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# Geography and the Market for CEOs

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**Abstract.** I examine the role of geography in the market for CEOs and find that firms hire locally five times more often than expected if geography were irrelevant to the matching process. This local matching bias is widespread and exists even among the largest U.S. firms. Tests reveal that both labor supply and demand influence local matching. Compensation and unforced turnover are lower for local than for nonlocal CEOs, and the compensation of local CEOs depends on local labor market factors, unlike that of nonlocal CEOs. These findings suggest the presence of market segmentation and contrast with much of the prior literature, which explicitly or implicitly assumes a single national market.

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## 1. Introduction

The presumption of the finance literature is that the market for CEOs is national in nature. For instance, in examining the effect of geography on broad-based stock option plans, Kedia and Rajgopal (2009) write that "...labor markets for top executives are likely to be *nationally* segmented rather than *geographically* segmented" (p. 110; italics added). Models of executive compensation implicitly make the same assumption by omitting the role of geography in the modeling of the CEO labor market. By excluding this feature, these models assume that either U.S. CEO labor markets are perfectly geographically integrated, or that the role of geography is not important enough to warrant the added complication. This paper tests empirically whether the market for CEOs is geographically segmented, and, if so, why this is the case.

To conduct a direct test of geographic segmentation in the market for CEOs it is necessary to know the joint geographic distribution of firms and CEOs. Although it is straightforward to "proxy" for firm geography using the location of a firm's headquarters, measuring geographic attributes of CEOs can be much more difficult. I focus on where CEOs "grew up," or CEO origin. I obtain these data by combining two facts. First, social security numbers are issued by state; the first five numbers are linked to the state of issuance during a particular year. Second, before the 1980s, U.S. residents obtained these numbers during adolescence when applying for their first job or driver's license. CEOs' social security numbers therefore reveal their home states.

I collect a unique data set of CEO origin for the universe of nonfinancial, nonutility S&P 1500 firms covered by S&P's ExecuComp database for the years 1997–2007. The joint geographic distribution of firms and CEOs exhibits a striking pattern in this sample. For over 30% of the firm-year observations, the CEO's state of origin matches the firm's headquarters location. This preliminary evidence is suggestive of the existence of a local element in the market for CEOs.

To conduct formal tests of labor market segmentation I create a measure of the local hiring bias, which I refer to as the "hiring home bias" (HB). The hiring home bias is essentially the observed minus the expected percentage of local hires under the assumption that CEO state of origin is random. If segmentation does not exist in the market for CEOs, then the hiring home bias should be indistinguishable from zero.

In contrast, I find that for the full sample of hiring decisions this bias is 18.8%. Effectively, firms in the sample are over five times more likely to hire a local CEO than would be expected if geography were irrelevant to the matching process. When considering only CEOs hired externally to the firm and to the industry, local hiring decisions are nearly three times more likely than expected if CEO geographic origin were random. The practice of hiring local CEOs is widespread. The hiring home bias is not driven by small firms and exists in 30 of the 43 sample states and in each of the sample years.

I then ask what drives the local bias. I propose five theories that could explain the tendency of firms to hire locally. Included are both demand- and supply-driven theories. Specifically, I test whether firms hire locally because of private benefits the selection committee enjoys from hiring local candidates (*agency*

*theory*), because the costs of extending the search process geographically outweigh the potential gains (*search costs theory*), because firms have superior knowledge of local candidates (*soft information theory*), because local candidates possess valuable geographic-specific skills (*local skills theory*), or because CEOs have a preference for living and working close to home (*geographic preference theory*). These theories originate from both traditional labor economic theory and from field research evidence by Khurana (2002), who argues that the CEO labor market should not be viewed as a market in the classical sense. Although all of the theories result in a local hiring bias, they make different predictions for compensation, turnover, performance, value, and the characteristics of firms that should hire locally. I test these competing predictions to assess the merits of each theory.

When investigating the determinants of hiring locally, I find that smaller, more R&D-intensive firms located in less desirable locations and with weaker board incentives are more likely to hire locals. The tests of CEO turnover reveal that unforced turnover is approximately 20% less likely for local than similar nonlocal CEOs, but that there is no statistically significant difference in the performance sensitivity of turnover or the incidence of forced turnover between the two groups. The compensation of locals is also lower than that of nonlocals. Local CEOs in their first full year of tenure receive 15% less compensation. When analyzing changes in CEO compensation, the results are similar. Finally, although there is no evidence of a systematic local CEO performance effect, I find preliminary evidence that firms run by locals may be worth more; however, this is not a very stable result.

When consolidating these results, there is positive evidence for each of the proposed theories. Therefore, no one theory can be completely ruled out. In all likelihood, each plays some role in the geographic segmentation of the CEO labor market. However, the data are consistent with the predictions of some theories more often than others.

For example, most of the empirical results are consistent with geographic preferences playing a role in local matching. This theory posits that locals prefer to remain near the firm, which suggests that unforced turnover for local CEOs should be lower than for nonlocals, but that there should be no difference in the incidence of forced turnover or performance sensitivity of turnover between locals and nonlocals. It also predicts that local CEOs will require lower compensation than nonlocal CEOs of the same ability, since there exists a trade-off between compensation and living close to family and friends. Finally, according to the geographic preference theory there should be no difference in firm performance or value between firms run by locals and nonlocals. Only the weak evidence that firms run by locals are worth more is not aligned with the predictions of this theory.

Greater inconsistencies with the data arise with the other theories. For instance, although the local skills and soft information theories are consistent with the weak evidence that firms run by locals are worth more and also that locals are less likely to leave their firms, it is unclear why CEOs hired based on soft information or superior local skills would be paid less than their nonlocal counterparts. The predictions of the search costs theory are consonant with the compensation and turnover findings, but it is particularly puzzling that firm size does not play a larger role in local matching if search costs are driving market segmentation. Even among firms in the top size decile of the S&P 1500, over 23% are run by local CEOs. The agency theory shows the least promise of explaining local matching. Although there is evidence that firms with boards with weaker incentives are more likely to hire locally, the evidence on compensation, turnover, and performance is mostly inconsistent with this theory.

One implication of the existence of geographic segmentation in the market for CEOs is the existence of local labor markets. If these markets exist, then local labor market factors should affect executive compensation. Two studies show evidence of this. Ang et al. (2013) show that executive compensation is increasing with the number of firms within 60 miles of the firm's headquarters, and Bouwman (2013) shows that executive compensation is increasing with the average wage of CEOs in the local area. Ang et al. (2013) interpret their finding as evidence that social pressures influence executive compensation, whereas Bouwman (2013) suggests that CEO envy drives her results.

My direct test of geographic segmentation provides an efficient explanation for these findings. The number of CEOs in the area is a proxy for the local outside option of CEOs. With a greater outside option, CEOs have greater bargaining power and can bid up their pay. I verify this for my sample, finding that executive compensation is increasing with the local outside option of CEOs. Of course if local labor markets exist because of CEOs' preference to work near their homes, because local CEOs possess local skills, or because firms have superior knowledge of local candidates, then local CEOs should be more sensitive to local outside options than nonlocals, since they will be less willing or able to relocate to distant firms. I test this hypothesis and show that only the compensation of local CEOs depends upon this local outside option.

This paper makes a number of contributions to corporate finance. It is the first study to directly test for geographic segmentation in the CEO labor market and the finding of labor market segmentation contrasts with much of the prior literature, which explicitly or implicitly assumes a single national market. This fact

has been useful for a number of recent papers that assess the impact of CEOs on corporate policies.[1] Second, there is a burgeoning literature that focuses on the role of geography in corporate policies.[2] Evidence from this paper suggests that geography plays a substantial role in the matching of top executives to firms. Third, how managers are matched to firms is important for both executive pay and turnover. I uncover new evidence in both these areas of corporate finance, showing that local managers are paid less and that they are less likely to leave the firm than their nonlocal peers. Finally, I show that the labor supply effect of CEO geographic preferences is important for the matching process. This contributes to the growing literature on CEO characteristics/preferences and corporate policies[3] and also enhances our understanding of the determinants of the matching process in the market for CEOs.

## 2. Theories of Local Matching

In this section, I outline several theories of how and why geography may play a role in the market for CEOs. The baseline perspective is a competitive labor market with heterogeneous managers and firms, where managerial ability is an input in the production process, similar to that of Gabaix and Landier (2008) and Tervio (2008).[4] Firms for which managerial ability is more productive will seek higher-ability CEOs, and higher-ability CEOs will command higher wages. In the model of Gabaix and Landier (2008), this leads to the efficient assignment of the best managers to the largest firms. In this standard model, the utility of managers depends only on compensation, and reservation utility depends only on ability.

### 2.1. Demand for CEOs

In reality the CEO hiring process is much more complicated than standard models suggest. Corporate boards form selection committees, and these committees are often composed of the director in charge of the compensation committee along with other volunteers from the board (Khurana 2002). It is also common for a powerful incumbent CEO to influence the board in the selection of a successor (Zajac and Westphal 1996). Although theoretically the selection committee is charged with choosing the manager who will maximize shareholder value, Khurana (2002) describes CEO selection as a process wrought with search costs and agency conflicts and suggests that selecting managers to "fit" corporate culture is also an important determinant in the selection process. In light of this evidence, I propose four theories of labor demand that suggest a role for geography in the market for CEOs: the *agency*, *search costs*, *soft information*, and *local skills* theories.

**2.1.1. Agency Theory.** The agency theory says that firms hire locally because of agency conflicts between boards and shareholders. This theory is closely related to the "managerial power" approach to executive compensation of Bebchuk and Fried (2004). Boards are charged with hiring the manager who will maximize shareholder wealth, yet the incentives of boards are not perfectly aligned with those of shareholders. Boards may find effort costly, inducing them to shirk their duties when conducting an executive search. If it takes less effort to hire locally, then this would induce a local hiring bias.

Boards may also hire local CEOs for the private benefits they receive. These private benefits may be due to an increased comfort level with a local CEO or could be perks that board members receive from local CEOs, such as allowing board members to retain their board seats or to continue a consulting contract with the firm.[5] Supportive of the former, Zajac and Westphal (1996) show that boards favor hiring CEOs who are demographically similar to them.[6]

If the agency theory is driving local hiring, then we should observe that firms with weaker board incentives are more likely to hire locally and that firms are less likely to fire local CEOs for poor performance. In addition, we might expect that less-talented CEOs are hired under the agency theory, causing firms that hire locally to underperform their peers. If local CEOs are a result of cronyism, then they could be paid abnormally high or at least on par with their peers.

**2.1.2. Search Costs.** It is possible that the executive search process is costly for firms. This cost may stem from diverting firm resources away from the production process in order to conduct the search, or there could be an explicit fixed cost such as the cost of hiring an executive search firm. Both Bebchuk and Fried (2004) and Khurana (2002) discuss the role and the prevalence of executive search firms in the CEO hiring process. The mere existence of these firms suggests that search is costly in the market for CEOs. If hiring from the local supply of CEOs does not require these search costs (or has lower search costs), then only firms that stand to benefit from conducting a wider search will engage in one. The search cost theory is as much about the differences in benefits that firms derive from talented managers across firms as it is the actual cost of search. This theory suggests that larger firms and firms in which managerial input is more productive will choose to conduct a nationwide search for CEO candidates, which implies that smaller, less technical firms will tend to hire locally. Since search is costly, all forms of CEO turnover should also be lower for firms that hire locally. In addition, this theory predicts that locals may be of lower ability, since they are drawn from a smaller pool. This implies that they may receive lower pay than nonlocals (if pay is efficient).

**2.1.3. Soft Information.** Related to but distinct from search costs is the idea that firms can reduce noise

in the hiring process by hiring local candidates. If the CEO candidate is local, then a potential employer may be better able to judge the candidate's fit with the firm through access to local information networks. Under this soft information theory of local matching, the "fit" between local managers and firms is likely better. This would suggest that unconditionally both forced and unforced turnover should be lower for firms with local CEOs and that potentially firms that hire locally will outperform. However, conditional on performance, the theory does not predict that local CEOs should be less likely to be fired and their turnover sensitivity to performance should not be different from nonlocals. How soft information-based local hiring would affect compensation is more difficult to assess. If soft information is not available at any cost, then the ability of the manager to extract a portion of the rents produced by the improved match increase with the number of firms with access to the soft information.

#### 2.1.4. Local Skills.

A fourth demand-side theory centers on firms' demand for specific skills that locals possess. A number of papers show that locals have better information in various domains (Coval and Moskowitz 1999a, 2001; Malloy 2005; Ivković and Weisbenner 2005). Local skills that firms may demand could include knowledge of the local business environment, local business or political connections, or a fit with firm culture. Locals may understand local customers or regulations better than nonlocals, or employees may feel more comfortable with local managers, for example. If local CEOs deliver these valuable skills, then they will likely outperform, and unconditionally both forced and unforced turnover should be lower for firms with local CEOs. However, conditional on performance, this theory does not predict that local CEOs should be less likely to be fired. However, locals should be less likely to leave. This is because the outside options of local CEOs are limited to firms that value their local skills. The effect of local skills on compensation depends upon the bargaining power between CEOs and firms. If many firms demand their local skills, then local CEOs should be able to extract some of the rents produced by them. If, however, there is little outside demand for these skills, then the firm will extract all of the rents.[7]

### 2.2. Supply of CEOs

Geography may also play a role in the market for CEOs through the supply side of the market. Labor force immobility, which is often attributed to either nontransferability of skills or to moving costs, has a plausible influence on labor supply for most markets. However, it is not likely that either of these factors plays a role in the market for CEOs, since CEOs are highly talented and highly paid individuals.[8] A more likely supply-side theory of geographic segmentation is that CEOs may have a preference for where they live and work. If this is the case, then managers may be more inclined to accept employment opportunities in locations that are more desirable to them. This idea leads to the final theory of local matching in the market for CEOs, the *geographic preference* theory.

#### 2.2.1. Geographic Preference Theory.

This theory implies a trade-off between compensation and geographic preference. CEOs moving to less geographically desirable locations should require wage premiums over similarly talented individuals who have preferences for those same locations.[9] The source of CEOs' geographic preferences could be either desire to live near networks of family, friends, or business contacts or it could be related to the desirability of the environment. The former could cause local geographic preferences since it is likely that strong networks exist near CEOs' homes. This implies that local CEOs will accept lower wages than nonlocal CEOs of similar ability. If geographic preferences stem from environmental attributes, then it should be easier for firms headquartered in more desirable environments to attract talented individuals.[10] This theory also has implications for CEO turnover. If local managers prefer to remain in the area around the firm, then local CEOs will be less inclined to voluntarily leave their firms. Thus, the geographic preference theory implies that regular turnover for local CEOs will be lower than for nonlocals.

## 3. Data

### 3.1. Data Sources

The data come from four main sources. S&P's ExecuComp database is used to identify the CEO of each firm in each year, and for information on CEO age, tenure, and compensation. CEOs' states of origin are identified by searching the LexisNexis online public records database. This process is described in detail in the next subsection and in the online appendix. All firm-level accounting data are from Compustat. Finally, historical firm headquarters locations come from Compustat and Compact Disclosure. In addition to these main sources, data on firm-level board and governance characteristics are from the RiskMetrics database and security prices are from the Center for Research on Security Prices (CRSP), and several sources are utilized from U.S. government agencies for data on city- and state-level demographic and geographic characteristics.

### 3.2. Sample Construction

I begin with the sample of firms covered by S&P's ExecuComp database for the years 1997–2007. In total there are 18,978 firm-year observations averaging 1,725 observations per year. Financial firms (Standard Industrial Classification (SIC) codes 6000–6999) and utilities (SIC codes 4900–4999) are filtered out, as is standard when investigating corporate policies, since these firms

are regulated. These screens remove 2,688 and 1,111 firm-year observations respectively, for a total of 15,179 firm-years left in the sample. An additional 1,049 firm-year observations are removed where the firm's headquarters is located outside the United States. This leaves a final sample of 14,130 firm-year observations. For the sample there are 1,639 unique firms and 3,177 unique CEOs.

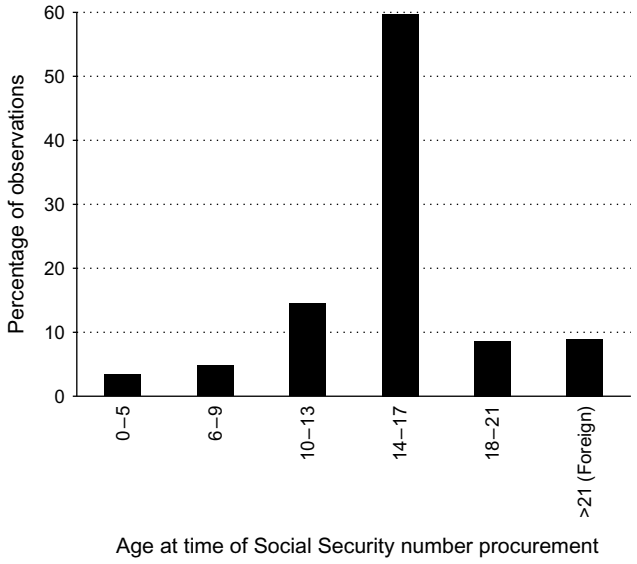
### 3.3. CEO Origin

CEO origin is identified by hand collecting data on the first five digits of CEOs' social security numbers. The data collection process is described in detail in the appendix. The data on the social security numbers provide a unique method by which to identify a person's state of origin. The first three digits are linked to the state of issuance and digits four and five indicate the sequence of issuance. So by using the first five digits of their social security numbers, we can determine the state where each CEO in the sample resided at the time the card was issued.[11]

During the time period when most of the sample CEOs obtained their social security numbers (the 1950s and 1960s), these numbers were primarily used for employment purposes and for driver registrations.[12] Consequently, most people during this time period obtained their social security cards either when they began their first job, or when they applied for a driver's license. In the United States, it is typical for individuals to first begin driving or work at 15 or 16 years of age. Figure 1, which shows the age distribution of CEOs in the sample when they procured their social security numbers, verifies these facts by showing that approximately 60% of CEOs were between 14 and 17 years old when they registered with the Social Security Administration. Thus, social security number data provides information on where CEOs "grew up."

I define a CEO's state of origin as the state in which the CEO obtained a social security card with one exception: any individual that obtains a social security card after the age of 21 is considered foreign-born. Figure 1 shows that approximately 9% of CEOs are foreign-born by this definition. In total, CEO state of origin is identified for 2,820 (88.8%) of the 3,177 CEOs in the sample. After merging these data with the original panel of 14,130 firm-year observations, complete data on CEO origin are obtained for 12,974 (91.2%) of the firm-year observations.

**Figure 1.** Distribution of CEO Age at the Time of Social Security Number Procurement




*Notes.* This figure shows distribution of CEO age at the time of procuring their Social Security numbers for the sample of 1,162 hiring observations of nonfinancial S&P 1500 firms covered by the Execucomp database between 1997 and 2007.

## 4. Is the Market for CEOs Geographically Segmented?

In this section, I test whether there is a local bias in the market for CEOs. Upon initial inspection of the joint distribution of CEO state of origin and firm headquarters location, a striking pattern emerges. The diagonal elements of the distribution matrix (displayed in Table IA.1 of the online appendix) reveals that a large proportion of the firms in each state are run by CEOs from that same state. For 3,923 (30.2%) of the 12,974 firm-year observations in the sample, the CEO's state of origin matches the firm's headquarters location. This pattern holds for large states, such as New York, where for 468 (51.7%) of 906 firm-year observations firms are headed by local CEOs, and even for many smaller states (by population), such as Utah, where for 29 (56.9%) of 51 firm-year observations firms are run by local CEOs.

The marginal distribution of CEO origin shows that CEOs from every state (and Washington, DC) are represented. New York State overwhelmingly produces the greatest number of CEOs in the sample, with New Yorkers managing firms in 1,764 (13.6%) of the 12,974 firm-year observations. Foreign-born CEOs constitute the second largest percentage of the sample, with foreign-born CEOs running firms in 1,054 (8.1%) of the firm-year observations, followed by CEOs native to the states of California, Illinois, and Ohio.

### 4.1. The Hiring Home Bias

Observing that over 30% of the firms in the sample are run by local CEOs is interesting, but without a basis for comparison it has little meaning. Thus, I construct and implement a formal test of whether there exists a local bias in the matching of CEOs to firms for large U.S. public corporations. The test is based on the following logic: if geography plays no role in the market for CEOs, then the probability that a firm hires a CEO

from its own state should be equal to the proportion of the CEO labor supply from that state. The null hypothesis for this test stems from the presumption of the finance literature that CEO geographic origin plays no role in the CEO labor market.

To mitigate the effects of survivorship bias, the tests concentrate on the hiring decisions between 1998 and 2007. There are 1,162 hiring decisions in the sample with which to conduct the formal tests.[13] A *hiring home bias* (HB) exists if the observed percentage of local hires in the sample is significantly greater than expected under the assumption that CEO origin is random. Formally, the hiring home bias is defined as

$$\text{HB} = \frac{N_L - E(N_L)}{N}, \tag{1}$$

where $N$ is the number of hiring decisions, $N_L$ is the number of local CEOs hired in the sample, and $E(N_L)$ is the expected number of locally hired CEOs. The hiring home bias is zero if the observed is equal to the expected number of local CEOs in the sample; it is close to one if all CEOs in the sample are locally hired; and it is negative if the number of local CEOs in the sample is less than expected. Thus, HB is bounded above by $1 - E(N_L)/N$ and it is bounded below by $-E(N_L)/N$.

To compute the hiring home bias, it is necessary to define both a "local" hiring decision and the distribution of the state of origin for the CEO labor pool. A hiring decision is considered local if the firm's headquarters is located in the same state as the hired CEO's state of origin.[14] When testing for a local hiring bias I make two alternative assumptions for the geographic distribution of adolescent-age CEO talents and abilities. The first is that those with CEO talents and abilities are uniformly spread across the U.S. adolescent population. The second allows there to be nonuniformity across regions that leads to more CEOs per capita emerging from some states than others.

Formally, I define a time-dependent random variable $S$ that is equal to the state of origin of a hired CEO. This random variable follows a multinomial distribution. For a firm headquartered in state $s_i$ at time $t_i$, the probability that hiring decision $i$ is local is $\Pr(S_i = s_i \mid t_i)$. Let $p_i(s_i \mid t_i)$ denote this probability. The $E(N_L)$ is then just the sum of these sample probabilities; $E(N_L) = \sum_{i=1}^{N} p_i(s_i \mid t_i)$. To compute $E(N_L)$, for each hiring decision $i$, I must proxy for $p_i(s_i \mid t_i)$.

Under the first distributional assumption on CEO labor pool state of origin (uniformity), $p_i(s_i \mid t_i)$ is estimated by utilizing state-level population data from the U.S. Decennial Census for the years 1960 and 1970. For each year, the proportion of the U.S. population living in each state is computed. The probability that a firm selects a CEO from its own state is estimated by the percentage of the U.S. population living in the state in which the firm is headquartered 36 years before the hiring decision.[15] Because U.S. population data are available at 10-year intervals, the census data closest to 36 years before the date of hire are chosen.

If CEO talents are not spread uniformly across the U.S. population (as suggested by the fact that 13.6% of CEOs are from New York State), then the hiring home bias will be overestimated (underestimated) in states that have a higher (lower) proportion of adolescents with talent necessary to become CEOs relative to the population. Thus, the uniformity assumption on the distribution of CEO talent could potentially bias the estimation of the hiring home bias for the entire sample upward if firms tend to locate in states with more CEO talent relative to the state population.[16] For this reason, I also estimate the hiring home bias under the alternative distributional assumption that the observed distribution of CEO state of origin is representative of the geographic distribution of adolescent-age CEO talent.

### 4.2. Estimation of the Hiring Home Bias

Table 1 reports the results of tests for geographic segmentation in the market for CEOs. In panel A, I conduct two different types of tests for a local hiring bias. First, I compute the hiring home bias for each state and test whether on average it is different from zero. I conduct this test for all states in the sample and also for only those states with 20 or more hiring decisions. Second, for the entire sample as well as for each state subsample, I compute exact binomial tests, testing if the number of local hires in each subsample comes from a binomial distribution where the probability of hiring locally is the expected percentage of local hires and the number of trials is the number of hiring decisions in the sample. The estimates of the hiring home bias are displayed in columns (1) and (2) under the assumptions of CEO talent uniformity and nonuniformity, respectively. The observed percentage of local CEOs is listed in column (3) and the expected percentages under the two different distributional assumptions are given in columns (4) and (5). Thus, the hiring home bias displayed in column (1) (column (2)) is the difference between the values in columns (3) and (4) (columns (3) and (5)).

For the full sample, the hiring home bias is 0.188 (0.186) under CEO talent uniformity (nonuniformity). This means that the sample has 18.8% more local CEOs than expected if CEO talent is spread uniformly across the U.S. population. Effectively since 23.4% of hired CEOs are local and the expected percentage of local hires is 4.6%, this suggests that firms hire locally over five times more often than expected.

When focusing on the estimates of the bias for the state subsamples, for 30 of the 43 states the binomial tests reject that CEO geographic origin plays no role in the matching of managers to firms. The hiring home

**Table 1.** The Hiring Home Bias

| | CEO hiring home bias | | Pct. local CEO | | | No. of hires |
|---|---|---|---|---|---|---|
| | | | Obs. | $Exp_1$ | $Exp_2$ | |
| State | (1) | (2) | (3) | (4) | (5) | (6) |
| | | | Panel A: By state | | | |
| LA | 0.553[a] | 0.558[a] | 57.1 | 1.8 | 1.3 | 7 |
| IA | 0.541[a] | 0.538[a] | 55.6 | 1.5 | 1.7 | 9 |
| DE | 0.497[a] | 0.498[a] | 50.0 | 0.3 | 0.2 | 2 |
| AR | 0.490[a] | 0.492[a] | 50.0 | 1.0 | 0.8 | 4 |
| UT | 0.424[a] | 0.419[a] | 42.9 | 0.5 | 1.0 | 7 |
| WI | 0.357[a] | 0.355[a] | 37.9 | 2.2 | 2.5 | 29 |
| NY | 0.321[a] | 0.264[a] | 41.2 | 9.1 | 14.8 | 85 |
| OK | 0.320[b] | 0.317[b] | 33.3 | 1.3 | 1.6 | 3 |
| OH | 0.318[a] | 0.306[a] | 37.1 | 5.3 | 6.6 | 70 |
| AL | 0.316[a] | 0.325[a] | 33.3 | 1.7 | 0.8 | 9 |
| NV | 0.298[a] | 0.297[a] | 30.0 | 0.2 | 0.3 | 10 |
| PA | 0.280[a] | 0.281[a] | 34.0 | 6.1 | 6.0 | 47 |
| TN | 0.272[a] | 0.275[a] | 29.2 | 2.0 | 1.6 | 24 |
| KY | 0.269[a] | 0.276[a] | 28.6 | 1.6 | 0.9 | 7 |
| MA | 0.252[a] | 0.233[a] | 28.1 | 2.8 | 4.8 | 57 |
| SC | 0.237[a] | 0.243[a] | 25.0 | 1.3 | 0.7 | 8 |
| MO | 0.236[a] | 0.238[a] | 25.9 | 2.3 | 2.2 | 27 |
| WA | 0.234[a] | 0.235[a] | 25.0 | 1.6 | 1.5 | 16 |
| MD | 0.232[a] | 0.239[a] | 25.0 | 1.8 | 1.1 | 8 |
| MI | 0.229[a] | 0.237[a] | 27.3 | 4.4 | 3.6 | 33 |
| IL | 0.189[a] | 0.173[a] | 24.4 | 5.5 | 7.1 | 86 |
| NJ | 0.177[a] | 0.174[a] | 21.2 | 3.5 | 3.8 | 33 |
| NC | 0.175[a] | 0.186[a] | 20.0 | 2.5 | 1.4 | 20 |
| GA | 0.173[a] | 0.176[a] | 19.5 | 2.2 | 1.9 | 41 |
| RI | 0.162[b] | 0.162[b] | 16.7 | 0.5 | 0.4 | 6 |
| CA | 0.134[a] | 0.152[a] | 22.9 | 9.4 | 7.6 | 175 |
| VA | 0.131[a] | 0.129[a] | 15.4 | 2.3 | 2.5 | 26 |
| IN | 0.108[c] | 0.103[c] | 13.3 | 2.6 | 3.1 | 15 |
| TX | 0.106[a] | 0.124[a] | 16.0 | 5.4 | 3.6 | 100 |
| MN | 0.090[a] | 0.087[a] | 10.9 | 1.9 | 2.2 | 46 |
| OR | 0.049 | 0.053 | 5.9 | 1.0 | 0.6 | 17 |
| CT | 0.038 | 0.036 | 5.3 | 1.5 | 1.7 | 38 |
| CO | 0.033 | 0.033 | 4.3 | 1.0 | 1.0 | 23 |
| NH | −0.003 | −0.005 | 0.0 | 0.3 | 0.5 | 6 |
| HI | −0.004 | −0.001 | 0.0 | 0.4 | 0.1 | 1 |
| ID | −0.004 | −0.003 | 0.0 | 0.4 | 0.3 | 2 |
| FL | −0.004 | 0.003 | 2.7 | 3.1 | 2.4 | 37 |
| ME | −0.005 | −0.003 | 0.0 | 0.5 | 0.3 | 1 |
| NM | −0.005 | −0.003 | 0.0 | 0.5 | 0.3 | 3 |
| NE | −0.007 | −0.006 | 0.0 | 0.7 | 0.6 | 3 |
| AZ | −0.008 | −0.005 | 0.0 | 0.8 | 0.5 | 15 |
| MS | −0.011 | −0.009 | 0.0 | 1.1 | 0.9 | 3 |
| KS | −0.011 | −0.010 | 0.0 | 1.1 | 1.0 | 3 |
| ALL | 0.188[a] | 0.186[a] | 23.4 | 4.6 | 4.8 | 1,162 |
| Mean (full) | 0.190[a] | 0.190[a] | | | | |
| *t*-stat. (full) | 7.816 | 7.885 | | | | |
| Mean (20) | 0.185[a] | 0.182[a] | | | | |
| *t*-stat. (20) | 8.198 | 8.596 | | | | |

bias ranges from −0.011 in Kansas (which had 3 hiring decisions, none of which were local) to 0.553 in Louisiana (which had 7 hiring decisions). Focusing on states with more than 20 hiring decisions, firms in New York, Wisconsin, and Ohio all exhibit hiring home biases over 0.30 and firms in Pennsylvania, Missouri, Tennessee, Massachusetts, and Michigan all have hiring home biases of over 0.20. There are, however, some states with large samples of hiring observations where there is no local matching bias (Connecticut, Colorado, and Florida). The *t*-tests testing that the average state exhibits no hiring home bias are overwhelmingly rejected under both distributional assumptions and for both the full sample of states and the sample of states with over 20 hiring decisions. In addition, the exact binomial test for the full sample of hires is also rejected at the 1% significance level.

Panel B of Table 1 displays the hiring home bias for the sample of hires during each year. The average hiring home bias is 0.190 (0.189) under the assumption that the distribution of CEO origin is uniform (nonuniform). The *t*-statistics testing whether the time

**Table 1.** (Continued)

| | CEO hiring home bias | | Pct. local CEO | | | No. of hires |
|---|---|---|---|---|---|---|
| | | | Obs. | $Exp_1$ | $Exp_2$ | |
| Year | (1) | (2) | (3) | (4) | (5) | (6) |
| | | | Panel B: By year (continued) | | | |
| 1998 | 0.239 | 0.238 | 27.8 | 4.0 | 4.1 | 79 |
| 1999 | 0.209 | 0.207 | 25.3 | 4.3 | 4.6 | 99 |
| 2000 | 0.162 | 0.157 | 20.5 | 4.3 | 4.8 | 122 |
| 2001 | 0.184 | 0.182 | 22.8 | 4.4 | 4.6 | 158 |
| 2002 | 0.214 | 0.211 | 25.8 | 4.4 | 4.7 | 120 |
| 2003 | 0.199 | 0.198 | 25.0 | 5.1 | 5.2 | 112 |
| 2004 | 0.181 | 0.181 | 22.4 | 4.3 | 4.3 | 98 |
| 2005 | 0.154 | 0.154 | 20.4 | 5.0 | 5.0 | 137 |
| 2006 | 0.169 | 0.166 | 21.8 | 4.9 | 5.3 | 119 |
| 2007 | 0.194 | 0.192 | 24.6 | 5.1 | 5.4 | 118 |
| Mean | 0.190[a] | 0.189[a] | | | | |
| *t*-stat. | 23.269 | 22.743 | | | | |
| | | | Panel C: Robustness samples | | | |
| S&P 500 firms | 0.181[a] | 0.175[a] | 23.0 | 4.9 | 5.4 | 309 |
| External hires | 0.089[a] | 0.088[a] | 13.9 | 5.0 | 5.1 | 367 |
| Industry external hires | 0.093[a] | 0.088[a] | 14.0 | 4.8 | 5.2 | 121 |
| Common surname filter | 0.188[a] | 0.184[a] | 23.5 | 4.7 | 5.1 | 859 |
| External hires of S&P 500 firms | 0.108[a] | 0.100[a] | 15.8 | 5.0 | 5.8 | 76 |
| Industry external hires of S&P 500 firms | 0.072[a] | 0.061[c] | 11.8 | 4.5 | 5.6 | 34 |

*Notes.* This table reports statistics and test results on the hiring home bias for the sample of 1,162 hiring decisions made by nonfinancial S&P 1500 firms between 1998 and 2007. In columns (1) and (2), the hiring home bias is displayed for each state as well as for the entire sample. The hiring home bias for a given sample is defined as $HB = (N_L - E(N_L)) \div N$, where $N$ is the number of hiring decisions in the sample, $N_L$ is the observed number of local CEOs hired, and $E(N_L)$ is the expected number of locally hired CEOs. A hiring decision is considered "local" if the state in which a firm is headquartered matches the hired CEO's state of origin. Columns (1) and (2) differ in their assumptions regarding the distribution of CEO origin. The hiring home bias in column (1) is the difference between the percentage of observed local hiring decisions displayed in column (3) and the expected percentage of local hiring decisions displayed in column (4). In column (4), the expected percentage of local hiring decisions is computed under the assumption that CEO talents are spread uniformly across the U.S. adolescent population. The computation of the hiring home bias in column (2) relaxes the assumption of CEO talent uniformity and assumes that the distribution of the observed CEO origin for the sample of 12,974 firm-year observations of CEOs of nonfinancial S&P 1500 firms is representative of the distribution of CEO talents in the U.S. adolescent population. The expected percentage of local hires under this distributional assumption is shown in column (5). So the hiring home bias in column (2) is the difference between columns (3) and (5). Column (6) lists the number of hiring observations included in the estimation of the hiring home bias. For columns (1) and (2), stars indicate the results of testing the hypothesis that the observed number of local hires comes from a binomial distribution where the probability of hiring a local CEO is given in column (4) for the tests in columns (1) and given in column (5) for the tests in column (2) and the number of trials is given in column (6). Panel B of this table shows statistics for the hiring home bias for hires in each sample year and tests whether the time series average is different from zero using a two-sided *t*-test. Panel C shows results for various subsamples. Significance levels in panel C are reported for exact binomial tests for the subsamples. Details of categorizing hires as external to the firm and the industry are found in the appendix. The subsample "common surname filter" excludes all observations where the surname of the hired CEO is among the 1,000 most common surnames in the 2000 U.S. Census.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

series average is different from zero are overwhelmingly rejected. Although the hiring home bias falls from 0.239 in 1998 to 0.194 in 2007, this decline is not steady across years.

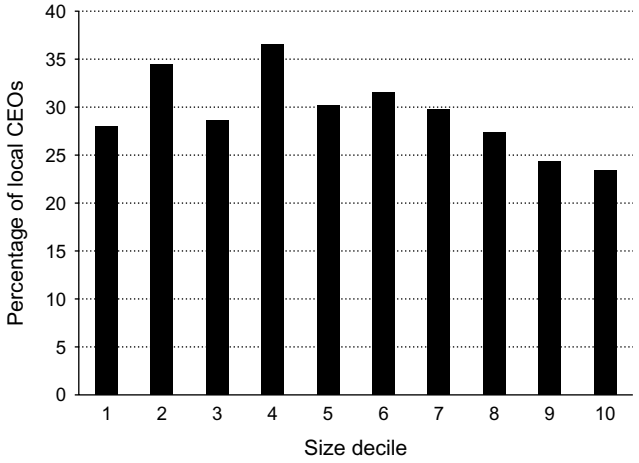
## 4.3. Robustness Checks

The results of the tests for a local bias indicate that geographic segmentation is present in the market for CEOs. I now investigate the robustness of the results to several data issues and previously documented facts in the CEO labor market by computing the hiring home bias and the exact binomial tests for different subsamples of hiring decisions. The results of these tests are found in panel C of Table 1.

### 4.3.1. Firm Size.

If search costs are large in the market for CEOs, then the hiring home bias may be limited to only smaller firms in the sample. To test this, I estimate the hiring home bias for only the largest firms in the sample. The first row of panel C reports the hiring home bias for hiring decisions made by S&P 500 firms. The estimates of the bias are nearly unchanged from those of the full sample and are significant at the 1% level. Small firms in the sample are not driving the observed hiring home bias.

**Figure 2.** Local CEOs by Firm Size




*Notes.* This figure shows the percentage of local CEOs by deciles based on total assets for the sample of nonfinancial S&P 1500 firms covered by the ExecuComp database between 1997 and 2007. Founder CEOs are excluded from the analysis. Deciles based on total assets are created in each of the sample years.

Additionally, Figure 2 displays the percentage of local CEOs in the sample by deciles based on firm size. The figure shows that 28% of CEOs are local for the smallest decile of S&P 1500 firms, whereas for the largest decile of firms this number is 24%. The fourth decile has the largest percentage of local CEOs at 36%, but there is a large percentage of local hires within each size decile. Evidence from this figure suggests that geography plays a substantial role in the matching of managers to firms even among the largest U.S. firms. Although the competitive assignment models of Gabaix and Landier (2008) and Tervio (2008) assume that managers and firms match based on talent and firm size, this result suggests that they also match on geographical attributes.

**4.3.2. Inside Hires and Descendant CEOs.** The literature on CEO selection shows that the majority of CEOs are hired from within the company[17] and that a significant proportion of firms are run by descendants.[18] Both of these common hiring practices could lead firms to hire locally. Internal CEOs are hired into the firm earlier in their career and at a more junior level than are externally hired CEOs, and it is likely that the labor market for junior-level management is more regionally segmented than it is for senior management. If this is the case, then firms that hire internally will draw from a talent pool that has a disproportionate number of local candidates. It is also more likely that descendant CEOs are local since it is probable that their parents worked at the corporate headquarters during their childhood.

To test these theories, I estimate the hiring home bias for the sample of external hiring decisions.[19] The results are presented in the second row of panel C of Table 1. The hiring home bias falls by more than half to 0.089 but remains significantly positive, and the binomial tests are rejected under both distributional assumptions of CEO origin. Although both family firms and inside hiring decisions play a role in the hiring home bias, these previously documented features of the CEO labor market do not explain the observed local bias in the matching of CEOs to firms.

**4.3.3. Industry Geographic Clustering.** If firms geographically cluster by industry, then it is possible that the practice of hiring internally for some firms may lead to a local bias even among firms that hire externally. This is best illustrated with an example. Imagine that firms in the auto industry are geographically clustered in Michigan. Further suppose that it is the Ford Motor Company's practice to promote from within the firm. I explained earlier how this practice could bias Ford to hire a local CEO. Now suppose General Motors wants to hire an external CEO with industry-specific knowledge. They may recruit an officer from Ford, who is more likely to be local because of Ford's hiring practices.

In order to test this theory, I estimate the hiring home bias among hiring decisions that are external to the industry. The third row of panel C of Table 1 shows the estimates of the hiring home bias for the sample of external industry hires.[20] Of these hires, 14.0% are local, which is nearly 3 times more than expected under either distributional assumption of managerial talent, and the exact binomial tests are rejected at the 1% level under both distributional assumptions. Industry clustering does not explain the hiring home bias.

**4.3.4. Data Biases.** Another potential reason for observing the hiring home bias is that there exists a bias in the data collection process for CEO state of origin. To test whether a data bias due to identification error is the cause of the hiring home bias, I calculate the hiring home bias after eliminating those CEOs who are most likely to be improperly identified. I do this by filtering from the data all CEOs whose surname is one of the 1,000 most common surnames listed in the 2000 U.S. Census. The more common the surname, the more likely it is that the CEO is incorrectly identified. The fourth row of panel C of Table 1 shows that the results for the filtered sample are virtually unchanged from that of the full sample. The results do not appear to be driven by identification error.

## 5. Why Does Geographic Segmentation Exist?

The results of the previous section show that the CEO labor market is geographically segmented. In this section, I investigate what drives segmentation in the market for CEOs.

**Table 2.** Summary Statistics

| | Mean | Median | Std. dev. | 10th | 90th | *N* |
|---|---|---|---|---|---|---|
| Firm characteristics | | | | | | |
| Ln(Assets) (*Assets*) | 7.268 | 7.190 | 1.598 | 5.384 | 9.556 | 1,142 |
| Firm age (*FirmAge*) | 52.514 | 37.000 | 40.053 | 12.000 | 110.000 | 1,108 |
| R&D expense ratio (*RD*) | 0.042 | 0.006 | 0.085 | 0.000 | 0.120 | 1,141 |
| Dividend payer (*Dividend*) | 0.505 | 1.000 | 0.500 | 0.000 | 1.000 | 1,139 |
| Capital expenditures (*Capex*) | 0.063 | 0.043 | 0.072 | 0.014 | 0.124 | 1,128 |
| Capital intensity (*CapIntense*) | 0.362 | 0.204 | 0.523 | 0.064 | 0.729 | 1,140 |
| Sales growth (*SalesGrwth*) | 1.098 | 1.059 | 0.372 | 0.842 | 1.361 | 1,140 |
| Industry-adj. FY stock return (*FirmExRet*) | −0.003 | −0.077 | 0.622 | −0.582 | 0.558 | 1,129 |
| FY stock return volatility (*StockVol*) | 0.032 | 0.027 | 0.018 | 0.015 | 0.055 | 1,131 |
| Pct. of outside directors (*PctOutsideDir*) | 0.652 | 0.667 | 0.166 | 0.418 | 0.857 | 962 |
| Outside directors own more than 1% (*OutsideDirOwnDum*) | 0.106 | 0.000 | 0.308 | 0.000 | 1.000 | 1,142 |
| Pct. clear days in HQ city (*FirmHQPctClear*) | 0.291 | 0.269 | 0.086 | 0.200 | 0.438 | 1,142 |
| Tobin's $q$ ($Q$) | 2.154 | 1.564 | 1.809 | 0.968 | 3.743 | 1,131 |
| ROA (*ROA*) | 0.141 | 0.137 | 0.156 | 0.003 | 0.293 | 1,136 |
| New CEO characteristics | | | | | | |
| CEO is local (*LocalCeo*) | 0.233 | 0.000 | 0.423 | 0.000 | 1.000 | 1,142 |
| Foreign-born CEO (*ForeignCeo*) | 0.090 | 0.000 | 0.287 | 0.000 | 0.000 | 1,142 |
| CEO age (*CeoAge*) | 52.159 | 52.000 | 7.089 | 43.000 | 61.000 | 1,142 |
| log(CEO compensation ($1,000s)) (*TotalComp*) | 7.902 | 7.890 | 1.126 | 6.474 | 9.330 | 1,131 |
| CEO is chairman of the board (*CeoChair*) | 0.421 | 0.000 | 0.494 | 0.000 | 1.000 | 1,142 |
| CEO is hired from within the company (*InsideHire*) | 0.651 | 1.000 | 0.477 | 0.000 | 1.000 | 1,029 |
| CEO is female (*FemaleCeo*) | 0.030 | 0.000 | 0.170 | 0.000 | 0.000 | 1,142 |
| CEO general ability index (*CeoGAI*) | 0.115 | 1.000 | −0.021 | −0.916 | 1.390 | 1,075 |
| Previous CEO characteristics | | | | | | |
| CEO is local (*PrevLocalCeo*) | 0.264 | 0.000 | 0.441 | 0.000 | 1.000 | 1,142 |
| Foreign-born CEO (*ForeignCeo*) | 0.077 | 0.000 | 0.267 | 0.000 | 0.000 | 1,142 |
| CEO age (*CeoAge*) | 58.871 | 60.000 | 8.139 | 48.000 | 68.000 | 1,142 |
| CEO is chairman of the board (*CeoChair*) | 0.626 | 1.000 | 0.484 | 0.000 | 1.000 | 1,142 |
| CEO is hired from within the company (*InsideHire*) | 0.736 | 1.000 | 0.441 | 0.000 | 1.000 | 1,003 |
| CEO is a founder of the company (*Founder*) | 0.088 | 0.000 | 0.283 | 0.000 | 0.000 | 1,142 |

*Notes.* This table reports summary statistics for the sample of nonfinancial S&P 1500 firms that experienced CEO turnover during the years 1998–2007. The sample includes 1,142 firm-year observations and is constructed by identifying changes in the executive who is considered the CEO for all or most of the fiscal year by S&P's ExecuComp database. The turnover event occurs ($t = 0$) in the first year that a new CEO is considered the CEO for all or most of the fiscal year by the ExecuComp database. Summary statistics on firm and previous CEO characteristics are measured at $t = -1$ and new CEO characteristics are measured at time $t = 0$. All variables are defined in the appendix.

### 5.1. Determinants of Local Matching

I begin the analysis by merging the data on firm location and CEO origin with firm, hired CEO, and previous CEO characteristics. Of the 1,162 hiring decisions identified in the sample, 20 have missing accounting data. This leaves 1,142 hiring decisions with which to conduct the analysis. Table 2 displays summary statistics for the variables that are used in the analysis for the sample of hiring decisions. Definitions and data sources for these variables are found in the appendix. The summary statistics show that the sample is composed of large mature firms. In regard to board characteristics, two-thirds of the directors of the median firm are outsiders and 10.6% of firms have outside board members that collectively own 1% or more of the firm. Consistent with the findings in §4, 23.3% of hired CEOs are local. The median CEO in the sample is hired at 52 years of age and leaves at age 60.

I investigate the determinants of the decision to hire locals by estimating a probit regression for the sample of 1,142 hiring decisions. The dependent variable is a dummy variable that equals one if the firm hires a local CEO and is zero otherwise.[21] Both industry (using two-digit SIC codes) and year fixed effects are included in all models with the exception of those that are estimated using subsamples of the data. To control for the probability of hiring from one's own state, included is the percentage of the U.S. population in the state of the firm headquarters 36 years before the hiring decision (*PctPop*).[22] In the subsequent analysis, standard errors are White (1980) heteroskedasticity-consistent standard errors, clustered at the industry level.

Table 3 shows the estimated marginal effects and their standard errors for nine specifications. In column (1), I test whether larger and more R&D-intensive firms are less likely to hire locally. If there are significant search costs in the market for CEOs, then we might expect that for these firms the benefits of a broad executive search would outweigh the costs. Consistent with this, the estimated marginal effect on R&D expense (*RD*) is negative and significant at the 1% level, but firm size as measured by the natural log of assets (*Assets*) is not related to hiring locally in this initial regression.[23]

**Table 3.** The Determinants of Local Matching

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| *PctPop* | 1.486[a] | 1.776[a] | 1.463[a] | 1.858[a] | 1.440[a] | 2.122[a] | 2.231[a] | 1.808[a] | 2.418[a] |
| | (0.420) | (0.466) | (0.416) | (0.446) | (0.402) | (0.492) | (0.480) | (0.608) | (0.636) |
| *Assets* | −0.008 | −0.012[c] | −0.010 | −0.011 | −0.008 | −0.016[a] | −0.022[a] | −0.029[c] | −0.016 |
| | (0.008) | (0.007) | (0.008) | (0.008) | (0.007) | (0.006) | (0.008) | (0.015) | (0.010) |
| *RD* | −0.442[a] | −0.284[b] | −0.438[a] | −0.353[a] | −0.417[a] | −0.166 | −0.155 | −0.567[b] | −0.414[b] |
| | (0.085) | (0.132) | (0.088) | (0.097) | (0.086) | (0.143) | (0.123) | (0.253) | (0.188) |
| *PctOutsideDir* | | −0.318[a] | | | | −0.287[a] | −0.274[a] | | |
| | | (0.072) | | | | (0.077) | (0.072) | | |
| *OutsideDirOwnDum* | | | −0.079[a] | | | −0.078[b] | −0.082[a] | −0.157[a] | −0.030 |
| | | | (0.031) | | | (0.031) | (0.030) | (0.050) | (0.037) |
| *FirmHQPctClear* | | | | −0.396[a] | | −0.412[a] | −0.402[a] | −0.407[a] | −0.431[c] |
| | | | | (0.107) | | (0.133) | (0.137) | (0.154) | (0.243) |
| *PrevLocalCeo* | | | | | 0.067[b] | 0.045[c] | 0.048[c] | 0.128[a] | 0.041 |
| | | | | | (0.028) | (0.027) | (0.027) | (0.038) | (0.042) |
| *InsideHire* | | | | | | | 0.127[a] | | |
| | | | | | | | (0.020) | | |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| Sample of hires | All | All | All | All | All | All | All | Internal | External |
| Pseudo $R^2$ | 0.077 | 0.097 | 0.082 | 0.083 | 0.082 | 0.111 | 0.154 | 0.040 | 0.069 |
| *N* | 1,141 | 962 | 1,141 | 1,141 | 1,141 | 962 | 878 | 669 | 359 |
| Prob. of local hiring | 0.233 | 0.242 | 0.233 | 0.233 | 0.233 | 0.242 | 0.244 | 0.288 | 0.139 |

*Notes.* This table investigates the determinants of local CEO hiring. Reported are the results of probit regressions using 1,141 hiring decisions for nonfinancial S&P 1500 firms covered by the ExecuComp database between 1998 and 2007. The dependent variable is a dummy variable that is equal to one if the firm hires a local CEO. The definition of a "local" CEO is found in Table 1. The table reports estimated marginal effects and their standard errors (in parentheses) for various models. Where indicated, models include year and industry (using two-digit SIC codes) fixed effects. *PctPop* is equal to the proportion of the U.S. population living in the state of the firm headquarters in 1960. The remaining control variables are defined in the appendix. Regressions in columns (8) and (9) are restricted to hiring observations of internal and external CEOs, respectively. Also reported are the number of observations used in the estimation as well as the pseudo $R^2$. The table reports White (1980) heteroskedasticity-consistent standard errors, clustered at the industry level.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

The agency theory suggest that boards with weak incentives to choose the best CEO will be more likely to choose from the local labor pool. The models in columns (2) and (3) include proxies for the incentives of board members. Column (2) includes the percentage of outside directors on the board in the year before the hiring decision (*PctOutsideDir*) and column (3) includes a dummy variable that equals one if the collective ownership of all outside board members is greater than 1% in the fiscal year preceding the hiring decision (*OutsideDirOwnDum*). If independent boards are more objective in their decision making, then greater board independence should decrease the probability that a firm hires local. Similarly, boards with greater stake in the firm should be less likely to hire locally if agency conflicts are driving their decisions. As predicted, the marginal effects of both of these measures are significantly negatively related to hiring locally.

In column (4), I test whether CEO geographic preferences influence the probability that firms hire local CEOs. Beyond CEOs' desire to be located close to family and friends, we would expect that they also would like to live in desirable locations. Thus, firms in more desirable areas will be able to attract CEO talent more easily and will be less likely to hire locally. Using the percentage of clear days in the city of the firm's headquarters as a proxy for geographic desirability, I find evidence of this effect.[24] The marginal effect of the desirability of the firm location (*FirmHQPctClear*) is significantly negatively related to firms hiring locally.

The magnitude of this effect is surprisingly large. The estimated marginal effect suggests that for the average firm in the sample, a one-standard-deviation increase in the average percentage of clear days (0.086) decreases its probability of hiring locally by 0.034: this is approximately a 15% decrease in the probability of hiring locally. Another interpretation is that, if the average firm in the sample were located in Cleveland, Ohio, where the average percentage of clear days is 18%, the predicted probability that the firm hires a local CEO is 0.36. If that same firm were located in Los Angeles, California, where 40% of days are clear, the predicted probability of hiring a local CEO is only 0.27. In this case, geographic preferences of the CEO supply make it 33% more likely that the Cleveland-based firm must hire locally, than a similar firm located in Los Angeles.

The specification in column (5) of Table 3 includes a dummy variable indicating whether the outgoing CEO was local (*PrevLocalCeo*). A positive coefficient estimate on this variable suggests that, on average, firms that hire locally tend to persistently do so. This could indicate evidence for each of the theories of local hiring, even those that are difficult to test in this setting, such as soft information and local skills. The estimate on this coefficient is 0.067 and significant at the 5% level. This indicates that firms that hired locally in the past are nearly 30% more likely to do so in the future.

In column (6) of Table 3, all of the independent variables from the earlier models are included in the regression and in column (7), a dummy variable if the CEO was hired from within the firm (*InsideHire*) is also included. In general, the results from the previous regressions continue to hold. Although locally hired CEOs are substantially more likely to be hired from within the firm, including *InsideHire* does not significantly alter the inferences made in the previous analysis.

However, to completely disentangle the effect of internal from local hiring, the models in columns (8) and (9) of Table 3 are estimated within the subsamples of internal and external hiring decisions. Power is an issue for both of these tests, so fixed effects are not included in these models and neither is *PctOutsideDir*, which has limited coverage. In general the results for the full sample hold within the set of internal hires: smaller, less R&D-intensive firms, with weaker director incentives, located in less desirable areas that have hired locally in the past tend to hire locally. For the sample of external hires, the significance and magnitude of the estimates on *Assets* and *PrevLocalCeo* are much lower than for internal hires, which may not be surprising, and there is no evidence that better board incentives increase the likelihood of hiring locally.

### 5.2. CEO Turnover

I next examine CEO turnover. The agency theory predicts that turnover sensitivity to performance and forced turnover, in general, should be lower for local CEOs than for nonlocals. If local CEOs are hired because it takes less effort by boards to hire locally or because of private benefits that boards receive from local CEOs, then we would expect for them to behave similarly in their monitoring role. The search cost theory makes the same predictions, since it may take greater underperformance of the CEO to warrant the cost of a new search.

Although the soft information and local skills theories do not imply lower turnover sensitivity to performance among locals, they both suggest that a better match occurs between firms and local, rather than nonlocal, CEOs. This means that, unconditionally, forced turnover should be lower for locals than nonlocals, but after controlling for performance there should be no difference.

The geographic preference theory predicts no differential relationship between local and nonlocal CEOs for turnover sensitivity to performance or forced turnover. However, if local managers prefer to live in the geographic location of their firms' headquarters, then they will be less likely to retire early or leave their companies for jobs in other locations, suggesting that unforced turnover should be lower for locals than nonlocals. The search cost theory makes this same prediction, since firms that hire locally due to high search costs likely hire for the "long run." Soft information and local skills could also lead to lower unforced turnover, since these theories suggest that fewer outside firms will value local managers' talents as highly, making them less likely to leave for other firms.

I test these predictions by estimating linear probability and probit regressions using a panel of firm-year observations that spans from 1998 to 2007, where the dependent variable is a dummy variable that is equal to one in year $t$ if CEO turnover occurs. Turnover is defined three ways; all turnovers, forced turnovers, and unforced turnovers. Turnover occurs at time $t$ if the CEO at time $t$ is different from the CEO at time $t-1$. Forced and unforced turnovers are defined using data from Eisfeldt and Kuhnen (2013).[25] Observations categorized as "forced turnover" in Eisfeldt and Kuhnen (2013) are considered "forced" and all other turnover observations that are not defined as "forced turnover" and are covered by Eisfeldt and Kuhnen (2013) are defined as "unforced."[26]

The model setup is similar to that of Kaplan and Minton (2012) and is discussed in the online appendix. The coefficient estimates of interest are those on *LocalCeo*, which is measured at time $t-1$, and its interaction with past performance measures. Models that include interaction effects between *LocalCeo* and performance measures are estimated using linear probability models, since estimating marginal effects on interaction terms in probit models is problematic (Powers 2005).

Table 4 displays the coefficient estimates, estimated marginal effects, and standard errors for various specifications. In column (1), I test the agency and search cost theories' predictions that the turnover of local CEOs will be less sensitive to performance than that of their nonlocal counterparts by interacting *LocalCeo* with decomposed measures of past stock market performance. The coefficient estimates on the control variables are consistent with those found in the literature; better firm performance leads to lower turnover (Huson et al. 2004), and older CEOs have higher turnover, for example. However, the evidence is not particularly supportive of the predictions of these theories. Although the coefficient estimate on the interaction of the local CEO dummy with firm-level stock

**Table 4.** Local CEOs and Turnover

| | All | | | | | Forced | | | Unforced | |
|---|---|---|---|---|---|---|---|---|---|---|
| Turnover type | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| *LocalCeo* | −0.0208[a] | −0.0205[a] | −0.0195[a] | −0.0192[a] | −0.0165[b] | −0.0040 | −0.0002 | −0.0051 | −0.0155[a] | −0.0268[c] |
| | (0.0077) | (0.0061) | (0.0060) | (0.0063) | (0.0070) | (0.0029) | (0.0001) | (0.0040) | (0.0058) | (0.0137) |
| *LocalCeoXFirmExRet* | 0.0090 | | | | | 0.0053 | | | | |
| | (0.0128) | | | | | (0.0044) | | | | |
| *LocalCeoXIndExRet* | −0.0315 | | | | | 0.0012 | | | | |
| | (0.0234) | | | | | (0.0080) | | | | |
| *LocalCeoXMktRet* | 0.0073 | | | | | −0.0070 | | | | |
| | (0.0360) | | | | | (0.0122) | | | | |
| *FirmExRet* | −0.0356[a] | −0.0340[a] | −0.0330[a] | −0.0335[a] | −0.0279[a] | −0.0160[a] | −0.0008[a] | −0.0225[a] | −0.0199[a] | −0.0298[b] |
| | (0.0078) | (0.0073) | (0.0073) | (0.0077) | (0.0087) | (0.0031) | (0.0002) | (0.0046) | (0.0066) | (0.0144) |
| *IndExRet* | 0.0046 | −0.0044 | −0.0043 | −0.0065 | 0.0040 | −0.0057 | −0.0005[b] | −0.0212[a] | −0.0002 | −0.0386 |
| | (0.0179) | (0.0141) | (0.0141) | (0.0145) | (0.0158) | (0.0060) | (0.0002) | (0.0064) | (0.0132) | (0.0239) |
| *MktRet* | 0.0050 | 0.0088 | 0.0086 | 0.0061 | 0.0341 | 0.0075 | 0.0000 | −0.0132 | 0.0071 | −0.0251 |
| | (0.0394) | (0.0345) | (0.0345) | (0.0358) | (0.0394) | (0.0120) | (0.0005) | (0.0101) | (0.0333) | (0.0360) |
| *Age60Dum* | 0.1171[a] | 0.1151[a] | 0.1192[a] | 0.1190[a] | 0.1229[a] | −0.0015 | 0.0000 | −0.0005 | 0.1138[a] | 0.0949[a] |
| | (0.0073) | (0.0071) | (0.0074) | (0.0077) | (0.0084) | (0.0024) | (0.0001) | (0.0037) | (0.0071) | (0.0154) |
| *PctOutsideDir* | −0.0027 | −0.0021 | −0.0073 | −0.0222 | −0.0339 | 0.0058 | 0.0002 | 0.0086 | −0.0237 | −0.0316 |
| | (0.0183) | (0.0174) | (0.0177) | (0.0183) | (0.0215) | (0.0072) | (0.0003) | (0.0100) | (0.0166) | (0.0349) |
| *CeoChair* | | | −0.0114[c] | −0.0082 | −0.0086 | | | | | |
| | | | (0.0065) | (0.0065) | (0.0073) | | | | | |
| *Founder* | | | −0.0258[a] | −0.0256[a] | −0.0275[a] | | | | | |
| | | | (0.0088) | (0.0088) | (0.0087) | | | | | |
| *InsideHire* | | | | 0.0012 | | −0.0032 | −0.0001 | | 0.0001 | |
| | | | | (0.0071) | | (0.0031) | (0.0001) | | (0.0066) | |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | No |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | No |
| Sample of hires | All | All | All | All | External | All | All | External | All | External |
| $R^2$ measure | 0.036 | 0.065 | 0.067 | 0.068 | 0.080 | 0.006 | 0.136 | 0.082 | 0.074 | 0.042 |
| *N* | 9,051 | 9,051 | 9,051 | 8,230 | 6,215 | 8,230 | 8,230 | 2,015 | 8,230 | 2,015 |
| Prob. of turnover | 0.106 | 0.106 | 0.106 | 0.103 | 0.102 | 0.011 | 0.011 | 0.015 | 0.092 | 0.090 |

*Notes.* This table reports regression results of various measures of CEO turnover on *LocalCeo* and control variables using 9,051 firm-year observations of nonfinancial S&P 1500 firms covered by the ExecuComp database between 1998 and 2007. In columns (1)–(5), the dependent variable is a dummy variable that indicates CEO turnover. It is equal to one in year $t$ if the firm's CEO is different from the CEO in year $t-1$. In columns (6)–(8), the dependent variable is a dummy variable that captures "forced" turnover. It equals one if forced turnover occurred during year $t$, where the forced turnover indicator includes observations categorized as "forced turnover" in Eisfeldt and Kuhnen (2013) (available on Camelia Kuhnen's website). In columns (9) and (10), the dependent variable is a dummy variable that captures unforced CEO turnover. It is equal to one if turnover occurred during year $t$ and that turnover was not categorized as "forced" by Eisfeldt and Kuhnen (2013). *LocalCeo* is a dummy variable that equals one if the CEO at time $t-1$ is from the same state as the firm's headquarters. All other control variables are lagged and are defined in the appendix. Where indicated, models include year and industry (using two-digit SIC codes) fixed effects. In columns (5), (8), and (10), the sample is restricted to the firm-year observations for which the firm's CEO in year $t-1$ was hired externally. In columns (1) and (6), linear probability models are estimated, and in all remaining columns probit regressions are estimated. Also reported are the number of observations used in the estimation as well as the $R^2$ (adjusted $R^2$ is reported for linear probability models and pseudo adjusted $R^2$ is reported for probit regressions). The table reports coefficient estimates in columns (1) and (6) and marginal effects in all other columns. White (1980) heteroskedasticity-consistent standard errors, clustered at the firm-level, are also reported.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

returns (*LocalCeoXFirmExRet*) is positive, as the theories predict, it is not statistically different from zero. Column (6) displays the results for a similar test, where turnover is defined as forced turnover. Again, the coefficient estimate on the interaction of interest is positive, but it does not reliably indicate that locals are less likely to be fired for poor performance.

However, consistent with soft information, local skills, geographic preference, and search costs, the estimated coefficient on *LocalCeo* is approximately −0.021 in the first two specifications and is significant at the 1% level for each specification. Given that the turnover occurs approximately 10% of the time, this implies that locals are approximately 20% less likely to experience turnover than nonlocals.

It is possible that local CEOs are more powerful than nonlocal CEOs and so they are able to stay in their positions longer. The model in column (3) controls for this possibility by including dummy variables that are equal to one if the CEO at time $t-1$ is chairman

of the board (*CeoChair*) or founder of the company (*Founder*). Although the estimated marginal effects on both proxies imply a significant negative relationship between CEO power and turnover, the coefficient on *LocalCeo* is relatively unchanged. Interestingly, the estimated marginal effect of a CEO being local is similar in magnitude to that of a CEO being a founder of the company.

Hermalin (2005) predicts lower turnover for internally hired CEOs than for those hired externally. To address this, the model in column (4) controls for internally hired CEOs and the sample in column (5) is limited to observations for which the $CEO$ at time $t-1$ was hired externally. The inclusion of *InsideHire* does not change the main result and, even among externally hired CEOs, local CEOs are much less likely to experience turnover (approximately 16% less).

The analysis in columns (6)–(10) give some indication of which type of turnover is driving the results. In general, the results indicate that there is no difference in the likelihood of being fired for local and nonlocal CEOs. This is inconsistent with the predictions of the agency and search cost theories, but consistent with the remaining theories. Most of the turnover result is driven by unforced turnover. Both internally and externally hired local CEOs are much less likely to leave their firms than their nonlocal peers. These findings on unforced turnover are consistent with the existence of soft information, local skills, geographic preferences, and search costs in the market for CEOs.

In summary, I find that local CEOs have a lower probability of turnover than do nonlocal CEOs. This finding is driven by unforced turnover and not forced turnover. It is consistent with all of the theories of local hiring except for the agency theory. In addition, there is little support for the agency and search cost theories' predictions on forced turnover and turnover sensitivity to performance in the data.

### 5.3. CEO Compensation

Since the various theories of local hiring also differ in their predictions for the pay differential between local and nonlocal CEOs, I next investigate CEO compensation. If local CEOs prefer to work close to home, then they should be willing to trade compensation for their preferred living location. Thus, according to the geographic preference theory of local hiring, the observed compensation of locally hired CEOs should be lower than that of similar nonlocal CEOs. Search costs could also imply that local CEOs are paid less, since CEOs drawn from smaller talent pools are likely to be of lower ability, on average. If CEOs are paid their marginal product, then local CEOs will be paid less.

The remaining theories all suggest that the compensation differential between local and nonlocal CEOs should be nonnegative. If boards hire locals as a result of agency conflicts, then it is possible that they may also pay their locally hired CEOs an abnormal amount. However, if compensation is efficient and only CEO selection is driven by board conflicts, then there should be no difference in compensation between similarly talented locals and nonlocals. If locals are hired because of local skills or soft information, then whether locals are paid more than nonlocals depends upon locals' ability to extract a portion of the rents they create, as discussed in §§2.1.3 and 2.1.4.

To test these predictions, I estimate regression models where the dependent variable is the natural logarithm of total compensation during the first full fiscal year of the newly appointed CEO's tenure (*TotalComp*) and the regressors include variables that the literature has shown to effect CEO compensation plus a dummy variable that equals one if the hired CEO is local (*LocalCeo*). The geographic preference and search cost theories suggest that the coefficient on *LocalCeo* should be negative, whereas the agency, local skills, and soft information theories suggest that it should either be zero or positive.

The baseline model of CEO compensation mainly follows Core et al. (1999). Included are proxies for firm size, growth opportunities, performance, and firm risk. I discuss this model of compensation and the measure of total compensation in more detail in the online appendix. All control variables are measured one year before the hiring decision. Additionally, the natural log of the median home value in the county of the firm's headquarters (log(*MedHmVal*)) is included to control for differences in the cost of living across areas.[27] In addition to these control variables, also included in all specifications are year and industry fixed effects. So that the sample is not affected by partial-year pay, compensation is measured during each CEO's first full year of tenure and CEOs who do not hold office for at least one full fiscal year are excluded from the sample.

Table 5 reports results of the analysis. In the first specification, the coefficient on *LocalCeo* is significantly negatively estimated, consistent with the geographic preference theory. The estimate on the coefficient suggests that in their first year of tenure, local CEOs earn approximately 15% less than nonlocal CEOs. Given that the compensation for the average new CEO in the sample is $2.7 million, this implies that local CEOs earn on average $375,000 less than nonlocal CEOs in their first year of tenure.

Murphy and Zabojnik (2007) show that CEOs hired from within the firm are paid less than CEOs hired from outside the firm. The model estimated in column (2) controls for inside hiring decisions, by including *InsideHire*. Consistent with the previous literature, I find that CEOs hired from within the company are paid significantly less, but including this control has little effect on the coefficient estimate of *LocalCeo*,

**Table 5.** Local CEOs and Compensation Levels

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *LocalCeo* | −0.149[b] | −0.137[b] | −0.182[b] | −0.008 | |
| | (0.061) | (0.058) | (0.077) | (0.123) | |
| *SameStateCeo* | | | | | −0.147[b] |
| | | | | | (0.066) |
| *SameStateCeo* × *ForeignCeo* | | | | | 0.219[c] |
| | | | | | (0.127) |
| *ForeignCeo* | | | | | −0.013 |
| | | | | | (0.092) |
| *Assets* | 0.412[a] | 0.431[a] | 0.427[a] | 0.462[a] | 0.411[a] |
| | (0.016) | (0.018) | (0.025) | (0.033) | (0.016) |
| *ROA* | −0.110 | −0.291 | 0.226 | −0.484 | −0.112 |
| | (0.299) | (0.333) | (0.506) | (0.393) | (0.293) |
| *FirmExRet* | 0.071[c] | 0.114[a] | 0.154[b] | −0.001 | 0.072[c] |
| | (0.041) | (0.042) | (0.075) | (0.092) | (0.040) |
| *Q* | 0.144[a] | 0.162[a] | 0.136[a] | 0.154[b] | 0.143[a] |
| | (0.036) | (0.033) | (0.043) | (0.073) | (0.036) |
| *StockVol* | −1.929 | −0.377 | −0.658 | −2.577 | −2.010 |
| | (2.461) | (3.273) | (3.287) | (4.906) | (2.467) |
| log(*MedHmVal*) | 0.129[a] | 0.095[b] | 0.067 | 0.160[b] | 0.127[a] |
| | (0.038) | (0.043) | (0.053) | (0.075) | (0.038) |
| *InsideHire* | | −0.143[b] | | | |
| | | (0.058) | | | |
| log(*CeoAge*) | | −0.218 | | | |
| | | (0.262) | | | |
| *FemaleCeo* | | −0.005 | | | |
| | | (0.092) | | | |
| *CeoGAI* | | 0.011 | | | |
| | | (0.060) | | | |
| Industry FE | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes |
| Sample of hires | All | All | Internal | External | All |
| Adjusted $R^2$ | 0.484 | 0.508 | 0.504 | 0.442 | 0.483 |
| $N$ | 955 | 850 | 573 | 302 | 955 |

*Notes.* This table tests whether total compensation of local CEOs is different from that of nonlocal CEOs during their first year of tenure. Reported are ordinary least squares regression results of CEO compensation on its determinants for a sample of hiring decisions of nonfinancial S&P 1500 firms covered by the ExecuComp database between 1998 and 2007. The dependent variable is the natural logarithm of the hired CEO's total compensation (*TotalComp*) in the first full year of tenure with the firm. *TotalComp* includes salary, bonuses, restricted stock grants, and the Black–Scholes value of stock option grants. *LocalCeo* is a dummy variable that equals one if the newly hired CEO is local. *SameStateCeo* is a dummy variable that is one if the state in which the CEO obtained a social security number is the same as the firm's headquarters location. *ForeignCeo* is a dummy variable that is one if the CEO is foreign. All other control variables are lagged and are defined in the appendix. Each model includes year and industry (using two-digit SIC codes) fixed effects. In columns (3) and (4) the sample is restricted to the firm-year observations for which the hired CEO is hired internally and externally to the firm, respectively. The table reports coefficient estimates and their White (1980) heteroskedasticity-consistent standard errors, clustered at the industry-level. Also reported are the number of observations used in the estimation, as well as the adjusted $R^2$.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

which remains negative and significant. In addition, this specification controls for a number of other CEO characteristics that could affect compensation, such as age (log(*CeoAge*)), gender (*FemaleCeo*), and "general" skills (*CeoGAI*).[28] To further disentangle the effect of local from internal hiring, the models in columns (3) and (4) are estimated within the set of internally and externally hired CEOs, respectively. The results indicate that internally hired local CEOs are paid less than their nonlocal peers, but externally hired locals are paid similarly to nonlocals.

Two theories suggest that locals should be paid less than nonlocals: geographic preferences and search costs. In attempt to distinguish between these two theories I provide an additional test. If CEOs trade geographic preferences for compensation, then the weaker the geographic preference of the CEO the less compensation the CEO should be willing to give up. CEOs who immigrate to the United States for college, graduate school, or a job are likely to be less attached to the location where they receive their social security cards than are U.S. natives, since they are less likely to have family, friends, or contacts in the area. To test this, I create a dummy variable, *SameStateCeo*, that is one if the state where the CEO received a social security number matches where the firm is headquartered.[29] I then interact this measure with *ForeignCeo*, which is a dummy variable that is one if the CEO received a social security card after the age of 21. If foreign CEOs have weaker geographic preferences for the place where they received their social security cards, then we should find that the coefficient estimate on the interaction of *ForeignCeo* and *SameStateCeo* should be positive. In column (4), I test this hypothesis. The coefficient estimate on *SameStateCeo* × *ForeignCeo* is significantly positively estimated, as the geographic preference theory predicts.

To more adequately control for unobservable firm characteristics, I next investigate changes in wages from predecessor to successor CEOs. The change in executive compensation is measured as the compensation of the newly hired CEO in the first full fiscal year of tenure minus the compensation of the previous CEO in the last full year of tenure. Table 6 shows the estimation results of regressing changes in CEO compensation on changes in CEO origin from predecessor to successor CEOs and control variables. The dependent variable is the change in the natural logarithm of total compensation from the previous CEO to the new CEO. Control variables include changes in the lagged variables included in the previous analysis, as well as the level of lagged assets (*Assets*). The variable of interest is Δ*LocalCeo*, which is equal to one if the new CEO is local and the previous CEO is nonlocal, is negative one if the new CEO is nonlocal and the previous CEO is local, and is zero otherwise.

In column (1) of Table 6, the model excludes control variables. The coefficient estimate on Δ*LocalCeo* is −0.169 and is significant at the 1% level. This is supportive of the earlier findings using levels in compensation. When control variables are included in the model

**Table 6.** Changes in CEO Compensation

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Δ*LocalCeo* | −0.169[a] | −0.179[a] | −0.179[a] | −0.183[b] | −0.211 | −0.186[b] | −0.185[c] |
| | (0.056) | (0.053) | (0.064) | (0.079) | (0.133) | (0.072) | (0.097) |
| Δ*Assets* | | 0.355[b] | 0.248 | 0.309 | 0.213 | 0.335 | 0.199 |
| | | (0.141) | (0.250) | (0.267) | (0.261) | (0.220) | (0.248) |
| Δ*ROA* | | −0.232 | −0.392 | 0.358 | −0.124 | 0.296 | −0.466 |
| | | (0.398) | (0.555) | (0.594) | (0.773) | (0.583) | (0.684) |
| Δ*FirmExRet* | | 0.008 | 0.101[b] | 0.028 | 0.098 | 0.005 | 0.054 |
| | | (0.041) | (0.046) | (0.052) | (0.139) | (0.052) | (0.122) |
| Δ*Q* | | 0.040 | 0.046 | 0.077 | 0.054 | 0.079 | −0.023 |
| | | (0.054) | (0.069) | (0.077) | (0.068) | (0.075) | (0.049) |
| Δ*StockVol* | | −10.043[a] | −6.539[c] | −8.431[b] | −15.394[c] | −7.364[c] | −14.321[c] |
| | | (3.712) | (3.824) | (4.033) | (8.664) | (4.053) | (7.485) |
| *Assets* | | −0.079[a] | −0.067[a] | −0.091[b] | 0.040 | −0.088[b] | −0.051 |
| | | (0.019) | (0.016) | (0.039) | (0.055) | (0.040) | (0.056) |
| Δ*InsideHire* | | | −0.062 | 0.009 | 0.017 | 0.025 | −0.018 |
| | | | (0.082) | (0.113) | (0.167) | (0.106) | (0.123) |
| Δ*CeoAge* | | | −0.004 | | | | |
| | | | (0.004) | | | | |
| Δ*FemaleCeo* | | | −0.209[c] | | | | |
| | | | (0.109) | | | | |
| Δ*CeoGAI* | | | 0.083[b] | | | | |
| | | | (0.032) | | | | |
| Industry FE | Yes | Yes | Yes | Yes | Yes | No | No |
| Year FE | Yes | Yes | Yes | Yes | Yes | No | No |
| Sample of hires | All | All | All | Internal | External | Internal | External |
| Adjusted $R^2$ | 0.025 | 0.056 | 0.060 | 0.051 | 0.053 | 0.038 | 0.037 |
| *N* | 951 | 922 | 675 | 507 | 250 | 507 | 250 |

*Notes.* This table examines changes in executive compensation between newly hired CEOs and their predecessor for the sample of hiring decisions of nonfinancial S&P 1500 firms between the years 1998 and 2007. The dependent variable is the change in the natural logarithm of the total compensation (*TotalComp*) of the new CEO from that of the previous CEO. The change in executive compensation is measured as the compensation of the newly hired CEO in the first full fiscal year of tenure minus the compensation of the previous CEO in the last full year of tenure. CEOs who do not hold office for at least one full fiscal year are excluded from the sample. Control variables include changes in lagged variables included in Table 5, as well as the level of lagged assets (*Assets*). The variable of interest is Δ*LocalCeo*, which is equal to one if the new CEO is local and the previous CEO is nonlocal, is equal to negative one if the new CEO is nonlocal and the previous CEO is local, and is zero otherwise. The table reports coefficients and standard errors (in parentheses). Where indicated, models include year and industry (using two-digit SIC codes) fixed effects. Where indicated the sample is restricted to the firm-year observations for which the hired CEO is hired internally or externally to the firm. Also reported are the number of observations used in the estimation as well as the adjusted $R^2$. The table reports White (1980) heteroskedasticity-consistent standard errors, clustered at the industry level.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

in column (2), the estimated coefficient on Δ*LocalCeo* remains significant and decreases to −0.179. Agrawal et al. (2006) find that changes in compensation from predecessor to successor CEOs are greater for externally hired CEOs than those hired internally. The model in column (3) controls for changes in inside hiring status as well as changes in several CEO characteristics. The coefficient estimate on Δ*LocalCeo* is virtually unchanged and remains statistically significant at the 1% level.

In columns (4)–(7) of Table 6, models are estimated within the subsamples of internally and externally hired CEOs. The models in columns (4) and (5) include fixed effects, whereas those in columns (6) and (7) do not. The results indicate that local CEOs are paid significantly less than their nonlocal peers within the set of both internally and externally hired CEOs. The significance is marginal within the set of externally hired CEOs; however, the coefficient estimates are quite similar to those found for the full sample. With only 250 observations, power becomes a real issue, especially for the fixed effects estimator.

The findings from the analysis of CEO compensation suggest that local CEOs are, on average, paid less than their nonlocal peers. This finding is supportive of the geographic preference and search cost theories of geographic segmentation in the CEO labor market. Additional tests provide additional support for geographic preferences playing a role in the market for CEOs.[30]

### 5.4. Firm Performance and Value

I next investigate the relationship between local hiring and firm performance and value. The agency theory of local hiring suggests that, when boards hire locally, they are hiring lower-quality candidates. If this is the case, then firms with local CEOs should underperform their nonlocal peers and should be worth less. Both the local skills and soft information theories make the

opposite prediction, since both of these theories imply a better match between firms and CEOs when the CEO is local. The geographic preference and search cost theories predict that there should be no effect on performance or value from hiring locally, since firms hire locally when it is optimal to do so.

I assess the effects of hiring locally on firm operating performance and value using the methodology of Gormley and Matsa (2014). Using the ExecuComp panel from 1997 to 2007, I regress accounting performance and firm value on *LocalCeo* and controls. Included in the models are both firm fixed effects and industry-year fixed effects. This method of assessing the relationship between firm performance and CEO characteristics is attractive because it controls for two important sources of unobserved variation in performance. However, it is an extremely stringent test.

The results are reported in Table IA.2 of the online appendix. In general there is no stable significant relationship between local CEOs and firm performance or value. None of the models show a significant relationship between *LocalCeo* and operating performance, and only one of the three models investigated shows a significant positive relationship between firm value and local CEOs. These findings are consistent with search costs and geographic preferences and inconsistent with agency conflicts, and there is some evidence that local skills or soft information may be important to the hiring home bias.

## 6. Implications of Segmentation

The findings thus far indicate that the CEO labor market is geographically segmented and a number of theories of local hiring appear to be playing a substantial role in the matching process. In this section, I test one of the implications of the existence of local executive labor markets: compensation of CEOs should depend upon local labor market factors.[31]

Empirical evidence exists that is consistent with the notion of local CEO labor markets. Ang et al. (2013) find that CEO compensation is positively correlated with the number of CEOs in the area around the company headquarters and interpret this as evidence that social pressures influence CEO compensation. Additionally, Bouwman (2013) finds that the compensation of CEOs depends upon the compensation of the average CEO in the area around the firm's headquarters and attributes this fact to CEO "envy."

An alternative interpretation of these findings is that these measures proxy for the local outside option of CEOs. If CEO labor markets are local, then better local outside options give CEOs greater bargaining power (through their ability to credibly threaten to leave), which pushes up compensation. Of course, the prior results show that CEO labor markets are not perfectly segmented, but we would expect, if geographic preferences, local skills, or soft information are driving CEOs to take positions near their childhood homes, that the compensation of local CEOs should be more dependent on local labor market factors than that of nonlocal CEOs. Following this logic I test whether the compensation of local CEOs is more sensitive to their local outside option than that of nonlocal CEOs.

In column (1) of Table 7, I replicate the results of Ang et al. (2013). The regressor of interest is *LogNumPeers*, which is the log of the number of S&P 1500 firms within 100 km of the firm and measures the local outside option of CEOs.[32] The results are consistent with the previous literature; compensation is significantly increasing in *LogNumPeers* and also with the pre-

**Table 7.** Local CEOs and Local CEO Labor Markets

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *LocalCeo* | −0.137[a] | −0.284[a] | −0.264[a] | −0.260[a] |
| | (0.034) | (0.076) | (0.079) | (0.077) |
| *LogNumPeers* | 0.047[a] | 0.034[b] | 0.023 | 0.024 |
| | (0.012) | (0.014) | (0.017) | (0.015) |
| *LocalCeo* × *LogNumPeers* | | 0.046[b] | 0.041[c] | 0.039[c] |
| | | (0.022) | (0.023) | (0.022) |
| *Assets* | 0.444[a] | 0.444[a] | 0.445[a] | 0.456[a] |
| | (0.012) | (0.012) | (0.011) | (0.013) |
| *ROA* | 0.396[a] | 0.395[a] | 0.394[a] | 0.363[a] |
| | (0.130) | (0.130) | (0.123) | (0.130) |
| *FirmExRet* | 0.086[a] | 0.086[a] | 0.085[a] | 0.091[a] |
| | (0.018) | (0.018) | (0.018) | (0.018) |
| *Q* | 0.088[a] | 0.089[a] | 0.092[a] | 0.081[a] |
| | (0.013) | (0.013) | (0.012) | (0.014) |
| *StockVol* | 0.402 | 0.411 | 0.489 | 0.781 |
| | (1.071) | (1.067) | (1.084) | (1.077) |
| log(*MedHmVal*) | 0.112[a] | 0.107[a] | 0.078 | 0.082[a] |
| | (0.028) | (0.028) | (0.052) | (0.028) |
| Industry FE | No | No | No | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| State FE | No | No | Yes | No |
| Adjusted $R^2$ | 0.417 | 0.417 | 0.426 | 0.437 |
| *N* | 10,471 | 10,471 | 10,471 | 10,471 |

*Notes.* The analysis reported in the table tests whether the compensation of local CEOs depends more on their local outside option than that of nonlocal CEOs. Reported are ordinary least squares regression results of total CEO compensation on its determinants for the panel of nonfinancial S&P 1500 firms covered by the ExecuComp database between 1997 and 2007. The dependent variable is the natural logarithm of 1 + *TotalComp* during the year. The variables of interest are *LocalCeo*, *LogNumPeers*, and the interaction between the two. *LocalCeo* is a dummy variable that equals one if the CEO is local. *LogNumPeers* is the natural log of the number of S&P 1500 positions within 100 km of the firms' headquarters, and it is used as a proxy for the local outside option of the CEO. All other control variables are lagged and are defined in the appendix. Year, industry (by two-digit SIC codes), and firm headquarter state fixed effects are included where indicated. The table reports coefficients and standard errors (in parentheses) for various models. Also reported are the number of observations used in the estimation as well as the adjusted $R^2$. The table reports White (1980) heteroskedasticity-consistent standard errors, clustered at the firm level.

[c], [b], and [a] indicate significance at the 10%, 5%, and 1% levels, respectively.

vious analysis; local CEOs are paid significantly less than nonlocals.

In columns (2)–(4) of Table 7, the results of the main test are reported. If geographic preferences, local skills, or soft information drive the local matching between CEOs and firms, then we would expect that local managers only consider positions in the local CEO market; thus their compensation should depend more on their local outside option than that of nonlocals, who are willing and able to take positions anywhere. This implies that the coefficient on the interaction between *LocalCeo* and *LogNumPeers* should be significantly positively estimated. The results show that this is indeed the case. The regression in column (2) indicates that the compensation of local CEOs is more than twice as sensitive to their local outside option compared to that of nonlocals.

In columns (3) and (4) of Table 7, the regressions include state and industry fixed effects, respectively. Again the coefficient on the interaction between *LocalCeo* and *LogNumPeers* is significantly positively estimated; however, the significance of these estimates falls to the 10% level. Interestingly the results show that, once unobservable state and industry effects are taken into account, the local outside option only matters for local CEOs. This is consistent with the geographic preference, local skills, and soft information theories of CEO labor market segmentation.

## 7. Conclusion

The finance literature presumes that the labor market for CEOs is national in nature. I reject this assumption by providing conclusive evidence that the labor market for top executives is geographically segmented. Over 30% of nonregulated, nonfinancial S&P 1500 firms are run by local CEOs. When examining hiring decisions, firms hire CEOs from their own state five times more frequently than expected. Even among the subsamples of CEOs hired external to the firm and external to the firm's industry, I reject the null hypothesis of perfect labor market integration, finding that in both subsamples firms hire locally nearly three times more often than expected if geography plays no role in the matching process.

These estimates of the local hiring bias are conservative and should serve as a lower bound for segmentation in executive labor markets and U.S. labor markets, more generally. Using "selected" measures of CEO geography, such as places of college attendance, recent residences, or places of past employment, should all result in much larger estimates of segmentation. International segmentation is also likely to be much larger since the estimates in this intranational study remove the effects of segmentation due to factors such as language differences and immigration barriers. In fact, the data show that 91% of U.S. firms hire American CEOs. Since only approximately 4.4% of the world population is American, this suggests an enormous home bias (approximately 20 times random).[33]

Asking why segmentation exists in the CEO labor market, I propose five theories. They include agency conflicts, search costs, soft information, local skills, and managerial geographic preferences. I judge the merits of these theories by testing their implications for turnover, compensation, and performance. I find that unforced turnover and compensation are lower for locals than nonlocals, but that there is no difference in performance between firms run by locals and nonlocals. So although there is at least some evidence for each of the theories investigated and admittedly none of the tests are perfect in isolation, the results do favor some theories of segmentation over others. For instance, although the results of nearly all tests are consistent with the predictions of the existence of manager geographic preferences, many tests are also consistent with costly search, and there is little evidence supporting the agency theory of local segmentation. To some degree, the importance of geographic preferences of CEOs for CEO labor markets is intuitive. Given that CEOs are highly paid, the marginal utility that they derive from additional pay is likely low. This means that utility acquired from other sources (like preferred geographic location) can be extremely valuable.

I then examine one of the main implications of segmentation for executive compensation: local labor market factors should affect CEO compensation. Consistent with several other studies, I find that they do. Executive compensation is positively related to local outside options of the CEOs. Moreover, local labor market factors only affect the compensation of local CEOs, which is consistent with local managers considering only local positions. This finding is important. Previous papers vilify CEOs, interpreting the loading of executive compensation on local labor market factors as evidence of the influence of social pressures or CEO envy (Ang et al. 2013, Bouwman 2013). Direct evidence in this paper suggests that this empirical finding likely results from more rational foundations.

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## Appendix

**Table A.1.** Variable Definitions

| Variable | Definition | Source |
|---|---|---|
| CEO characteristics | | |
| *CEO state of origin* | The state in which the CEO's social security card was issued | LexisNexis |
| *LocalCeo* | A dummy variable that equals one if the CEO's state of origin matches the state in which the firm is headquartered and the CEO is not foreign (see *ForeignCEO*) | LexisNexis |
| *PrevLocalCeo* | A dummy variable that equals one if the previous CEO's state of origin matches the state in which the firm is headquartered and the CEO is not foreign (see *ForeignCEO*) | LexisNexis |
| *ForeignCeo* | Any CEO who received a social security card after 21 years of age | LexisNexis |
| *InsideHire* | A dummy variable that is equal to one if the CEO worked for the firm for more than two years before being hired as CEO | ExecuComp |
| *Age60Dum* | A dummy variable that is equal to one if the CEO is older than 59 years | ExecuComp |
| *CeoChair* | A dummy variable that equals one if the CEO is chairman of the board | RiskMetrics |
| *Founder* | A dummy variable that is equal to one if the CEO is a founder of the firm | Fahlenbrach (2009) |
| log(*CeoAge*) | The natural logarithm of CEO age | ExecuComp |
| *FemaleCeo* | A dummy variable that is one if the CEO is female | ExecuComp |
| *CeoGAI* | The general ability index of the CEO | Custodio et al. (2013) |
| *SameStateCEO* | A dummy variable that equals one if the CEO's state of origin matches the state in which the firm is headquartered | |
| CEO compensation | | |
| *TotalComp* | Total compensation in (thousands of 2003 $), which includes salary, bonuses, restricted stock grants, and the Black–Scholes value of stock option grants | ExecuComp |
| Firm characteristics | | |
| *Headquarters location* | Historical location of firm headquarters determined using SEC filings | Compact Disclosure |
| *Assets* | The natural log of the book value of assets (millions of 2003 $) | Compustat |
| *RD* | R&D expenditures/lagged assets; missing values are substituted with zero unless indicated | Compustat |
| *Q* | Tobin's *Q* – (assets – book equity + market value of equity – deferred taxes)/assets | Compustat |
| *ROA* | Return on assets – operating income before depreciation/lagged assets | Compustat |
| *FirmExRet* | Buy-and-hold return on the firm's stock for the fiscal year minus the return on the equal-weighted portfolio return of the firm's industry (by two-digit SIC code) | CRSP |
| *IndExRet* | Industry excess return—the difference between the fiscal year buy-and-hold return of the equal-weighted industry portfolio for which the firm is a member (by two-digit SIC code) minus *MktRet* | CRSP |
| *MktRet* | Buy-and-hold return on the CRSP value-weighted index for the firm's fiscal year | CRSP |
| *StockVol* | Standard deviation of the firm's daily stock return over the fiscal year | CRSP |
| *FirmAge* | Fiscal year minus founding year | Loughran and Ritter (2004) and Fahlenbrach (2009) |
| *Dividend* | A dummy variable that is equal to one if the firm pays a dividend during the fiscal year | Compustat |
| *Capex* | Capital expenditures/lagged assets | Compustat |
| *CapIntense* | Net property, plant, and equipment/sales | Compustat |
| *SalesGrwth* | Current sales/lagged sales −1 | Compustat |

**Table A.1.** (Continued)

| Variable | Definition | Source |
|---|---|---|
| Board characteristics | | |
| *PctOutsideDir* | The percentage of outsiders on the board | RiskMetrics |
| *OutsideDir-OwnDum* | A dummy variable that equals one if the outside directors on the board cumulatively own at least 1% of the firm and is zero otherwise | RiskMetrics |
| Geographical | | |
| *FirmHQPct Clear* | The average percentage of clear days per year in the city of the firm headquarters | National Climatic Data Center |
| *PctPop* | The state's percentage of the U.S. population 36 years before the hiring decision | 1960, 1970 U.S. Census |
| log(*MedHmVal*) | The natural log of the median home value in 2004 in the county in which the firm is headquartered | United States Census Bureau (2004) |

*Notes.* This table provides definitions of variables used in the study. All accounting variables and CEO compensation variables are winsorized at the 0.50% level in both tails. Variable names are given in the first column, definitions are provided in the second column, and the data source is provided in the third column.

**Table A.2.** Local Hires by Industry

| SIC code | Industry description | Percent local | No. of obs. |
|---|---|---|---|
| 44 | Transportation by water | 66.7 | 3 |
| 70 | Hotels and other lodging places | 66.7 | 3 |
| 22 | Textile mill products | 50.0 | 10 |
| 24 | Lumber and wood products | 50.0 | 10 |
| 99 | Conglomerates | 50.0 | 4 |
| 23 | Apparel and other textile products | 45.5 | 11 |
| 30 | Rubber and miscellaneous plastic products | 45.5 | 11 |
| 55 | Auto dealers and service stations | 44.4 | 9 |
| 75 | Auto repair, services, and parking | 42.9 | 7 |
| 25 | Furniture and fixtures | 40.0 | 10 |
| 52 | Building materials and gardening | 40.0 | 5 |
| 79 | Amusement and recreation services | 40.0 | 10 |
| 72 | Personal services | 37.5 | 8 |
| 48 | Communications | 34.6 | 26 |
| 39 | Miscellaneous manufacturing products | 33.3 | 9 |
| 47 | Transportation services | 33.3 | 3 |
| 50 | Wholesale trade–durable goods | 32.3 | 31 |
| 58 | Eating and drinking places | 30.4 | 23 |
| 27 | Printing and publishing | 29.6 | 27 |
| 56 | Apparel and accessory stores | 29.4 | 17 |
| 42 | Trucking and warehousing | 28.6 | 7 |
| 80 | Health services | 27.8 | 18 |
| 26 | Paper and allied products | 26.7 | 30 |
| 31 | Leather and leather products | 25.0 | 4 |
| 33 | Primary metal industries | 23.8 | 21 |
| 28 | Chemical and allied products | 23.7 | 97 |
| 73 | Business services | 23.2 | 142 |
| 57 | Funiture and home furnishings | 23.1 | 13 |
| 59 | Miscellaneous retail | 22.6 | 31 |
| 20 | Food and kindred products | 22.0 | 41 |
| 35 | Industrial machinery and equipment | 21.0 | 105 |
| 13 | Oil and gas extraction | 20.0 | 30 |
| 37 | Transportation equipment | 20.0 | 45 |
| 82 | Educational services | 20.0 | 5 |
| 51 | Wholesale trade–nondurable goods | 18.8 | 16 |
| 34 | Fabricated metal products | 18.2 | 22 |
| 38 | Instruments and related products | 17.5 | 63 |
| 36 | Electronic and other electrical equipment | 17.2 | 116 |
| 10 | Metal mining | 16.7 | 12 |
| 16 | Heavy construction, except buildings | 14.3 | 7 |
| 45 | Transportation by air | 10.0 | 10 |
| 53 | General merchandise stores | 5.9 | 17 |
| 12 | Bituminous coal mining | 0.0 | 1 |
| 14 | Mining nonmetal minerals | 0.0 | 2 |
| 15 | General building contractors | 0.0 | 4 |
| 21 | Tobacco products | 0.0 | 3 |
| 29 | Petroleum and coal products | 0.0 | 6 |
| 32 | Stone, clay, and glass products | 0.0 | 3 |
| 40 | Railroad transportation | 0.0 | 5 |
| 41 | Transit and passenger transit | 0.0 | 2 |
| 54 | Food stores | 0.0 | 7 |
| 78 | Motion pictures | 0.0 | 1 |
| 87 | Engineering and management services | 0.0 | 19 |

*Notes.* This table reports the percentage of local hires by two-digit SIC code for the sample of 1,142 hiring decisions of nonregulated S&P 1500 firms followed by the Execucomp database from 1998 through 2007. The definition of "local" CEOs is found in the appendix and in Table 1.

## Endnotes

[1] See, for example, Fee et al. (2013) and Karolyi (2013).

[2] See, for example, Kedia and Rajgopal (2009), Almazan et al. (2010), and Landier et al. (2009); for a review, see Pirinsky and Wang (2010).

[3] See Bertrand and Schoar (2003), Malmendier and Tate (2005, 2008), Malmendier et al. (2011), and Cronqvist et al. (2012).

[4] Murphy and Zabojnik (2004, 2007) provide a partial equilibrium model where the firm's production function depends on the degree of general or specific managerial talent.

[5] Cohen et al. (2008, 2010) provide evidence of the private benefits enjoyed by mutual fund managers and equity analysts derived from their social ties to corporate boards and corporate officers.

[6] This has also been noted in the financial press: a *Wall Street Journal* article listed "North Carolina native might please board" as a pro for John J. Mack when listing the pros and cons for CEO candidates of Charlotte-based Bank of America (Corkery 2009).

[7] This argument is similar to that made in the literature on compensation for firm-specific and general human capital. Custodio et al. (2013) show that CEOs with more general skills are compensated more.

[8] Kaplan and Rauh (2010) report that the median total compensation in 2004 for CEOs of nonfinancial firms was $2.54 million, which is nearly 57 times the $44,684 U.S. median household income reported by the United States Census Bureau (2004). This suggests that moving costs as a percentage of wealth for CEOs are negligible compared to the typical American family.

[9] This idea is closely related to the theory of compensating wage differentials, which was first conceived by Adam Smith over 200 years ago and "…suggests that jobs with disagreeable characteristics will command higher wages, other things equal…" (Smith 1979, p. 339).

[10] Building on findings from this paper, Deng and Gao (2013) provide evidence of this, showing that "quality of life" matters for CEO compensation.

[11] Although the Social Security Administration provides a disclaimer on their website stating, "…the Area Number does not necessarily represent the State of residence of the applicant…," Bernile et al. (2017) independently collect data on CEO birth county and match it to CEO state of origin based on social security issuance. They find that 75% of birth counties of CEOs match their social security issuance state. Of course this is a lower bound on the accuracy of the social security measure since some CEOs likely moved from the time of their birth until they procured their social security cards.

[12] Currently, the tax code requires children over one year of age (passed in 1990) to have a social security number in order to be claimed as a dependent on their parents' tax return, and between 1986 and 1990 this requirement was for children over the age of five.

[13] Details of how hiring decisions are identified are found in the appendix.

[14] Although previous research has used distance to measure local biases, the data on CEO origin reveal only the state of origin. See Coval and Moskowitz (1999b) for an example of a measure of "local" that involves distance. Landier et al. (2009) use a measure of distance when state is the finest proxy by choosing the geographic center of the state, but their main analysis focuses on an analogous same-state measure. In addition to the subsequent analysis, I also estimate the hiring home bias using U.S. Census divisions and regions to define local hires. Under both measures of local hires a significant hiring home bias is estimated.

[15] Thirty-six years before the hire was chosen because the median CEO at the time of hire is 52 years old and the median age when the CEOs in the sample obtain their social security cards is 16 years of age. The difference is 36 years and so the probabilities measure the probability that the firm selects a CEO of median hire age, who procured a social security card at the median age in the sample.

[16] To see this, realize that if a large number of the firms in the sample are from states where the expected number of CEOs growing up in those states is assumed to be too low, then these states will receive greater weight in the estimation of the hiring home bias.

[17] See Parrino (1997), Borokhovich et al. (1996), Agrawal et al. (2006), Murphy and Zabojnik (2007), and Frydman (2007).

[18] See Anderson and Reeb (2003), Pérez-González (2006), and Villalonga and Amit (2006).

[19] Since descendant CEOs are likely to have worked for the family business in some capacity before becoming CEO, controlling for internal hires controls for descendant CEOs. The methodology for categorizing CEOs as internally or externally hired is outlined in the appendix.

[20] Of the 367 external hiring decisions, I am able to identify whether the CEO was hired from within the industry (by two-digit SIC code) in 185 (50.4%) of the cases. Of the 185 hiring decisions, 121 (65.4%) are categorized as external to the industry. The methodology used for identifying within-industry hires is described in the appendix.

[21] Two other empirical specifications have been used by the literature to estimate similar decisions. Borokhovich et al. (1996) use a bivariate probit model that adjusts for the selection bias of only observing the boards preference for CEOs when turnover occurs, and Parrino (1997) and Agrawal et al. (2006) use a multinomial logit specification. In unreported analysis I estimate each of these models. For the bivariate probit I find that the coefficient estimates are nearly identical to those of the probit specification and I fail to reject that the equations are independent. For the multinomial logit specification, I include as choices the four combinations of internal and local hires. The main results are unaltered using this empirical specification.

[22] As expected, for each of the specifications, the estimated marginal effect of this variable is significantly positively related to the probability of hiring locally. In an unreported specification, I include state fixed effects instead of *PctPop*. All estimated marginal effects remain similar except for the estimate on *FirmHQPctClear*, which is not statistically different from zero. This is not surprising since in many states there is little variation in sunshine between cities where firms locate.

[23] In unreported results I try several other variables to proxy for firms in which managerial input may be more productive. They include the number of business segments, percentage of foreign sales, and a multinational dummy. None of the marginal effects on these variables are significantly estimated.

[24] See the online appendix for the calculation and discussion on the use of this variable. Other measures of geographic desirability give similar results. These include median county real estate prices and state emigration.

[25] The data are available on Camelia Kuhnen's website (http://public.kenan-flagler.unc.edu/faculty/kuhnenc/RESEARCH/eisfeldt_kuhnen_CEO_turnover_data.txt).

[26] Although there is considerable debate in the literature as to whether unforced turnover events are truly unforced, I am agnostic on this issue. The tests can be informative as long as the events in the unforced pool are relatively less forced than the "forced" events.

[27] The results are unchanged using fixed effects for the state in which the firm is headquartered to control for differences in the cost of living.

[28] Data on the CEO general ability index are from Custodio et al. (2013), who show that CEOs with more general skills are paid more.

[29] The only difference between this variable and *LocalCeo* is that for this measure *SameStateCeo* can take a value of one for foreign CEOs, whereas for *LocalCeo* the value is zero.

[30] One concern may be that nonlocally hired CEOs receive relocation expenses, whereas locally hired CEOs do not, and this is what accounts for the difference in first-year pay. The main results are nearly unchanged when removing bonus from total compensation, which is typically the component of pay where relocation costs are reported (unreported).

[31] Another implication is that local CEOs may manage their firms systematically differently than nonlocals. Yonker (2013) provides evidence that, following times of industry distress, local managers implement labor-friendly policies relative to their nonlocal peers. Locals are much less likely to cut employment and instead spend company cash and reduce investment to weather bad times.

[32] Distances are computed using the zipcitydistance function in SAS, which computes the linear distance between the geographic centers of zip codes.

[33] Those trying to explain the dramatic differences in pay practices across countries have proposed segmentation as a contributing factor, but there is no systematic evidence to date on the degree of international segmentation (Thomas 2009).

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