

Still the same: New venture job creation and workforce segregation.*

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ABSTRACT

We propose that new ventures create jobs but also accentuate workforce segregation because demographically-similar people typically found and then shape the evolution of new organizations. Focusing specifically on the tendency of new venture personnel to have worked for the same prior employer (e.g., spinoffs), we analyze the evolution of 280 Danish municipalities' workforces and two national cohorts of new ventures from 1996 to 2008. Several findings support our arguments. First, the gender and ethnic segregation of a community's workforce increases with the proportion of local workers employed by new ventures. Second, new ventures are less demographically diverse than established organizations and this is especially true of new ventures staffed by personnel who worked for few prior employers. Third, new ventures tend to maintain demographic homogeneity through differential retention, as opposed to differential hiring. We discuss implications for entrepreneurship research as well as public policies that promote entrepreneurship to create jobs.

1. INTRODUCTION

Every year many jobs are created by new and young organizations – “new ventures” (Haveman 1995; Decker, Haltiwanger, Jarmin, and Miranda 2014). Policymakers accordingly encourage entrepreneurship and economists analyze new venture contributions to employment and to economic growth (e.g., Davis, Haltiwanger, and Schuh, 1996; Haltiwanger, Jarmin, and Miranda, 2013; Wennekers and Thurik, 1999). In parallel, much organizational research investigates founding and growth processes to understand how new ventures match people to newly-created jobs (e.g., Ruef, Aldrich, and Carter 2003; Baron, Hannan, and Burton, 1999; 2001; Beckman, Burton, and O’Reilly, 2001; Beckman and Burton, 2008). These research streams inspire our manuscript’s core proposition: new ventures create jobs but also fill jobs in ways that accentuate the gender and ethnic segregation of a community’s workforce.

This claim is rooted in research that demonstrates how new ventures are often founded by people who know each other well and, like most close associates, are typically similar in terms of gender, education, ethnicity, occupation, and prior employment (McPherson, Smith-Lovin, and Cook 2001; Ruef, et al., 2003). New ventures facing liabilities of newness and smallness fill vaguely-defined roles with personnel who are familiar with each other (Freeman, Carroll, and Hannan, 1983; Ruef 2010). As prior studies demonstrate, common prior employment experiences often provide such familiarity (e.g., Eisenhardt and Schoonhoven 1990; Burton, Sørensen, and Beckman 2002; Beckman, 2006). For example, one particularly vibrant area of research examines spinoffs – new ventures started by former employees of the same organization (see Klepper, 2009). More generally, “co-worker” is the most common relationship among new venture co-owners who are neither family nor friend (Ruef, 2010: 83, 103). We, therefore, structure our argument and analysis to explicitly link established organizations to new ones through new venture personnel management.

Prior research (Ruef, at al., 2003: 218) notes that “new organizations can reproduce and challenge the existing social order” or, alternatively, “exacerbate the already strong tendencies toward homophily in social relationships.” Although new ventures redistribute a community’s workers across employers, we expect that – for two reasons – new ventures instead exacerbate workforce segregation – the tendency of

demographic groups to be distributed unevenly across employers (Reskin, McBrier and Kmec, 1999). First, the established organizations from which new venture personnel are drawn consist of individuals who are more demographically similar than residents of the communities in which they operate (e.g., McPherson and Smith-Lovin, 1987). Second, as noted above, new ventures are initially staffed by demographically similar associates. Established organizations, therefore, expose employees to a demographically-limited set of co-workers with whom they are likely to form demographically-similar relationships that facilitate founding (McPherson and Smith-Lovin, 1987; Ruef, et al., 2003: 218; Audia and Rider, 2005; Ruef, 2010). Despite the potential to alter workforce demography, new venture job creation maintains and even accentuates workforce segregation

We further argue that segregating influences are exacerbated by the tendency of new ventures to be staffed by people who typically worked for few prior organizations. Our arguments square well with anecdotal evidence. For example, the “Traitorous Eight” white men who founded Fairchild Semiconductor worked together at Shockley Semiconductor Laboratory before starting their new venture. Although more racially and ethnically diverse than the Traitorous Eight, the “PayPal Mafia” consists entirely of men who worked together at PayPal before founding other new ventures – several with each other. Though plausible and consistent with anecdote, our arguments are not yet supported by direct empirical evidence despite clear implications for individuals, organizations, and communities (e.g., Reskin, et al., 1999: 344-353).

In this study, we develop the testable proposition that the gender and ethnic segregation of a community’s workforce is increasing with the proportion of community workers who are employed by new ventures. Although emphasizing new ventures, we highlight the important role of established organizations in this process by focusing on an organizational tendency more general than the spinoff phenomenon: organizations often embed employment in members’ prior employment networks to alleviate labor market information asymmetry (e.g., Fernandez and Weinberg, 1997; Rider, 2012). Two primary observations inform our focus on prior employment affiliations. First, outside of kinship and friendship, shared prior employment experiences are the most common relational basis for founding

teams (Ruef, 2010). Second, we assume that laws and norms at least alleviate, if not eliminate, employment discrimination based on gender and ethnicity. Prior employment affiliations are, therefore, a plausible employment criteria that could segregate a community's workforce along the lines of gender and ethnicity even in the absence of taste-based discrimination (Becker, 1957).

Founding demography can be altered by subsequent attraction, selection, and attrition dynamics that can increase, maintain, or decrease demographic homogeneity (e.g., Ruef, et al., 2003; Schneider 1987; Baron, Hannan, and Burton 1999, 2001; Baron and Hannan 2002). But, social categorization theory (Turner, et al 1987) and similarity-attraction theory (Berscheid and Walster, 1978; McPherson, et al. 2001) imply that founding homogeneity will persist if shared prior employment is a functionally-relevant and commonly-used basis for similarity judgments (e.g., O'Reilly, Caldwell, and Barnett 1989; Williams and O'Reilly 1998; Sørensen 2000, 2004). For example, new ventures might hire and/or retain individuals who are similar to current employees at higher rates than dissimilar ones (Phillips 2005; Beckman and Burton 2008; Ferguson, Cohen, Burton, and Beckman 2016; Sørensen 2004; Phillips 2005; Burton and Beckman 2007). Our analyses, therefore, disentangle hiring and retention mechanisms while accounting for headcount changes in a new venture's early years.

To test our arguments, we first analyze national and municipality-level employment data from Denmark between 1996 and 2008. We demonstrate that a focal community's workforce is more segregated in terms of gender and country of origin (a proxy for ethnicity) when a greater percentage of the community's workforce is employed by new ventures, as defined by age and/or size criteria. We then turn to organization-level analyses of demography and underlying hiring and retention processes based on prior employment affiliations to explicate segregating mechanisms.

We analyze two national cohorts of over 2,357 new ventures founded in Denmark in either 1996 or 1997 through 2008. To model how new venture demography evolves with hiring and attrition, we compile 10-year, pre-venture career histories for all 30,097 individual personnel of these ventures between 1996 and 2008. We document that new ventures are typically more homogenous – with respect to prior employer, gender, and country of origin – than established organizations are. Our analyses reveal

path dependence – current homogeneity of prior employers is increasing with homogeneity at founding – and also that homogeneity decreases with cumulative hiring but increases with cumulative attrition. We infer that, with respect to members’ prior employers, demographic persistence in new ventures is more attributable to the successful integration of similar new hires (i.e., differential retention) than it is to the successful recruitment and selection of similar individuals (i.e., differential hiring).¹

To probe our claim that embedding employment relationships in members’ prior employment affiliations contributes to workforce segregation, we analyze our data to establish two empirical facts. First, new ventures staffed by members with few prior employers are more homogenous with respect to gender and ethnicity than similar ventures staffed by members with many prior employers. Second, new ventures initially staffed by members with few prior employers tend to be founded in communities with relatively higher degrees of workforce segregation. We infer that the tendency to embed employment in the prior employment affiliations of new venture personnel is intertwined with workforce segregation.

We offer several contributions to organizational theory. First, our study is the first to explicitly propose and establish a relationship between new venture job creation and community workforce segregation. Second, we attribute this relationship to a common organizational employment tendency that is indirectly related to – but also intertwined with – gender and ethnicity (i.e., embedding employment in members’ prior employment affiliations). Third, we analyze both hiring and attrition mechanisms for all new venture personnel, as opposed to previous studies of established organizations that focus on a single mechanism or on top management (e.g., Cohen, Broschak, and Haveman 1998; Sørensen 2000, 2004; Elvira and Cohen 2001; Boone, et al. 2002; Beckman, Burton, and O’Reilly 2007; Boone and Hendriks 2009; Eesley, et al. 2014; Ferguson, et al. 2016). We conclude by discussing implications for studies of workforce segregation and new venture performance as well as public policies that promote entrepreneurship as a job creation vehicle.

¹ With respect to hiring and retention, we use the adjective “differential” as Sørensen (2004) does – to indicate that the rate of the respective variable varies systematically with a particular demographic variable (e.g., prior employer).

2. THEORY DEVELOPMENT

2.1. Workforce Segregation

Organizations are typically composed of individuals who are more demographically similar than people in surrounding communities (e.g., McPherson and Smith-Lovin 1987; Popielarz and McPherson 1995). For example, analyses of nationally representative U.S. employment data document that 50 percent of organizations are staffed by less than 10 percent racial minorities and that many organizations are predominantly male or predominantly female (Reskin, et al. 1999: 337). Such observations are consistent with McPherson and Smith-Lovin's (1987) classic study of homophily in voluntary organizations, which found that demographic differences were lesser for members of the same organization than for members of the broader community in which those organizations operate. In short, established organizations are not particularly diverse.

This uneven distribution of demographic groups across employers – “workforce segregation” – is typically attributed to the ways in which supply and demand mechanisms influence how organizations match people to jobs (Baron and Bielby, 1980; Sørensen and Kalleberg, 1981; Baron, 1984; Bielby and Baron, 1986; Williams and O'Reilly 1998; Reskin, et al. 1999; Rubineau and Fernandez 2013; 2015). Although workforce segregation is a “pervasive feature of modern labor markets” (Sørensen 2004: 626), prior research primarily examines *established* organizations' contributions to workforce segregation, neglecting the many jobs created annually by new ventures that can alter a community's workforce demography by redistributing people across employers (Haveman 1995; Ruef, et al., 2003; Decker, Haltiwanger, Jarmin, and Miranda 2014). Prior founding research suggests that organizations start homogenous and remain so as they evolve – years after founding organizations are still largely the same, demographically-speaking. We review this literature below to motivate our core theoretical proposition.

2.2. Founding Team Familiarity and Workforce Segregation

New organizations are risky endeavors that necessitate trust among initial personnel (Stinchcombe, 1965). Accordingly, new ventures are often founded by close associates who are familiar

and similar to each other. For example, Ruef et al. (2003) analyze a large representative sample of U.S. new ventures and find that founding teams are largely composed of individuals with strong ties (e.g., kin, spouses, partners) and also similar in terms of gender, ethnicity, and occupation. Another analysis of the same data revealed that only 10 percent of founders are strangers to each other (Aldrich, Carter, and Ruef 2002). Familiarity tends to dominate complementarity. For example, Ruef, et al., (2003: 217) observe that, “Even in a situation where we might reasonably expect stringent economic rationality to prevail – and thus lead to choices based on the functional diversification of achieved characteristics – we find that [*founding*] team composition is driven by similarity, not differences.”

People can be similar along numerous dimensions, but representative samples of U.S. entrepreneurs indicate that prior employment experience is a typical basis for similarity among new venture personnel. For example, the most common relationship among new venture co-owners who are neither family nor friend is “co-worker” (Ruef, 2010). Similarly-experienced founding teams share organizing models that facilitate collective action in pursuit of important organizational objectives (Beckman 2006). Shared experiences with organizational models are, therefore, a common mechanism by which established organizations shape entrepreneurial activity (Freeman, 1986; Philips, 2002).

Because shared prior employment experiences enable individuals to become familiar with each other, new organizations are often founded by former co-workers as “products” or “spinoffs” or “spawns” of established organizations (Freeman, 1986; Klepper and Sleeper 2005; Chatterji, 2009; Klepper, 2009). For example, one study found that almost 22 percent of all new Danish firms were founded by teams in which 50 percent or more of founding team members were previously employed in the same workplace (Eriksson and Kuhn, 2006). Another economy-wide study estimated that approximately one-sixth to one-third of all new Brazilian new ventures – depending on the definition of “spinoff” – are spinoffs of established organizations (Muendler, Rauch, and Tocoian, 2012).

Given the demography of established organizations and founding team tendencies (McPherson and Smith-Lovin 1987; McPherson, et al. 2001; Ruef, et al., 2003; Ruef, 2010; DiMaggio and Garip 2012), we think that established organizations induce homophily in new venture founding personnel by

structuring opportunities for demographically-similar co-workers to become familiar with each other. We also think that individuals further choose homophily in forming new ventures with demographically-similar co-workers at higher rates than demographically-different ones. In other words, it seems likely that the Traitorous Eight and the PayPal Mafia are fairly representative of new ventures in terms of the prevalence of a few prior employers and demographic similarity.

Embedding new venture work relationships in prior employment affiliations might enhance a new venture's survival chances, as social capital theory implies that familiarity among founders facilitates effective communication and fosters trust in adverse situations (Coleman 1988; Burt 2000). For example, one study demonstrated that law firms founded by personnel employed by multiple prior employers were more likely to fail than those founded by former employees of a single prior employer (Phillips, 2002). Yet, other research implies that a new venture's success chances are enhanced by filling jobs with people from many prior employers (e.g., Beckman, 2006; Beckman, et al. 2007). But, many new ventures do not survive long enough to do so. It is, therefore, imperative to investigate how new venture demography evolves post-founding as the initial emphasis on familiarity is counterbalanced by perceived needs for complementarity in perspective and skill noted by Ruef, et al. (2003). At this point, we simply acknowledge that jobs created by new ventures are often filled by people who previously worked for the same organization.

For such tendencies to contribute to workforce segregation it must be the case not only that established organizations are less diverse than the communities in which they operate but also that new ventures reproduce the demographic composition of their members' prior employers. Evidence of the former is provided by McPherson and Smith-Lovin's (1987) study of voluntary organizations: organizations do tend to be less demographically diverse than their local communities. Evidence of the latter is provided by a study of Danish spinoffs that documents statistically significant correlations between parent organizations and spinoff organizations with respect to gender composition, employee wages, education, and work experience (Dahl and Reichstein, 2007). In other words, a new venture tends to be similar in demographic composition to the prior employers of their personnel. Moreover, studies

that document demographic similarity among founding teams suggest that new ventures will be even less demographically diverse than their member's prior employers (e.g., Ruef, et al., 2003).

That founding teams are composed of known and trusted associates might be unsurprising; much economic life is embedded in such associations (Granovetter, 1985; DiMaggio and Louch 1998). Despite Stinchcombe's (1965: 149) expectation that "new organizations must rely heavily on social relations among strangers" many new ventures start and remain homogenous (e.g., (e.g., Ruef, et al., 2003; Beckman and Burton 2008; Ruef, 2010; Ferguson, et al. 2016). If new ventures are often founded by close and demographically similar associates who previously worked for the same organization and new ventures also maintain homogeneity as they evolve, then we should expect a systematic relationship between new venture employment and the segregation of a community's workforce. This logic motivates the general proposition below.

Proposition 1: The segregation of a community's workforce is increasing with the proportion of local residents employed by new ventures.

2.3. Founding Imprints

Although new ventures tend to start with demographically similar personnel, it is possible that they evolve towards greater heterogeneity. But, organizational theory implies that organizations are imprinted by founding conditions and that, furthermore, key founding features are retained over time. Weber (1958) argued that bureaucracy emerged as a rational solution to the challenge of organizing work in industrial societies and that this form of organization was so resistant to change that "Iron Cage" was an appropriate metaphor for the persistence of founding characteristics over time. Stinchcombe (1965) extended this idea by noting more explicitly that organizations are imprinted by society at founding. A historical study of U.S. industries also found that industry-wide personnel practices were imprinted by conditions at industry founding (Baron, Jennings, and Dobbin, 1988). Founding features, therefore, persist because survival depends upon reproducing reliability and accountability (Hannan and Freeman, 1984; Hannan, Baron, Hsu, and Koçak 2006).

With respect to personnel, imprinting research demonstrates strong persistence in founding structures and organizational policies governing attraction, selection, and attrition. These “employment models” establish bases of personnel attachment, coordination, control, and selection (Baron, Hannan, and Burton 1999). For example, studies of Silicon Valley startups find that initial employment models exert enduring influences on bureaucracy (Baron, Burton, Hannan 1999; Baron, Hannan, Burton 1999) and that changes to the model increase employee turnover rates (Baron, Hannan, Burton 2001) and organizational failure rates (Hannan, et al 2006). New ventures likely source personnel from familiar established organizations that are lesser in number than those that could provide suitable labor.

Several studies speak even more directly to the enduring imprint of founding conditions on organizational demography. One longitudinal study establishes that law firms exhibit gender inequality similar to that exhibited by founders’ prior employers, ostensibly because founders rely upon personnel practices obtained from prior work experience (Philips, 2005). In another longitudinal study, Burton and Beckman (2007) introduce the concept of “position imprints” – characteristics of a position’s initial occupant serve as a template for future occupants of that position. They find that turnover rates for a given position are decreasing to the extent that the current occupant is similar to the initial occupant. Another study of two IT firms found that employees performed better when the current level of organizational munificence was similar to munificence levels when they joined the firm (Tilcsik 2014). These studies imply that founding conditions imprint a new venture and govern its evolving demography through hiring, evaluation, and retention mechanisms.

Our theoretical arguments aim to account for two empirical facts established by prior work. First, new organizations are typically founded by similar people (e.g., Ruef, et al. 2003). Second, established organizations are typically staffed by similar people (e.g., Reskin, et al. 1999). In combination, the literatures on founding teams and on workforce segregation indicate that founding homogeneity persists. We, therefore, offer a testable hypothesis that serves as a theoretical scope condition and then consider how differential hiring and differential retention mechanisms might generate support for that hypothesis.

Hypothesis 1: The more homogenous the initial personnel's prior employment affiliations, the more homogenous the current personnel's prior employment affiliations.

2.4. Differential Hiring and Retention.

A persistent positive correlation between founding homogeneity and subsequent homogeneity could be generated by hiring and/or attrition if one of five conditions is met, all else equal, as a new venture evolves. First, if founding personnel remain with the organization and headcount does not increase then founding homogeneity will persist. Second, if organizations hire candidates similar to employees at higher rates than candidates dissimilar to employees then homogeneity will persist or increase (e.g., Ruef, et al., 2003: 218). Third, if organizations retain similar employees at higher rates than dissimilar employees then homogeneity will also persist or increase (e.g., Sørensen 2004). Fourth, homogeneity could persist if the rate at which similar employees are hired exceeds the rate at which they depart and the respective rates for dissimilar employees do not. Fifth, similarity could persist if the rate at which similar employees are retained exceeds the rate at which they are hired and the respective rates for dissimilar employees do not. Below, we consider these possibilities.

We propose that the effect of cumulative hiring on new venture diversity depends upon whether employees hired earlier or later in a new venture's life cycle are more likely to be similar to current employees. One possibility, based on the complementarity logic proposed by Ruef (2010), is that person-organization fit is a negative function of one's similarity to other employees. For example, some research on technology startups indicates that new ventures benefit from diverse prior employment experiences (e.g., Beckman, Burton, and O'Reilly, 2007).

As new venture roles become more differentiated and diverse perspectives more valuable individuals dissimilar to current employees might, therefore, fit better than those who are similar. If so, then each successive hire reduces homogeneity because subsequent hires are increasingly less likely to be similar to current employees. Also, similar employees will be less valued than dissimilar ones. If so, then similar employees will depart the organization at higher rates than dissimilar ones and each successive departure will reduce homogeneity. This logic motivates two hypotheses.

Hypothesis 2a: Homogeneity of prior employment affiliations is decreasing with the number of employees hired by the organization.

Hypothesis 3a: Homogeneity of prior employment affiliations is decreasing with the number of employees who exit the organization.

2.5. Person-Organization Fit and Founding Imprints

The literature on person-organization fit leads us to expect that founding demography will persist despite the preceding predictions. Although many organizations operate on the belief that certain individuals fit better than others, assessing fit *ex ante* is difficult, costly, and unreliable (Hunter and Hunter 1984; Chatman 1989; Caldwell and O'Reilly 1990). Such assessments are particularly challenging for new ventures because the cultural values that govern attraction-selection-attrition are in flux (Stinchcombe 1965; Schneider 1987; Chatman 1989 1991; Ruef 2010). But, assessment can be simplified: job candidates and employees are likely to be viewed as better fits if current personnel are similar to them or familiar with them.

Two theoretical views inform our empirical expectations. Social categories based on salient demographic indicators frame perceptions of “fit” by defining membership in the in-group or out-group (Turner et al. 1987).² Such distinctions are important because when people interact with similar others (i.e., the in-group) they tend to be more trusting and cooperative, ostensibly because they view each other more positively (Tajfel 1982; Tajfel and Turner, 1986; Flynn, Chatman and Spataro 2001) than when they interact with dissimilar others (i.e., the out-group). Individuals, therefore, feel attachments to organizations in which they can form relationships with similar others (e.g., Tsui, Egan and O'Reilly 1992; Reagans 2010). While social categorization theory implies that people avoid encounters with dissimilar others, the similarity-attraction principle implies that people seek interactions with similar others. Both tendencies offset the complementarity logic to sustain founding homogeneity.

Although organizations may prosper by employing dissimilar individuals, organizations also likely view employment candidates who are similar to current employees as good fits (e.g., Rivera 2012;

² Williams and O'Reilly (1998) and Sørensen (2000 2004) discuss these theories in greater detail. We simply apply similar arguments.

Rivera and Tilcsik, 2016). Such similarity effects could dominate organizational efforts to diversify personnel. First, the initial position-holder's characteristics become de facto criteria for evaluating their successors (Miner 1987; Burton and Beckman 2007). Second, recruiting through employees' networks helps organizations identify good fits (Fernandez, Castilla and Moore 2000; Peterson, Saporta and Seidel 2000; Yakubovich and Lup 2006; Sterling, 2014). Accordingly, organizations tend to employ personnel who share prior education or prior employment backgrounds (e.g., Rivera 2011; Rider 2012; Oyer and Schaefer 2016). Homophily implies that such personnel will be demographically similar (Braddock and McPartland 1987; McPherson, et al. 2001; Reskin, et al. 1999) so that employee-based referrals, in combination with individual self-sorting, maintain homogeneity (Rubineau and Fernandez, 2013; 2015).

As Ruef (2010) implies, founding imprints might preclude a new venture from employing a diverse group of people with complementary skills. Founders and early employees might hire and retain individuals who are similar to current personnel based on the belief that similar individuals fit better than dissimilar ones. This logic motivates two alternative predictions for Hypotheses 2a and 3a.

Hypothesis 2b: Homogeneity of prior employment affiliations is increasing with the number of employees hired by the organization.

Hypothesis 3b: Homogeneity of prior employment affiliations is increasing with the number of employees who exit the organization.

Importantly, Hypothesis 1 might be supported if only Hypothesis 2a or 3a is supported but not both hypotheses. For example, new ventures might diversify personnel through hiring but dissimilar personnel might depart at higher rates than similar personnel. In this scenario, we would infer that differential retention offsets the diversifying effects of hiring. Alternatively, new ventures might increasingly value diverse personnel so that homogeneity decreases with cumulative attrition but increases with hiring. Here, we would infer that new ventures retain diversity but are challenged to diversify personnel by hiring. Our empirical analyses probe these possibilities to better understand how typically homogenous founding teams evolve into fairly homogenous organizations despite perceived benefits of diversifying personnel.

2.6. New Ventures and Workforce Segregation

We propose that one implication of demographic similarity at founding is a positive correlation between new venture employment and a community's degree of workforce segregation. Because we believe that labor market regulations blunt the extent to which gender, ethnicity, or other demographic dimensions govern the employment relationship, we focus on the tendency of new venture employment to instead be governed by prior employment affiliations shared among personnel. Prior employer is a relevant, legal, and easily-observed basis for evaluating the fit of potential employees.

If established organizations induce homophily by exposing employees to demographically-similar co-workers who often join entrepreneurs in founding a new venture (McPherson and Smith-Lovin, 1987; Audia and Rider, 2005), then new ventures founded by personnel with many shared prior employment affiliations contribute more to workforce segregation than new ventures founded by personnel with few such affiliations. We, therefore, consider empirical implications that are consistent with this logic.

First, at the organizational level, gender and ethnic diversity among a new venture's personnel should be positively correlated with the diversity of prior employment affiliations among personnel. In other words, in comparisons of two equal-headcount, new ventures the one with many prior employers among personnel will be more demographically diverse than the one with few prior employers. Second, at the community level, new ventures formed by personnel with few (as opposed to many) prior employment affiliations should be more prevalent in communities that exhibit greater gender and ethnic segregation of the workforce so that there is a positive correlation between a community's workforce segregation and homogeneity of prior employment affiliations among new ventures founded in the community. Although we do not theorize the causal direction of these correlations, we explicitly state two axiomatic hypotheses that would be consistent with our arguments, if empirically supported.

Hypothesis 4a: The more homogenous the prior employment affiliations of a new venture's personnel, the more homogenous the gender demography of its personnel.

Hypothesis 4b: The more homogenous the prior employment affiliations of a new venture's personnel, the more homogenous the ethnic demography of its personnel.

Hypothesis 5a: The more homogenous the prior employment affiliations of a new venture's personnel, the greater the gender segregation of the community's workforce.

Hypothesis 5b: The more homogenous the prior employment affiliations of a new venture's personnel, the greater the ethnic segregation of the community's workforce.

3. Data and Variables

3.1 Data Description

Our data come from three databases maintained by Statistics Denmark. Starting in 1996, *The Entrepreneur Database* records all new businesses registered in Denmark each year. *The Firm Database* consists of all operating businesses in Denmark each year since 1995 and all individuals working in those businesses on a full-time or part-time basis. The Integrated Database for Labor Market Research (*IDA*) is an employer-employee matched panel database that contains detailed firm and personnel data since 1980, enabling us to identify all individuals active in the workforce in a given year and to match current employees to their prior employers.

Community Workforce Sample

To assess the empirical relationship between workforce segregation at the community level and new venture job creation, we extract from the *IDA* database all firms operating in Denmark between 1980 and 2003. Starting in 1980, we identify each firm's first appearance year and consider them to be new ventures for their first five years of operations.³ Given the left censoring issue, we limit the analysis to the period between 1985 and 2003 so that only businesses that appeared in the data after 1980 are identified as new ventures. The sample includes 386,244 firms distributed across 280 municipalities over the observation period, which provides us with 5,246 municipality-years to analyze.⁴

We then identify all individuals working in those firms during the same period, as well as their gender and country of origin. For each firm-year, we compute the percentage of female and of non-

³We also employ an alternative measure of new venture based on age and size as a robustness check.

⁴ Subject to data availability, we observe between 272 and 278 municipalities in each year of the data.

Danish coworkers that a focal individual is exposed to at their place of work. Firms with only one employee are, therefore, not included in our sample. By municipality and year, we then average the percentage of female coworkers for all females F_f and males M_f in our sample. Similarly, we also average the percentage of non-Danish coworkers over all Danish D_n , and non-Danish individuals N_n for each municipality-year in our sample. Finally, we create a measure of coworker segregation for gender SG_i and country of origin SC_i for each municipality, following Hellerstein and Neumark (2008). The formula for this measure is as follows, where i indexes municipalities.

$$SG_i = F_{fi} - M_{fi} \text{ and } SC_i = N_{ni} - D_{ni} ,$$

This measure indicates the extent to which female (non-Danish) workers are more likely than male (Danish) workers to work with other female (non-Danish) workers within a focal municipality. The higher the value, the more segregated are female (non-Danish) workers from male (Danish) workers in the focal community.

We also calculate the municipality-level new venture employment rate for each year. This rate for each municipality j is calculated as follows:

$$r_j = N_{startup}/N_{total}$$

where $N_{startup}$ is the total number of individuals employed by new ventures operating in municipality j and N_{total} denotes the total number of individuals working in the focal municipality-year. This measure can be interpreted as the share of a community's workforce that works for a new venture.

New Venture Sample

For our new venture analyses, we sample two cohort of new ventures founded in 1996 and in 1997, respectively, from *The Entrepreneur Database* because 1996 is the first year of data availability. We rely on *the Firm Database* and *the IDA* to further restrict the sample to organizations that are operational so

that demographic measures can be constructed. Personnel are identified in *the IDA*, which provides their employment histories and demographic data.

The baseline sample includes 2,357 new ventures founded in 1996 or 1997. We follow them until 2008. Consistent with a liability of newness, our cohort exhibits a low survival rate: 50 percent are observed for five years or less and only 5 percent are observed for the entire observation window. For each organization-year, we extract personnel data – headcount, hires, and exits. We provide summary statistics of these variables below.

3.2 Measures

(1) New Venture Homogeneity

Our primary measure of homogeneity for each organization is based on the prior employment affiliations of all personnel, including founders and employees. Each year, we identify all individuals working at the sampled ventures and extract their most recent prior employment records in the past ten years. We then construct the Herfindahl-Hirschman Index (HHI) based on individuals' prior employers using the following equation,

$$HHI = \sum_{i=1}^N \left(\frac{\# \text{ of persons}_i}{N} \right)^2$$

where $i = 1, 2, 3, \dots, N$ denotes any most recent prior employer associated with a new venture's personnel. *No. of persons_i* counts the number of individuals in the current venture who worked for employer i before. The greater this index, the more homogenous are the prior employment affiliations of a new venture's personnel. Hypothesis 1 implies a positive relationship between the initial and subsequent values of this variable.

To ensure that HHI indexes new venture homophily, we impose two restrictions for the calculation. First, we remove individuals who were not associated with any prior employer, as these observations do not contribute to the HHI calculation. Second, we focus on the organization-year observations that had at least two individuals with prior employment affiliation. The final sample for

empirical analysis consists of 1,767 ventures with valid HHI values for both the founding and some, if not all, subsequent years.⁵

Consistent with our arguments and prior research, the sample mean of HHI is 0.415 for the entire observation period, which is slightly lower than 0.551, which is the initial value in the founding years of 1996 and 1997. In other words, new organizations are generally more homogeneous than established ones, at least with respect to the prior employers of new venture personnel. In addition, Figure 1 compares the HHI of new ventures in our sample with that of established organizations in the Danish economy in 1996. New ventures are less diverse than industry incumbents in almost every industry except for knowledge-intensive business services (KIBS). The difference is particularly salient in low-tech businesses and the personal services sectors.

[Insert Figure 1 about here]

(2) New Hires and Exits

The databases enable us to identify all personnel who joined or exited the organization each year. We record an exit event if an individual member previously identified as personnel in the data no longer appears in the data as current personnel. We record a hiring event in the year an individual, who is not identified as personnel in the prior year, appears as a member of the organization. An original variable in the database, *employment status*, allows us to distinguish hiring and exit events from temporary leaves of absence. The mean count of annual hires between 1997 and 2008 is 2.0, and the mean count of annual departures during this period is 1.7. We also construct two variables that index annually-updated counts of cumulative hires and exits, respectively, for each organization. The mean values in our sample are 9.8 for cumulative hires, and 7.2 for cumulative exits.

3.3. Summary Statistics

Table 1 presents descriptive statistics for our baseline new venture sample. Column (1) reports the mean value of these variables in the overall sample, and columns (2) – (7) summarize each variable at

⁵ If the number of individuals employed at a venture decreased to one in a specific year, we exclude from our sample this organization-year observation, but not all observations associated with this venture. Thus, we have an unbalanced panel dataset.

the end of subsequent two-year intervals. The sample becomes smaller in count over time and slightly more diverse in terms of members' prior employers.

[Insert Table 1 about here]

Our data provide three measures of firm size: (1) the cross-sectional count of employees during the November registration period, (2) the count of individuals employed at any point during the last year, and (3) the full-time equivalent count of employees in the last year. Table 1 shows that our sample ventures are fairly small but increase in headcount over time. The average employee counts during the November registration period and during the calendar year are 6.0 and 9.0, respectively. Accounting for part-time status of some employees, the average number of full-time equivalent employees is 4. In the empirical analysis, we use the cross-sectional count of employees during the November registration period as our primary measure of firm size.⁶ Table 1 shows that the size of firms in our sample is increasing steadily over time, from 3.3 in 1996 to 7.9 in 2006.

On average, two people are hired and also two people depart in a given year of observation. Given that the new organizations in our sample are fairly small, founding team members and early employees compose a large proportion of each organization's personnel and this is especially true in each organization's early years. We, therefore, construct a variable that updates the cumulative number of original members (i.e., founders and early employees) who departed from the focal organization since founding. We include this variable in the specification to alleviate the concern that demographic persistence is attributable to repeated inclusion of original personnel in our dependent measure. The value of this variable is less than 3.0 throughout the entire observation period.

Firms included in our sample were founded in three primary sectors: wholesale and retail (42%), construction (21%) and knowledge-intensive business services (13%). We use controls for 16 different industries in the analyses to account for more fine-grained differences across sectors.

⁶ In an unreported sensitivity analysis, we re-estimated all models using the other two size measures and found similar results.

4. Empirical Analysis and Results

4.1 *New venture creation and workforce segregation*

To characterize the relationship between a community's new venture employment rate and workforce segregation we estimate OLS models in which we regress the segregation measures on the community-level new venture employment rate, municipality fixed effects, and year fixed effects. This approach effectively holds constant time-invariant community factors and yearly trends common to all communities. We, therefore, focus on how changes in a community's new venture employment rate are associated with changes in the extent of community-level workforce segregation.

Column (1) of Table 2 presents the baseline relationship between the new venture employment rate and community workforce segregation with respect to country of origin. The result suggests that ethnic segregation of the workforce is increasing with the new venture employment rate until approximately 30 percent of the region's workforce is employed by new ventures, which is about the 95th percentile of the sample distribution on this measure. Similarly, column (3) presents the baseline relationship between the new venture employment rate and community workforce segregation with respect to gender. Gender segregation is increasing with the new venture employment rate until approximately 30 percent of the region's workforce is employed by new ventures. These results remain qualitatively the same when we control for the average age and gross income of the workforce in the municipality (columns 2 and 4). As a robustness check, we ran the same regressions based on a more restrictive definition of new ventures that combined both age (less than five years) and size (no more than 100 employees). Results are qualitatively the same.

[Insert Table 2 about here]

These empirical outcomes are consistent with Proposition 1 – new venture job creation accentuates workforce segregation. According to our argument, this is because (1) established organizations expose employees to demographically similar coworkers with whom they may found new

ventures together, and (2) venture founding based on common prior employment affiliations further exacerbates workforce segregation. The correlations in Tables 3 and 4 provide *prima facie* evidence of this argument.

[Insert Tables 3 and 4 about here]

First, Table 3 shows that new ventures consisting of more members with the same prior employment affiliations at the time of founding (higher *HHI*) tend to exhibit greater homophily in both gender and country of origin, which is measured by the percentage of male or Danish employees in the venture. These results are consistent with Hypotheses 4a and 4b. Moreover, these organizations tend to locate in regions where there exists a higher degree of workforce segregation with respect to these two demographic features, as implied in Table 4. Both tables are consistent with our argument that embedding new venture employment in prior employment affiliations contributes to community-level workforce segregation. These results are consistent with Hypotheses 5a and 5b.

These descriptive statistics also raise the question of what an expected baseline level of workforce segregation is. To establish a baseline, we conducted a simulation in which we randomized individuals' gender and country of origin within our dataset while maintaining the overall percentages of males and Danes. In other words, we maintained aggregate demographic percentages and the organizational size distribution but randomly distributed individuals across organizations. Doing so enables us to estimate the degree of segregation one might expect given workforce demography but independent of the realized matches of people and organizations that, we argue, are influenced by prior employment affiliations.

The randomization is carried out in the following way. First, we assign a random number to each individual in the sample. If the number is smaller than the percentage of males in the actual sample, we recode the person as a male. Otherwise, we treat the person as a female. Similarly, the person is recoded as Dane if their assigned random number is smaller than the percentage of Danes in the actual sample, and as a non-Dane otherwise. We then calculate organization-level percentages of males and Danes based on this random assignment. Finally, we repeat this procedure 100 times and calculate the organizational

mean percentages of males and Danes over these 100 iterations. Because gender and country of origin are randomly assigned to individuals during this process, the observed demographic composition of this simulated sample should be unrelated to these individuals' prior employment affiliations.

Table 5 compares the mean percentages of males and Danes in the simulated sample to those percentages for the main sample. The statistics reported in columns (1) and (2) suggest that women and non-Danes are more concentrated within organizations in the actual sample than in the randomized sample. In columns (3) and (4), we split the sample into two subsamples, based on whether the firm's actual HHI is above or below the sample mean. The purpose of this split is to compare differences in our simulated sample to those in our actual sample for high and low HH firms. If the actual figures are different and the random ones are not, then this pattern is consistent with our argument that prior employment affiliations and demographic homophily are intertwined.

[Insert Table 5 about here]

In the high HHI subsample, we find significantly lower female and non-Dane values in the actual sample than in the randomized sample. In the low HHI subsample, however, this difference is less pronounced. In other words, the extent to which the actual sample is more segregated than the simulated sample in terms of gender and country of origin is largely attributable to the firms with concentrated prior employment affiliations. These results suggest that the tendency of new ventures to be staffed by people who share prior employment affiliations contributes to workforce segregation: new ventures that embed employment in members' prior employment affiliations are less demographically diverse than those that do not. These results strongly support Hypotheses 4a and 4b. We now turn to organizational-level analyses of the underlying segregating mechanisms.

4.2 *The persistence of founding homogeneity in new ventures*

We start by examining the persistence of founding homogeneity in the following equation,

$$HHI_{it} = \alpha_0 + \alpha_1 HHI_{i0} + \alpha_2 Hire_{it} + \alpha_3 Exit_{it} + \gamma X_{it} + \mu T_t + \varepsilon_{it} \quad (1)$$

Here, the dependent variable is an index of organization i 's homogeneity of prior employment affiliation in year t . A higher value of HHI_{it} indicates that personnel working at organization i in year t previously worked for a more homogeneous pool of prior employers.

The key independent variable, HHI_{i0} , measures organization i 's homogeneity of prior employers at the time of founding. $Hire_{it}$ and $Exit_{it}$ are the log of the cumulative hires and exits for organization i from founding until year t , respectively. The covariates X_{it} include controls for firm characteristics in year t , such as firm size that is measured by the number of employees who were employed in the firm during the November registration period, location, the total number of functional roles, the cumulative exits of founders and original employees, and 16 specific industries that are akin to two-digit SIC codes. These 16 industries fall into seven broadly defined industry categories: construction, low-tech intensive business activities, manufacturing, post, telecommunication and transportation, wholesale and retail, and two types of service: (1) knowledge-intensive business services and (2) public and personal services.

We control for geographic location with a Copenhagen indicator variable because new ventures located in the capital region may access a more diverse local labor force than those located elsewhere in Denmark. Because demographic diversity may overlap with functional differentiation, we also count the number of functional roles in the organizations every year and control for this variable in the regression, so that the observed outcome of demographic diversity is less likely to be driven by the structure of the organizations rather than their labor pool.⁷ By controlling for the cumulative exits of founders and original employees, we explore the possibility that organizational demography changes substantially with founder turnover. As all organizations in our sample were founded in the same years (1996 or 1997), we do not control for firm age, but do include a cohort dummy as well as year fixed effects, denoted by T_t to account for otherwise unobserved time-varying influences common to all organizations in a cohort.

⁷ The data provide detailed information about the functional role taken by individuals in the firms. For example, at a four-person firm in wholesale and retail, we could identify the functional roles of the four individuals as general management, internal office work, clerk and cash work, and registration work on the stock of finished products and means of production, respectively.

Column (1) of Table 6 reports the baseline results from our regression of prior employer homogeneity. The estimated sample consists of observations for which there are at least two individuals with prior employment histories.

[Insert Table 6 about here]

Consistent with Hypothesis 1, we find a positive partial correlation between homogeneity at founding and subsequent periods. In an unreported regression, we estimated such correlation by each year and found a consistent and enduring positive relationship between founding demography and demography in subsequent years. But, these results could be produced in two ways. First, the positive relationship may result from zero, or nominal, turnover in organizational personnel. Second, founding team demography may imprint organizations with an employment model that governs subsequent hiring and retention to reproduce similarity over time. We are interested in gauging the plausibility of the second explanation.

We, therefore, include in column (2) of Table 6 the log counts of cumulative hires and exits while also controlling for headcount. In this way, we examine how new venture demography evolves with changes in organizational personnel. Interestingly, column (2) shows that the positive relationship between the founding and subsequent homogeneity becomes insignificant after we take into account hiring and retention, which suggests that founding homogeneity plays a less significant role in determining subsequent homogeneity if hiring and attrition are taken into consideration. The positive estimate of (the log of) cumulative exits suggests that a 100 percent increase in cumulative attrition increases personnel homogeneity by 0.042. This result supports the notion that new ventures sustain homogeneity by retaining demographically similar employees at higher rates than dissimilar ones (supporting Hypothesis 3b). Consistent with Hypothesis 2a, we find that homogeneity of prior employment affiliations is decreasing with cumulative hiring. Given the ventures in our sample are fairly small, a 100 percent increase in cumulative hiring decreases the HHI value of personnel homogeneity by 0.13. This result suggests that founding homogeneity may not be sustained if organizations hire employees sourced from more prior employers as they evolve.

One possible statistical concern about the results presented in column (2) is that the value of HHI mechanically increases with firm size. In other words, even random increases in hiring (attrition) at firms could lead to smaller (larger) HHI observed in our data. To rule out this possibility and investigate further hiring and attrition as the main drives of founding persistence, we conduct another, individual-level analysis to directly examine differential hiring and retention.

Our data enable us to track the mobility of 30,097 individuals, who joined the 2,357 new ventures in our sample at different times, from the year they began working at these organizations until 2008. We record an attrition event in period t if an individual worked at the organization in period $t-1$, but departed in period t to work for another employer, transitioned to unemployment, or exited the labor market. We record a new hire in period t if an individual worked at the organization in period t , but was not employed by the same organization in the previous period.

Although we can identify all individuals at-risk of organizational exit in each time period, we are unable to similarly identify all individuals at-risk of hiring. Therefore, we employ different analytical strategies for exploring differential hiring and retention and our analysis of retention is more robust than our hiring analysis.⁸

4.3 *Differential Retention*

We examine the effect of being associated with a well-represented demographic group within an organization on a member's likelihood of turnover. To measure the extent to which a demographic group is well-represented, we construct three representativeness proxies. As before, we focus on the prior employment affiliations of all venture personnel. Following Sørensen (2004), the first two proxies we construct are the number and proportions of personnel, respectively, who had the same recent employer as the focal member. We also create a third measure, *ingroup*, which equals one if an individual belongs to the most represented demographic group among organizational personnel (e.g., former IKEA employees) and zero if otherwise. The descriptive summary presented in Table 7 shows that, compared to personnel

who stayed, those who left firms are less likely to be in-group members, and also have a smaller number and fraction of colleagues with whom they share the same recent prior employer.

[Insert Table 7 about here]

We do not observe turnover continuously but, rather, within annual intervals. Moreover, in a small number of cases, we observe multiple entries and departures associated with the same individual. Hence, we structure the dataset in the discrete-time format with the focus on an individual's first exit, and perform the discrete-time exit analysis based on the following model.

$$\Pr(\text{Exit}_{ijt}) = \beta_0 + \beta_1 \text{representative}_{ijt-1} + \gamma X_{it} + \delta Z_{jt-1} + \mu T_{ij} + \varepsilon_{ijt} \quad (2)$$

The dependent variable, Exit_{ijt} , equals one if person i left organization j at time t , and zero if otherwise. The variable, $\text{representative}_{ijt-1}$, refers to any of our three proxies for group representation, all of which are measured at time $t-1$.

We first estimate a simple relationship between the representation of an individual's demographic group within the organization and her likelihood of exit, controlling only for the year effects, T_{ij} , where T_{ij} is a vector of year dummies. We then include in the model the individual and organizational factors. At the individual level, covariance X_{it} is a vector that includes demographic and employment characteristics of person i at time t , such as age, marital status, education, nationality together with her employee type (full/part-time), tenure, position, and whether or not she was an original member.. At the organizational level, we control for organizational size, geographic location at time $t-1$ and industry at the founding year, captured by covariance Z_{jt-1} .⁹

Table 8 reports the logit estimates with the most recent prior employment affiliation. We do not use individuals' employment information for a longer period because organizational members may share multiple prior employers in the past, in which case identifying the in-group and the out-groups requires strong assumptions about time decay of organizational identification. To simplify the analysis, we focus on their most recent prior employer. Columns (1) – (3) show that an organizational member is less likely

⁹ We control for industries in the founding year, because firms rarely moved between industries in our data.

to leave the organization if more members share the same recent prior employer as her or if her latest employer is the most represented prior employer among organizational personnel. These results provide the primary support for differential retention.

[Insert Table 8 about here]

In columns (3) – (6), we estimate the full model with controls, as given by equation (2). In all three columns, the estimates on the control variables suggest that turnover is negatively associated with a person's age, being married, and being Danish. A person is also less likely to leave the organization if she has a longer tenure, earns a higher wage, works full time, is an original member, or an employer instead of an employee. The likelihood of employee exit increases with firm size. Higher turnover is also associated with being located in Copenhagen, as opposed to other areas of Denmark.

Moreover, the results reported in columns (4) and (5) show that after controlling for various individual and organizational factors, the negative effect of being in a well-represented demographic group on the likelihood of individual turnover remains unchanged and significant. Based on the estimated coefficients, the result on marginal effects indicates that a focal member's probability of exit is reduced by 0.02 with an additional coworker sharing the same prior employer, or if the fraction of coworkers having the same prior employer is increased by ten percent. These results are consistent with Sørensen's (2004) finding that employees exit at lower rates if they belong to a well-represented demographic group within the organization.

[Insert Table 8 about here]

In column (6), the estimated coefficient on the variable, *ingroup*, retains the negative sign but becomes insignificant. Further investigation suggests that individuals associated with the most popular prior employers are more likely to be full-time members, earn higher wages, and hold important positions in the firm. As indicated by the estimates on control variables, these individuals have a lower tendency to leave the firm. This possibly explains the weaker results we find for the *ingroup* measure of group representativeness, after controlling for employment-related factors.

Sørensen (2004) suggests that organizational demography fluctuates because of the entry and exit of employees. In other words, a person's demographic group becomes more representative within the organization if their demographic group experiences more arrivals than other groups or if other demographic groups experience greater attrition. It is plausible, then, that our cumulative attrition variable in the firm-level analysis inappropriately imposes a monotonic functional form on the attrition-demography relationship. Following Sørensen (2004), we create four variables in each period, which measure the number of departures from or arrivals into the same group as the focal individual, and the number of departures from or arrivals into the different groups, respectively.

A focal person's demographic group in the organization becomes better represented if there is an increase in the same-group hires or different-group exits. Similarly, her demographic group becomes less represented if there is an increase in different-group hires or the same-group exits. Including these variables in the model, results reported in Table 9 consistently show that individuals are less likely to leave the firm if they are from the most representative demographic group in the organization, even after we take into account the expected changes in the representativeness of their group.

[Insert Table 9 about here]

These results suggest that there is probably more than one mechanism that explains how the dynamic change of an organization's demographic composition affects an organizational member's likelihood of departure. On the one hand, one is more likely to leave if her demographic group becomes less representative because of new exits from the same group or new arrivals into the different demographic groups, and vice versa. This mechanism is demonstrated clearly by Sørensen (2004).

On the other hand, one is more likely to leave if more similar individuals work for the organization. This substitution mechanism implies that, a focal member may become more valuable in terms of his human and social capital, and therefore less likely to leave if more people exit from the same demographic group as implied in column (1). For the same reason, they may become more likely to leave if more new hires join the same demographic group as demonstrated in column (2). It is anticipated that the evidence on this mechanism is prominent when we focus on demographic groups defined by prior

employment affiliation. Moreover, one's exit likelihood could also be a reflection of the high frequencies of labor mobility during firm expansion or contraction. Thus, the results reported in Table 9 could be interpreted as the net outcome of these competing forces.

4.4 Differential Hiring

Because we do not observe all individuals who are at risk of being hired, we conduct a relatively simpler analysis of selective hiring at the organizational level. We estimate the following equation

$$Ingroup_hire_{it} = \beta_0 + \beta_1 HHI_{i0} + \beta_2 ave_prior_size_{i0} + \gamma X_{it} + \varepsilon_{it} \quad (3)$$

where $Ingroup_hire_{it}$ is the total number of new hires by firm i at time t who worked for the same most recent prior employer as any of the members who worked at firm i in the previous year. The key independent variable is founding homogeneity, HHI_{i0} . X_{it} is a set of covariates, including (the log of) firm size, location, controls for cohort, industry and year. In addition, we also control for the average size of all prior employers of initial members, as larger prior employers provide more candidates who are at risk of being hired. We also take into account the possibility that former co-workers of existing members joined the startups due to the failure of prior employers by controlling for the number of prior employers that exited.

Column (1) of Table 10 reports estimates from the negative binomial model based on a subsample of firms that engaged in new member hiring in the observation years. The results show a positive and significant relationship between founding homogeneity, HHI_{i0} , and the number of new hires that share the same prior employers as the existing members. This is consistent with the notion of selective hiring that organizations tend to hire people who are similar to the incumbents. Together with results presented in column (2) of Table 1, this finding suggests that the evolution of firm homogeneity is likely to be driven by both selective hiring and diversity imperative. Firms generally become more diverse with cumulative new hires as suggested in Table 1. But, initially more homogeneous organizations display a relatively stronger tendency to hire people who are similar to the existing members. We, therefore, extend the sample to firms that did not hire any member in certain years, and estimate the zero-

inflated Poisson model.¹⁰ The results reported in columns (2)-(3) provide consistent evidence on differential hiring.

[Insert Table 10 about here]

5. Discussion

We proposed that by embedding employment in organizational members' prior employment affiliations, new ventures contribute to workforce segregation. This argument is grounded in the empirical observation that organizations are typically less diverse than the communities from which their members are drawn (e.g., McPherson and Smith-Lovin 1987; Popielarz and McPherson 1995). For example, Figure 1 demonstrates that the new ventures in our sample, on average, employ personnel drawn from a less diverse set of prior employers than do established organizations within the same industry. So, new venture diversity is not simply limited by ecological constraints (e.g., Ruef, et al. 2003).

Our empirical analyses produce results that are broadly consistent with our arguments. We find a correlation between a community's share of residents employed in new ventures and its degree of workforce segregation based on gender and country of origin. We demonstrate the role of established organizations by connecting workforce segregation to the tendency of new ventures to be founded by people who worked for the same prior employer(s). The more that a new venture's personnel share prior employment affiliations the less diverse the organization is with respect to gender and country of origin. Moreover, communities populated by proportionately more employees of new ventures tend to be more segregated along these two dimensions as well. In short, our analyses support the argument that new ventures accentuate workforce segregation by employing people who are more demographically similar than those employed by established organizations. This contribution stands in stark contrast to prior work on workforce segregation, which focuses on established organizations. Our study demonstrates that new ventures do create jobs but also – at least – maintain workforce segregation and – at worst – accentuate it.

¹⁰ We originally prefer the zero-inflated negative binomial model over the zero-inflated poisson model, as indicated by the likelihood ratio test. However, the zero-inflated negative binomial regression fails to converge if we control for the total number hires.

We document that new ventures founded by individuals with fairly homogenous prior employment affiliations tend to remain fairly homogenous as they evolve. Although new organizations might benefit from diversifying their labor pool and hiring employees who worked at more and more prior employers, we find persistence in the homogeneity of prior employment affiliations. Our organizational analyses demonstrate that persistence is not attributable to differential hiring on the basis of prior employment. Rather, personnel tend to be affiliated with a more and more diverse set of prior employers as a new venture hires more and more personnel. But, those personnel tend to be affiliated with a less and less diverse set of prior employers as more and more individuals depart the venture. Both effects are net of controls for headcount, industry, age, and founder retention. Our analyses of organizational exits and hires are also consistent with these results. We, therefore, infer that persistence in founding homogeneity is more attributable to the challenge of retaining diverse personnel than it is to not hiring them in the first place.

Although our results support our claim that embedding employment in members' prior employment affiliations contributes to workforce segregation, we do not claim to identify a causal relationship. It is possible, for example, that rising workforce segregation induces more residents to found or join new ventures with similar others. If so, then changes in workforce segregation might cause new venture employment to increase at the community level. Future research might identify an appropriate instrumental variable that influences the new venture employment share without directly influencing workforce segregation. By doing so, researchers could attend to the causal nature of the established relationship and also consider how demographic dimensions overlap in social space (e.g., McPherson & Popielarz 1995).

Several aspects of Denmark might cast doubt on our study's generalizability. First, Denmark might not be as demographically diverse as other nations. This concern is somewhat alleviated by treating prior employer as the basis for employment – on this dimension Denmark is sufficiently diverse. As Figure 1 clearly demonstrates, new ventures in our sample can plausibly be more diverse. Second, these

new ventures are much smaller than those typically included in most studies of workforce segregation. But, most organizations start small and such young and small organizations create many new jobs each year (Decker, et al. 2014). This is the portion of the workforce that has been largely omitted from prior work; inclusion provides new insights on the persistence of workforce segregation. Last, the new ventures in our sample are drawn from many industries and sectors. Constructing a large cohort and including all personnel in the analysis necessitates such a broad sampling frame. Future research might employ a similar research design for a larger but more narrowly defined sample (e.g., industry).

Some prior research suggests that initially homogenous organizations that do not diversify personnel will perform worse than if they had become more diverse. The between-firm implications are less clear and ongoing work seeks to establish the performance implications of starting a new venture with a more or less homogenous founding team (e.g., Aven and Hillmann, 2015; Eesley and Wu, 2014; Sarada and Tocoian, 2016). For example, a cursory analysis of our 1996 cohort reveals that the 202 new ventures that survived for 10 years were, on average, more diverse with respect to prior employer than the 986-venture cohort was at founding. We focused on hiring and retention mechanisms, respecting the difficulty of inferring performance effects of diversity given environmental constraints on composition and limited insight into organizational processes (e.g., Reagans, Zuckerman, McEvily 2004; Boone and Hendriks 2009). Future research might identify performance implications of new venture diversity at founding and thereafter by attending to reverse causality (i.e., Does diversity cause performance or do performance expectations cause diversity?).

Our study also demonstrates the relevance of organizational theory to public policy. Entrepreneurship is widely viewed as a job creation vehicle so that providing incentives for new venture formation can be considered a recipe for economic growth (e.g., Davis, Haltiwanger, and Schuh, 1996; Haltiwanger, Jarmin, and Miranda, 2013; Wennekers and Thurik, 1999). Although few policymakers would likely propose to provide incentives for workforce segregation, our analyses indicate that community-level segregation is a latent consequence of more residents working in new ventures. Reskin

et al. (1999) detail workforce segregation's consequences for individuals, organizations, and communities so we will not belabor the point. But, organizational theory has produced a large body of research that demonstrates how demography influences social interactions within organizations and thereby influences individuals' psychological well-being, organizational identification, social attachment, job performance, and turnover (e.g., Blau, 1977; Kanter, 1977; Pfeffer, 1983; Sørensen 2004). This research suggests that a promising direction for future research would be to examine how workforce segregation varies across communities that vary in their incentives for starting new business. In particular, studies that examine how workforce segregation changes with the implementation of public policies that encourage job creation through business formation seem particularly important.

6. Conclusion

By following the demographic evolution of new ventures and the communities in which they were located, our study links organizational founding to broader patterns of workforce segregation. We theorized and demonstrated empirically what organizational theorists have noted: organizations “exacerbate the already strong tendencies towards homophily in social relationships” (Ruef, et al 2003: 218). We have also shown how the extent of such influences extends well beyond organizational boundaries to influence community composition.

Workforce segregation is a pervasive phenomenon that has long drawn the interest of sociologists (e.g., Baron and Bielby, 1980; Baron, 1984, Reskin, et al., 1999) and, more recently, economists (e.g., Hellerstein and Neumark, 2008). Although new ventures are critical contributors to job creation and economic growth (e.g., Davis, et al., 1996; Wennekers and Thurik, 1999; Haltiwanger, et al., 2013), founding processes tend to bring together similar people so that a latent consequence of founding is the segregation of people along demographic dimensions. It seems unlikely that policymakers would choose to accentuate workforce segregation but they might unknowingly be doing so by encouraging entrepreneurship. Future work might consider these dual influences of new ventures, as recent work

demonstrates that a large portion of wage inequality is attributable to wage differences across organizations for individuals within the same industry and occupation (e.g., Sørensen and Sorenson, 2007; Mouw and Kalleberg, 2010).

New ventures create jobs but the matching of people to those jobs appears to segregate the workforce. It is unsurprising that new ventures are less diverse than established organizations within the same industry, given the role of familiarity in founding processes (e.g., Ruef, et al. 2003; Ruef 2010). But, post-founding, new ventures continue to employ individuals who were previously employed by organizations that are, on average, less diverse than the communities from which their members are drawn. With respect to prior employers, new ventures seem to hire diverse personnel but struggle to retain them. These results support calls for organizations interested in employing diverse personnel to focus as much on post-hire integration as they do on hiring (e.g., Sørensen 2000).

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Table 1. Summary Statistics for New Venture Cohort, By Year.

	Overall	1996	1998	2000	2002	2004	2006
No. of Employees (Yearly)	8.99	5.17	8.03	9.59	10.12	10.58	11.80
No. of Employees (November)	5.94	3.26	5.09	6.36	6.89	7.22	7.91
No. of Full-Time Equivalent	3.99	1.70	3.18	4.33	4.89	5.20	5.83
Cumulative Hires at t+1	9.76	2.05	4.65	8.78	12.40	16.57	21.06
Cumulative Exits at t+1	7.24	0.94	2.83	6.30	9.57	12.96	16.86
Cumulative Exits of Founders	1.84	1.00	1.55	2.01	2.22	2.28	2.38
Industry							
Manufacturing	9.72	8.32	8.91	10.33	9.95	10.43	10.87
Construction	21.23	17.24	19.96	20.74	22.61	23.22	24.35
Wholesale and retail	42.02	47.77	44.34	40.95	40.40	39.22	38.24
Transport, post, telecomm	4.39	3.75	4.09	4.60	4.82	4.62	4.40
Low-tech intensive business activities	5.39	7.61	5.66	5.58	4.62	4.62	4.68
Public and personal services	4.02	3.65	4.09	3.92	4.02	4.38	4.13
Kibs	13.22	11.66	12.95	13.88	13.57	13.51	13.34
Firm-year observations	13,819	986	1,784	1,326	995	844	727
Demography							
HHI (Prior Employer)	0.41	0.53	0.38	0.35	0.35	0.35	0.34
Firm-year observations	5,248	746	575	437	292	240	218

Note: Fewer observations on HHI (Prior Employer) due to the exclusion of firms without identified employment record for any member or with fewer than two members who had valid prior employment records.

Table 2. New Venture Employment and Community Workforce Segregation.

	OLS Regressions			
	DV: Segregation Measure			
	Country of origin		Gender	
	(1)	(2)	(3)	(4)
New venture employment %	0.147*** (7.31)	0.142*** (7.04)	0.505*** (8.13)	0.502*** (7.94)
(New venture emp. %)^2	-0.242*** (-8.42)	-0.242*** (-8.38)	-0.774*** (-6.87)	-0.769*** (-6.88)
Mean age		-0.002*** (-2.76)		0.002 (0.97)
Log. (mean gross income)		-0.008 (-0.55)		-0.137*** (-4.04)
Year fixed effects	Y	Y	Y	Y
Municipality fixed effects	Y	Y	Y	Y
R-squared	0.568	0.569	0.788	0.792
Obs.	5,241	5,241	5,246	5,246

T-statistics are in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

Table 3. Pairwise Correlations Among New Venture Homogeneity Measures.

	Prior Employment Affiliation	Country of Origin	Gender
Prior Emp. Affil.	--		
Country of Origin	0.028*	--	
Gender	0.177*	-0.005	--

Significance level: *0.05

Table 4. Pairwise Correlations among New Venture Homogeneity and Community Workforce Segregation Measures.

	HHI(Prior Employment Affiliation)	Segregation by Gender	Segregation by Country of Origin
HHI(Prior Employment Affiliation)	1.000		
Segregation by Gender	0.025*	1.000	
Segregation by Country of Origin	0.002	-0.186*	1.000

Significance level: *0.05

Table 5. Actual Versus Simulated New Venture Homogeneity Values.

	Sample Means		HHI_firm>0.5 (a=0)		HHI_firm<0.5 (a=1)	
	Female	Non-Danish	Female	Non-Danish	Female	Non-Danish
Actual	0.346	0.042	0.342	0.041	0.360	0.045
Random	0.370	0.046	0.369	0.045	0.370	0.046
t-statistics	4.972	1.870	4.935	1.834	1.147	0.453
Obs.	5,771		4,506		1,265	

Table 6. The Persistence of Founding Homogeneity (Prior Employment Affiliation)

	OLS Regressions	
	DV: Homogeneity at t	
	Prior Employment Affiliation	
	(1)	(2)
Homogeneity at t0	0.030*	0.005
	(2.15)	(0.38)
Log of Cuml. Hires		-0.130***
		(-14.57)
Log of Cuml. Exits		0.042***
		(6.86)
No. of Functional Roles	-0.011***	-0.007***
	(-8.39)	(-5.62)
Log of Cuml. Founder Exits	0.012***	0.000
	(2.72)	(-0.11)
Log of Firm Size	-0.127***	-0.055***
	(-20.31)	(-7.56)
Copenhagen (0/1)	-0.027***	-0.016***
	(-3.90)	(-2.62)
Industry fixed effects	Y	Y
Year fixed effects	Y	Y
Cohort fixed effects	Y	Y
(Overall)R2	0.402	0.451
Obs.	3,193	3,193

T-statistics are in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

Table 7. Descriptive Statistics for Personnel Who Stay and Exit.

	Stay	Exit	T-stat
Panel A.	(1)	(2)	(3)
Log. Hourly Wage	4.47	4.62	-13.68
Full Time	0.72	0.53	51.79
Tenure at the Startup	3.42	2.06	69.20
Founding Member	0.44	0.21	61.87
Danish	0.96	0.95	9.47
# of Same Prior Employer	0.47	0.23	27.22
Share of Same Prior Employer	0.06	0.02	37.53
In-group Member	0.57	0.42	37.33
Obs.	51,839	22,994	---

Table 8. Effects of Demographic Group Representativeness on Member Exit Likelihoods (1) (Last Prior Employer)

	Discrete-Time Logit Regressions					
	DV: =1 if exit at time t					
	(1)	(2)	(3)	(4)	(5)	(6)
# with same prior employer	-0.287*** (-18.08)			-0.119*** (-10.97)		
% with same prior employer		-3.241*** (-30.63)			-1.356*** (-14.56)	
Ingroup (0/1)			-0.654*** (-34.08)			-0.025 (-1.2)
Age				-0.005*** (-4.92)	-0.005*** (-4.58)	-0.006*** (-6.18)
Male (0/1)				0.013 (0.63)	0.020 (0.96)	0.004 (0.2)
College (0/1)				0.059 (1.25)	0.060 (1.27)	0.055 (1.17)
Married (0/1)				-0.227*** (-9.46)	-0.225*** (-9.36)	-0.232*** (-9.71)
Danish (0/1)				-0.179*** (-3.81)	-0.166*** (-3.55)	-0.199*** (-4.22)
Tenure				-0.137*** (-21.67)	-0.139*** (-22.06)	-0.138*** (-21.77)
Log. hourly wage				-0.281*** (-17.87)	-0.283*** (-17.98)	-0.281*** (-17.86)
Full time (0/1)				-0.776*** (-33.18)	-0.775*** (-33.15)	-0.782*** (-33.54)
Original Member (0/1)				-0.463*** (-14.75)	-0.426*** (-13.49)	-0.534*** (-17.11)
Log. No. of employees				0.210*** (18.34)	0.181*** (15.94)	0.199*** (16.84)
Copenhagen (0/1)				0.136*** (6.15)	0.144*** (6.5)	0.142*** (6.41)
Industry fixed effects	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y
Log pseudolikelihood	-45,618.17	-45,193.04	-45,922.64	-38,392.18	-38,354.15	-38,667.49

Obs.	74,833	74,833	76,399	73,442	73,442	74,385
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We control for positions with three dummy variables, indicating manager, skilled worker, and unskilled worker, respectively. The omitted category is employer. In all columns, we consistently find that employers are less likely to leave the firm than people in all other three positions. The results are significant at the one percent level. Z-scores based on standard errors clustered at the individual level are in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

Table 9. Effects of Demographic Group Representativeness on Member Exit Likelihoods (2) (Last Prior Employer)

	Discrete-Time Logit Regressions			
	DV: =1 if exit at time t			
	(1)	(2)	(3)	(4)
% with same prior employer/country of origin	-1.035*** (-8.84)	-1.279*** (-10.49)	-0.384*** (-4.87)	-0.520*** (-6.27)
Exits in the previous year				
Same demographic group	-0.055** (-1.96)		0.018*** (7.12)	
Different demographic group	0.021*** (8.72)		0.014** (2.27)	
Same Exits * Original Member	-0.054 (-1.11)		0.044*** (5.21)	
Different Exits * Original Member	0.035*** (4.28)		0.003 (0.14)	
Hires in the previous year				
Same demographic group		0.108*** (8.1)		0.029*** (12.94)
Different demographic group		0.026*** (12.09)		0.008 (1.53)
Same Hires * Original Member		0.032 (0.58)		0.023*** (3.92)
Different Hires * Original Member		0.012** (2.24)		0.013 (0.66)
Individual/Firm Characteristics				
Age	-0.003*** (-2.85)	-0.004*** (-3.73)	-0.004*** (-4.18)	-0.005*** (-4.61)
Male (0/1)	0.040* (1.78)	0.036 (1.64)	0.030 (1.37)	0.027 (1.21)
College (0/1)	0.075 (1.53)	0.064 (1.32)	0.070 (1.44)	0.056 (1.13)
Married (0/1)	-0.216*** (-8.56)	-0.214*** (-8.52)	-0.220*** (-8.72)	-0.216*** (-8.58)
Danish (0/1)	-0.130*** (-2.58)	-0.141*** (-2.81)	0.050 (0.77)	0.061 (0.93)
Tenure	-0.142***	-0.126***	-0.142***	-0.136***

	(-22.09)	(-19.09)	(-21.93)	(-21.19)
Log. hourly wage	-0.285***	-0.293***	-0.286***	-0.289***
	(-17.03)	(-17.52)	(-16.99)	(-17.21)
Full time (0/1)	-0.785***	-0.793***	-0.789***	-0.796***
	(-31.52)	(-31.95)	(-31.68)	(-32.05)
Original member (0/1)	-0.660***	-0.583***	-0.789***	-0.750***
	(-18.26)	(-15.55)	(-22.65)	(-21.21)
log. No. of employees	0.115***	0.018	0.129***	0.031*
	(7.99)	(1.04)	(8.98)	(1.83)
Copenhagen (0/1)	0.106***	0.117***	0.099***	0.103***
	(4.53)	(5.02)	(4.18)	(4.4)
Industry fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y
Log pseudolikelihood	-34423.88	-34355.74	-34571.64	-34515.92
Obs.	66182	66182	66829	66829

We control for positions with three dummy variables, indicating manager, skilled worker, and unskilled worker, respectively. The omitted category is employer. In all columns, we consistently find that employers are less likely to leave the firm than people in all other three positions. The results are significant at the one percent level. Z-scores based on standard errors clustered at the individual level are in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

Table 10. The Effect of Founding Homogeneity on Differential Hiring.

	Negative Binomial	Zero-Inflated Poisson Regression	
	No. of In-group New Hires at t	No. of In-group New Hires at t	Inflate
	(1)	(2)	(3)
Homogeneity at t0	0.490** (2.33)	0.876** (2.11)	1.069 (1.56)
No. of Total Hires at t	0.126*** (8.49)	0.065*** (9.28)	--- ---
Log of Firm Size	0.451*** (4.95)	0.340** (2.24)	-1.079*** (-3.87)
Copenhagen (0/1)	0.225** (2.06)	--- ---	--- ---
No. of Exited Prior Employers	-0.084*** (-3)	-0.022 (-0.43)	0.166 (1.42)
Ave. Size of Prior Employers	0.000 (0.1)	0.000 (0.96)	0.000 (0.56)
Industry fixed effects	Y		Y
Year fixed effects	Y		Y
Cohort fixed effects	Y		Y
Log pseudolikelihood	-2,018.19		-2,135.58
Obs.	4,094		4,968

Copenhagen is omitted from the zero-inflated Poisson regression due to the failure of convergence. Z-scores based on standard errors clustered at the individual level are in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

Figure 1. New ventures are more homogenous than established organizations.
(with 95% confidence intervals)

