area, defined as those who had grown up in the city and surrounding suburbs, were more likely than those who had not grown up there to have found their current housing and their current job through personal contacts and, furthermore, that the nature of the contacts used to find housing (e.g., family vs. friends or coworkers) differed for the two groups of residents. These differences in ways of finding jobs and housing had implications for the locations of home and work: Worcester natives were more likely than nonnatives to search for housing within a specific, circumscribed area, and people who had found their jobs by means of personal contacts worked closer to home than those who had used formal means of job search (ref. 25, p. 197). Irwin and coworkers (14, 26) have investigated nonmigration at the county scale within the United States to show that characteristics of place (in this case, the county of residence) affect nonmigration itself. In particular, community civic structures such as the prevalence of churches and old, established businesses affect individual migration behaviors.

The logic behind the significance of residential stability (why rootedness-to-place matters for understanding local labor markets, local housing markets, community attachment, civic participation, and health) has to do with individuals' daily mobility patterns. Neighborhood effects depend on duration of stay and on individuals' repetitious daily travel–activity patterns in place. In this sense, length of residence is a proxy for place-based patterns of interaction established during rounds of daily activity; the spatial extent of these daily mobility patterns helps to define the scale of the place at which neighborhood or contextual effects are likely to be observed. Analysts' understanding of the human–environment relationship depends on how the spatiotemporal dynamics of place, mobility, and stability are measured; in particular, each of these concepts may be defined at too fine or too gross a scale relative to the processes in question.

Data and Measurement Issues

Whether an analyst is creating stability measures for areas or for individuals, decisions must be made regarding how to handle time (length of residence) and space (some bounded area). In the most widely available and hence most widely used data source for assessing mobility/stability, the United States Bureau of the Census has decided on 5 years as the time measure and bounded areas of varying scales as the space measures. Since 1940, the decennial census has included a question asking about place of residence 5 years previously. In the 2000 census, place in this question is coded so that the analyst can determine whether the person was living 5 years ago in the same house, county, primary metropolitan statistical area/metropolitan statistical area (PMSA/MSA), or state. Time has been cut into 5-year chunks, and space has been sliced into predetermined units of increasing scale. These variables are not in the public domain at the individual/household level but can be accessed under special circumstances designed to maintain confidentiality (14).

One problem with these census measures as indicators of either locational stability or residential mobility is that they suppress any mobility that may have occurred between the two target dates. If a person was living in location x (at whatever scale) on April 1, 1995, and on April 1, 2000, the analyst must assume s/he lived there continuously for 5 years, whereas the person could have moved several times. In part because of the limited nature of the census data on locational stability and the dearth of other appropriate data sources that include such information, researchers have devised a variety of their own measures of individuals' locational stability and areas' residential stability from primary survey or interview data (2, 25). As described above, these measures have included a range of temporal and spatial units and have, in particular, used slices of time far larger than the census's 5 years; they have not, however, taken mobility into account.

Measures of stability/mobility need to be tailored to the nature of the research question. As a focus on stability illuminates, the level of aggregation chosen for both the time dimension (length of time in place) and the space dimension (spatial scale of the place) should conceptually match the processes under investigation. Next, I describe the challenges encountered in meeting this desideratum in a particular research context; the problem was to determine "newcomers" to an area in the context of a study of the relationship of entrepreneurship to place.

Locational Stability and Entrepreneurship

Entrepreneurs[†] are a particularly interesting group to examine in the context of locational stability. On the one hand, the literature suggests a strong link between rootedness-to-place and the development of local knowledge, including local social ties and familiarity with local cultures, places, and institutions, all of which should reduce the risk of starting and running a business. On the other hand, inmigration and mobility are associated with the influx of new ideas to a place and with connecting local entrepreneurs to networks of resources at a distance (28). Questions regarding the locational stability or residential mobility of entrepreneurs have particular relevance for local economic development (LED) policy, which often stresses luring new business owners from distant locations. Strong entrepreneurial rootedness-to-place would suggest that LED policy should shift away from developing incentives to bring in new businesses from afar and concentrate instead on enabling existing locally owned businesses to expand.

In this section, I focus primarily on the methodological issues involved in measuring the inverse of locational stability, namely newcomer status among entrepreneurs, a problem that requires also measuring residential and daily mobility. In particular, what are the nature and the magnitude of the errors introduced when newcomer status is measured simply by recency of arrival in place? To what extent is brief time in place a reasonable proxy for lack of local knowledge and local ties? In delving into these methodological concerns, I also present some substantive findings on levels of entrepreneurs' locational stability.

The Problem Context. Almost all new businesses are homegrown precisely because

[†]I define an entrepreneur as someone who owns and manages a business and who assumes the risks and uncertainties associated with ownership; I therefore use the terms "business owner" and "entrepreneur" interchangeably. See also ref. 27.

familiar territory affords nascent entrepreneurs access to the information and resources they need to launch a successful enterprise (29, 30). Locational stability nourishes the webs of local social ties [networks of friends, neighbors, family, coworkers, and acquaintances (2)] that facilitate the entrepreneurial process, particularly in its early stages (31). Place-specific knowledge and place-specific assets such as clients, workers, business associates, and personal reputation are important to new firm formation and are not easily transferred elsewhere (32). In this sense, the individual's rootedness-to-place leads to "knowing and being known," (33) two valuable place-fixed, risk-reducing assets for the prospective entrepreneur. Of course, networks of connections exist across a range of spatial scales beyond the local, and these connections, too, can be accessed from a stable residential location.

In this context, and as part of a larger study on the relationship of entrepreneurship to place, I was curious as to how someone could launch a successful business if s/he was new to an area, presumably unfamiliar with it, and unknown there. The goal was to examine newcomers as outliers to explore out-of-the-ordinary, because out-of-home-territory, processes of business startup. In probing this question, I was interested in what kind of preexisting ties, if any, the individual had to the local area before becoming a business owner there by either starting or buying a business. Because of well established gender differences in spatial mobility (25), I was also curious about gender differences among newcomers. Women's spatial mobility, including residential mobility (14), is more constrained than men's, suggesting that women will be less likely than men to arrive new to a place and launch a business soon thereafter. After briefly describing the data on which the analyses are based, I show how, in the process of identifying newcomers, human spatial mobility introduces various sources of error into measures of locational stability. A focus on stability therefore illuminates the measurement issues described at the outset by stressing the interdependence of the time and space dimensions of mobility/stability.

Data. The data come from face-to-face interviews with business owners in Worcester, MA, and Colorado Springs (CS), CO. Worcester was chosen because it was the site of my previous work on gender and local labor markets (25), which had revealed the importance of locational stability to labor market processes. According to the 1990 census, a relatively high proportion (84%) of the Worcester metropolitan area's population had been living there 5 years previously. CS was selected because, of the 13 metropolitan areas within 50,000 population of Worcester's 1990 population (≈430,000), it had by far the lowest proportion of its population (64%) who had been living there in 1985. The high level of in-migration to CS reflects not only its Sunbelt location but also the large military presence there. These differences in residential stability suggest, in the aggregate, differences in local knowledge and in the nature of local social ties.

Owing to the nature of the sampling frame and sampling strategy used, these samples are biased in favor of successful businesses and therefore make it difficult to examine questions about unsuccessful ventures. Although studying the processes associated with firm failures was not the goal of the larger study, this shortcoming is another example of the need to tailor the temporal dimension (in this case, of length of time in business) to the processes of interest.

The data analyzed here come from in-depth, semistructured personal interviews with owners of privately owned businesses (franchises were excluded): 198 in Worcester, conducted in 1998; and 179 in CS, conducted in 2000.[‡] In each metropolitan area, the sample was randomly selected, stratified by gender of owner, from a purchased list of metropolitan-area businesses; this sampling strategy yielded a mix of firms that was diverse in terms of ownership type, size, industry type, and market area, *inter alia*.[§] The interviews lasted, on average, 1.25 h and included questions pertaining to the business owner's job history (the previous three jobs) and residential history (the previous two places of residence).

Identifying Newcomers. On the basis of a question that asked how long the business owner had lived in the Worcester or CS metropolitan area, I calculated the number of years that s/he had been living there before starting or owning this business. What kinds of problems arise from a measure like this, based on current time in place? The following analysis shows that, because of residential mobility and daily mobility, a measure of locational stability based on current length of stay in place significantly underestimates ties to place.

The metropolitan area was chosen as the most appropriate scale for examining processes of entrepreneurship, e.g., the scale at which local knowledge and personal networks would be mobilized. In keeping with the expectation of women's greater (compared with men's) residential stability[¶], women in both places had been in place longer than had men before business ownership (although there was no gender difference in age at startup), and, in keeping with the expected differences in rootedness-to-place between Worcester and CS, residents of the former had been in place far longer than had those in the latter. In Worcester, women had lived in the MSA on average 26.1 years before startup, compared with men's average of 20.1 years ($P = 0.02$); in CS, women had been in the MSA an average of 13.6 years, compared with 8.3 years for men ($P = 0.02$).

I defined a newcomer as someone who had lived in the MSA for 3 years or less before owning the business. Worcester's entrepreneurs were far more rooted to place than were those in CS: Only 9.1% of the sampled Worcester entrepreneurs, but fully 30.2% of the CS sample, were newcomers. In both places, newcomer entrepreneurs were predominantly men (only one-third of the newcomers in Worcester and 27.8% of newcomers in CS were women). It is clear that homegrown entrepreneurship is far more common than is in-migrant entrepreneurship and that this is true even in CS, where the rate of in-migration is high.

Are all of these entrepreneurs truly newcomers, however, in the sense that they were new to, and therefore unfamiliar with, the place in which they launched their businesses? Insofar as "number of years in the MSA" is a surrogate for familiarity with place, the continuity of space vs. the discontinuity imposed by a boundary around the MSA complicates this definition of who is or is not a newcomer. This complication is more pronounced in the Worcester context, where settlement densities are higher and surrounding towns are more closely packed than in the CS area. Close inspection revealed several groups of business owners within the newcomer category who actually had some familiarity with the MSA before their latest move into the area. Mobility introduces three types of error into the initial measure.

One type of error occurred when the entrepreneur was not really a recent arrival at all but was coded as such as an artifact of the metropolitan area boundary. Because the sampling frame was a list of businesses located within each metropolitan area, a sampled business could be

[‡]The study also entailed mailed surveys sent after the interviews to much larger samples drawn from the same populations.

[§]The response rate in Worcester was 60.7%, and in Colorado Springs it was 47%.

[¶]Irwin *et al.* (14) report that women were significantly less likely than men to have left their county of origin between 1985 and 1990.

located in the metropolitan area while the owner lived just outside the metropolitan boundary and was coded as a newcomer because years in the metropolitan area was 0. Because daily mobility patterns would familiarize such owners with the metropolitan area, the 0 years-in-place code is misleading, and I recoded years in metropolitan area as if the boundary of the MSA had been extended to include the owner's residential location. These fringe people who are not newcomers were removed from the count of newcomers (and do not appear in the counts given above); in these two samples they are rare: only one such case was found in the Worcester sample, and none appeared in the CS group. Nevertheless, this boundary issue will always plague a measure of locational stability that involves a bounded area.

A second source of error arose when an owner coded as a newcomer had grown up in the metropolitan area, moved away for an extended period, and then returned. These owners were not truly newcomers because previous residence implies some level of familiarity with the place, but neither had they been continuously rooted there. Only a small proportion of newcomers were returnees. In Worcester, 1 of the 18 (5.5%) newcomers was a returnee. In CS, 4 (or 7.4%) of the newcomers were returnees themselves, and an additional 6 (or 11.1%) of the 54 newcomers had a spouse who had grown up in CS; thus, a total of 18.5% of the newcomers there were returnees or married to a returnee and therefore had some prior level of familiarity with the metropolitan area.

Third, although recently arrived to the metropolitan area in question, entrepreneurs who had moved their residence into the metropolitan area from a nearby location within 3 years of owning a business there were also likely to be familiar with their destination location; for these short-distance in-movers, number of years in the metropolitan area was not a good indicator of familiarity with place. I identified as short-distance in-movers those newcomers who had recently arrived from another in-state location. A total of 6 owners (2 women and 4 men) or one-third of the newcomers had moved into the Worcester area from elsewhere in Massachusetts; in CS, 11 (20.4%) of the newcomers moved from elsewhere in Colorado.

The majority of the newcomers in each place had moved into the metropolitan area in question from out-of-state, and in both places far more of these long-distance in-movers were men than women. These in-migrants would seem to be "true newcomers" in that they had not lived in these metropolitan areas before, nor had they lived near enough so that their daily travels included parts of these metropolitan areas. Among Worcester newcomers, 61.1% (73% of whom were men) had arrived from out-of-state and had become business owners within 3 years. In CS, 72.2% of the newcomers (only one-fourth of whom were women) had arrived from out-of-state to become owners within 3 years.

In sum, because of mobility (residential mobility in the case of returnees and daily mobility in the case of fringe people and short-distance in-movers), the group identified as newcomers included many people who were not new to these places. Nearly two-fifths (38.9%) of those originally coded as newcomers in Worcester and more than one-fourth (27.8%) of those coded as newcomers in CS had reason to be familiar with the area before their latest move there.

Newcomers' Previous Ties to Place. Residential and daily mobility are two ways for potential entrepreneurs to have acquired familiarity with a place before launching a business there. Knowing people who live in a place to which one might want to move is another way of obtaining the kind of local information that potential business owners need. In trying to understand how a newcomer can arrive in a new place and launch a successful business, I was curious as to how many of the newcomers actually had no ties to the local area when they moved. To what extent is <3 years in place a valid surrogate for lack of ties to place? Among the kinds of prior ties to the area mentioned by the entrepreneurs in the interviews were having vacationed there (not a category in Worcester) or knowing family members, friends, or work contacts who lived there.

Focusing on the long-distance in-movers revealed that very few of them had arrived from out-of-state with no prior ties to, and therefore little first-hand knowledge of, the places to which they moved. In Worcester, 11 of the 18 newcomers (or 61.1%) were long-distance in-movers, but 5 of these 11 had known one or more persons in the metropolitan area who were important to their decision to move to Worcester and have a business there. Hence, only 6 of the 18 newcomers (1 woman and 5 men) reported that they had no personal ties to the Worcester area or eastern Massachusetts when they arrived. In CS, where 39 of the 54 newcomers (or 72.2%) were long-distance in-movers, a similar pattern prevailed. Because 21 of the 39 had personal ties to the area before moving there, only one-third of the newcomers to CS arrived with no prior personal ties to the place. For some of those who lacked local contacts, the relevant business contacts were distant. One example was a man who had moved to Worcester when his wife took up a residency at the local medical center. Upon arrival, he had started a business importing jute; his business-related ties consisted entirely of family members in India.

In both Worcester and CS, therefore, only one-third of those originally coded as newcomers in fact had no prior personal experience in, or personal ties to, the metropolitan area. In addition, in both places almost all such "strangers to place" were men; only 1 of the 6 strangers in Worcester, and 2 of the 18 in CS, were women. The importance of personal networks in linking these newcomers to place underscores the need to recognize not only the individual's own mobility patterns but also the mobility/stability patterns of those with whom s/he is connected.

In-Movers with Intention to Run a Business. A surprisingly large proportion of the newcomer entrepreneurs in CS (33, or 61.1%, of the 54 newcomers) had specifically picked this place and moved there to have a business. They had moved there to (*i*) start a new business (11 total, 1 of whom was a woman); (*ii*) brought a business they had started elsewhere to CS (9 total, 3 of whom were women), or (*iii*) moved here explicitly with the idea of buying a business (13 total, 2 of whom were women). These figures make clear that men were more likely than women to choose a new place, migrate there, and launch a business. The remaining newcomers who had ended up as business owners within 3 years of their arrival had not migrated to CS with the specific intention of starting or buying a business; they had been drawn there by their own jobs, their spouses' jobs, or by family concerns such as the desire to be near to aging parents.

Of the 33 newcomer entrepreneurs who had moved to CS with the plan to run a business there, only 7 (4 men and 3 women) arrived with no prior ties to the place, and not one of these true strangers had started a business upon arrival in CS; 4 had brought an existing business with them, and 3 had purchased an operating business. All of these true strangers had been attracted to CS by the mountains and the "lifestyle" it offered; none had selected this place for its "business climate."

In Worcester, only 5 of the 18 newcomers (27.8%) had moved to the area to start or buy a business; with the exception of a couple who had purchased a business, all were male professionals (veterinarians, dentists, etc.) and all had family roots in eastern Massachusetts. In sum, and in answer to my original question, very few people do arrive new to a place, knowing no one, with the intention of running a business there.

Discussion. In their study of the cluster of high-technology industries in Ottawa, Canada, Harrison *et al.* (28) highlight the important role of the entrepreneur's previous employment history and, by implication, previous residential history as well. These authors emphasize the need for investigators to recognize that many entrepreneurs have been spatially mobile before launching a business and therefore are able to draw upon networks established elsewhere; they see this in-migration of entrepreneurial talent as central to the successful development of a high-tech cluster. Although Harrison *et al.* wish to stress the nonlocal origins of some of the entrepreneurs in the high-tech cluster in Ottawa, ≈87% of respondents to their fax survey (total $n = 186$) had been working within 50 km of the location of their new venture immediately beforehand, and 68% of their interview subsample (total $n = 20$) had been living in Ottawa at least 10 years before startup. Thus, although many of the entrepreneurs in their samples were indeed in-migrants to Ottawa, they were not recently arrived before launching a business. Still, the research in ref. 28 points to the importance of networks that are national and international, not just local, and to the attributes of place that help to attract talent to a region.

The analysis of newcomer entrepreneurs to Worcester and CS shows that very few entrepreneurs arrive new to a place and then own a business there. Because of spatial mobility and networks of personal connections, "<3 years in place" significantly underestimates entrepreneurs' connections to, and therefore knowledge of, place. Even among those who had lived in the MSA for <3 years before running a business there, two-thirds had prior ties to the place through daily travel, previous residence, or personal contacts there. Fewer still in-migrants who came intending to run a business in their new place of residence arrived knowing no one (21% in CS and 20% in Worcester did so). For the large majority of business owners, locational stability (having lived in or near to the place of business ownership) was an effective strategy for reducing the risks associated with starting and running a business.‖ This is not to say that they relied solely on local contacts, but local knowledge and contacts were so valued that few owners were willing to contemplate moving; only 14% of the entrepreneurs in Worcester and 22% in CS said they would consider moving their business out of the metropolitan area. Nevertheless, spatial mobility and spatially extensive networks also call attention to the arbitrary nature of place boundaries, which may correspond poorly with processes related to entrepreneurship.

The analysis highlights the marked differences between these two places in levels of entrepreneurs' rootedness-to-place, differences that can lead to distinctive entrepreneurial cultures (34). The analysis also highlights significant gender differences in entrepreneurs' locational stability. Women had been in place longer than men before launching a business; they were also far less likely than men to be long-distance in-migrants, to arrive with no prior contacts, or to move to a new place with the idea of running a business there. In view of the well documented difficulties that women (compared with men) encounter in starting and running a business (35), women's greater reliance on locational stability is a rational risk-reducing strategy.

These findings suggest that LED policy should focus on helping local businesses to succeed and that LED efforts to attract entrepreneurs from elsewhere should seek out those who have prior ties to that local area. Efforts to promote women's entrepreneurship must recognize the particular importance of local knowledge to women seeking to launch enterprises. More generally, the analysis here suggests the need for LED policy to be sensitive to the residential stability of the local area, to the locational stability of individuals living there, and to the spatial dimensions of entrepreneurs' networks of contacts.

Conclusion

Analysts have focused on individual locational stability for its association with community attachment (2) and local knowledge (25). Concepts and measures of locational stability that fail to incorporate the dynamics of residential and daily mobility are likely to significantly underestimate the individual's familiarity with place. Because of the spatiotemporal dynamics involved, explicitly considering locational stability requires examining stability and mobility in tandem. Doing so illuminates the methodological issues entailed in measuring stability/mobility. With the continued aging of the United States population and the subsequent expected increases in locational stability (36), the causes, consequences, and political implications of locational stability will deserve increased attention. In particular, the interaction effects between individuals' locational stability and the residential stability of an area are worthy of further investigation.

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‖The interviews provide a wealth of information on the many ways that ties to the local place were important to business success.

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