Entrepreneurs and the City: What drives entrepreneurial success in New York City?

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Abstract: While there is strong consensus on the value of attracting and retaining entrepreneurial activity for economic growth, we understand far less about the factors that influence the location decisions of entrepreneurial firms. We examine the determinants of entrepreneurial formation and success using panel data on establishments in Manhattan, New York City, and relate them to the clustering of similar businesses, the quality of the local environment and services, and the neighborhood demographic composition. We find that localization effects are positive and are larger in magnitude than urbanization effects; and these effects persist when controlling for other non-firm environmental factors. The localization effects are consistently positive and significant in explaining firm births. However, these effects decline sharply with distance and are only positive and significant at the closest range (0.25 miles) when explaining firm success. The environmental factors we study are not significant in explaining firm births or successes, once we control for time-invariant characteristics of a neighborhood.

Key words: entrepreneurship, business location, business success
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1. Introduction

A 2016 survey by the National League of Cities found that economic development was the top priority for the majority of mayors in 100 U.S. cities (Thomas, 2016). While experts and city leaders generally agree that entrepreneurial activity helps to drive such growth (Carree and Thurik, 2003, Glaeser, 2007, Acs, Glaeser, Litan, Fleming, Goetz, Kerr, Klepper, Rosenthal, Sorenson, and Strange, 2008*a*, Neumark, Wall, and Zhang, 2011), there is far less agreement about the range of factors that influence the location decisions of entrepreneurial firms. What matters more for businesses, the characteristics of other nearby firms or the local infrastructure? Do these same factors influence the likelihood of the firm's success over time?

Scholars have been working to understand and predict these decisions for some time: we know that they are some combination of the firm's individual characteristics and the economic and structural characteristics of a proximate area around a potential location is situated. However, much of the research to date has focused on how the external effects from other nearby firms drive location decisions for a particular entrepreneur, and the analyses have mostly covered data from a single moment in time. We examine the determinants of entrepreneurial formation and success using longitudinal data on establishments in Manhattan, New York City and relate them to several factors in the neighboring area, such as the clustering of similar businesses, the quality of the local infrastructure, environment and services, and the neighborhood demographic composition.

Our findings show that, overall, localization effects (i.e., the clustering of firms of similar industrial orientation) are positive and are larger in magnitude than urbanization effects (i.e., the clustering of firms of any economic activity); and these effects persist when controlling for other non-firm environmental factors. The localization effects are consistently positive and significant in explaining firm births. However, these effects decline sharply with distance and are only positive and significant at the closest range (0.25 miles) when explaining firm success. The importance of localization effects in explaining births is most pronounced for infrastructure-heavy businesses (like manufacturing) and capital- and consumer-dependent businesses (like finance firms and entertainment venues). Finally, the non-firm environmental factors we study, such as crime, land use and the presence of supplemental business support services, are not significant in explaining firm births or successes, once we control for time-invariant characteristics of a neighborhood.

2. What determines entrepreneurial formation and success?

Mechanisms

We consider here the determinants behind a firm's opening and short-term success.[1] To simplify the framing (and the analysis that follows), we build off of Rosenthal and Strange (2005) and rely on a within-city context in order to keep citywide and regional factors constant. Therefore, we focus on the mechanisms behind hyper-local firm location decisions and success drivers. Furthermore,

[1]For the remainder of the study, we use the term firm, establishment and businesses interchangeably. However, the estimation relies entirely off of establishment-level data and we recognize that technically single firms or businesses can have multiple establishments.

we assume that firms choose their locations based on a profit maximization function and that firm births occur among the set of firms that would experience positive profits from such an entry decision (again consistent with Rosenthal and Strange, 2005). Within this framework, we address three broad factors that could drive firm openings and subsequent success: (i) individual firm characteristics, (ii) external effects from proximate firms, and (iii) other characteristics of the local environment.

Individual firm characteristics

It is reasonable to expect that decisions to locate and the prospects for success will be idiosyncratic to individual firms. For example, a business owner might choose to open up in a location close to his/her residence or previous employment activity (Figueiredo, Guimarães, and Woodward, 2002). Further, the amount and terms of the owner's start-up capital (something as personal as his/her own housing value) could determine the risk (and costliness) of the location choice (Black, Meza, and Jeffreys, 1996). For this analysis, we assume that, among the pool of firms in a particular economic sector and period that would likely profit from the observed opening in a finely determined location in Manhattan, the differences are negligible or randomly distributed and not correlated with other factors we examine.

It is important to note that the main advantage of focusing the analysis of birth and success determinants within a city is that many drivers of entrepreneurship may largely vary across cities rather than within a city. For instance, the desire to be self-employed or to be an entrepreneur may be greater in a diverse and highly unequal city like New York than in a smaller more homogeneous city. Likewise, financial markets for start-ups might be more developed and less risk averse in large cities more familiar with business turnover and churning than in small cities. Theefore, by narrowing the analysis to a city, and more specifically to a county like Manhattan, we are able to hold constant all these unobserved determinants of entrepreneurship that affect patterns of business entry and success differently across cities. Thus, we expect that any remaining firm-specific drivers of entrepreneurship play a much smaller role, conditional on location, sector and period fixed-effects.

External effects from proximate firms

A fundamental tenet of urban economics is that large, dense cities deliver agglomerative benefits, which may increase the likelihood of formation and success of entrepreneurial firms. The (empirically supported) assumption is that proximity to other firm activities increases the productivity of an individual firm, above and beyond any gains derived from that firm's individual decisions or actions. Historically, many of these agglomeration effects were achieved by sharing (access to) material inputs or labor pools, but even in more capital-intensive industries, knowledge sharing and well-functioning social or professional networks (Saxenian, 1994) can generate similar (or even greater) benefits. Furthermore, and very relevant to the current analysis, such agglomeration benefits should increase in spatial proximity and industrial correspondence. Specifically, the external agglomerative benefits should be more intense if a firm locates closer to a denser collection of other

firms (urbanization effects) and if a firm locates closer to firms of similar industrial orientation (localization effects). The dominance of one effect over the other in a hyper-local spatial context, however, is theoretically ambiguous.

Characteristics of the local environment

The characteristics of the hyper-local (i.e., neighborhood) environment that shape a firmÕs success are not only a function of other firms in the area. A range of infrastructure-related factors can affect both operating costs and potential returns; for example, the nature and amount of space available to run a business could influence both location decisions and success trajectories. Similarly, designations of land use and benefits offered to starting businesses within a neighborhood can induce firm location and performance over time. Less concrete characteristics, such as perceptions of safety or supplemental services and support for the area, could also drive firm births and short-term prospects.

Empirical evidence

Research on firms' location decisions has focused primarily on the natural advantages inherent to a specific area and to external effects of agglomeration from nearby establishments (for example, Ellison and Glaeser, 1997, Rosenthal and Strange, 2004, Duranton and Overman, 2005).[2] Glaeser and Kerr (2009) look at manufacturing start-ups for over two decades of firm openings in a sample of US Primary Metropolitan Statistical Areas (PMSAs), and find that natural cost advantages, and, to a lesser degree, agglomeration effects are the most important factors in explaining entrepreneurship; demographics have limited explanatory power. Levratto (2014) explicitly tests the relative importance of global versus local factors in explaining firm creation in over 300 French employment areas. She finds that local factors are paramount and that the clustering of entrepreneurial activity depends on its proximity to other similar clusters.

While these studies estimate decisions within a regional or multi-city context, several researchers have isolated the effect of agglomeration economies from natural advantages by looking at the location decisions of establishments within a single city. For example, Rosenthal and Strange (2005) conduct a cross-sectional analysis of the number of births and new-establishment employment in the New York Consolidated Metropolitan Statistical Area (CMSA). They find that localization effects are consistently significant and positive, but urbanization effects are marginal and sometimes negative (for certain industries, like Finance, Insurance and Real Estate or FIRE). In addition, both effects strongly attenuate with distance, suggesting the hyper-local nature of the agglomeration spillover effects. These results are consistent with the findings from Arzaghi and Henderson's (2008) study of advertising firms in Manhattan. They see a very rapid decay in the benefits of locating near similar firms, and interpret this as a networking premium.

[2]There is also a substantial body of literature on the location decisions of manufacturing plants (see Carlton, 1983, Jofre-Monseny, Marín-López, and Viladecans-Marsal, 2011, for empirical evidence and Carlino and Kerr, 2015 for a recent survey); while related, we expect that the drivers for smaller start-up firms will look different, and therefore focus on the more recent literature that examines smaller business start-ups.

There is a much more limited scholarship on the factors that explain the high growth or success of new firms. The few studies are older and try to disentangle the differential influences of firm-level and market-level determinants of firm success. For example, Schutjens and Wever (2000) find that particular firm-level characteristics, such as size and prior employment experience of the owner, enhance firm growth. Audretsch and Mahmood (1995) work with data on technologies and market structures of firms, as well as their establishment-level characteristics, and conclude that establishment-specific characteristics are critical to mediating the exposure to risk for newly formed businesses. Delgado, Porter, and Stern (2010) focus on external factors and broadly test for the impact of regional clusters on entrepreneurship. They find that they are important not just for establishment births (both in the expansions of existing firms and for brand new firms), but also for start-up firm survival. Specifically, a strong cluster positively affects the employment in the medium-term survival of young firms (up to five years old).

One explanation for the lack of studies on business survival/success is the scarce availability of longitudinal firm-level data sets. While it is possible to identify new establishments and relate them to their local characteristics at the time of entry in a cross-section of firms, only existing establishments that have remained in business are observed and those that exited or relocated are omitted. Therefore, any estimated correlates of business growth or success would be biased because of the omission of the failed businesses.

3. Empirical strategy

Data

We compile a panel data set of census tracts, by two-digit NAICS industry classification, that spans eighteen years (1994–2011). For the current analysis we include tracts from Manhattan only, since the typical tract in this county exhibits the largest concentration of establishments in all sectors among the five boroughs, a factor that will be helpful for our methodology that we describe below.[3] Since in our models firms choose their location based on their expected profits in a particular area, we set the number of potential locations to the number of census tracts in Manhattan (262 in total). This spatial aggregation also helps us correlate entrepreneurial activity with local residential characteristics, which are available over time at the census tract level.

Our primary data source is the National Establishment Time Series (NETS) database, a longitudinal, establishment-level data set that is constructed by Walls and Associates from the Dunn & Bradstreet business register. Unlike publicly available government data on employment, the NETS data set suppresses no data on employment in small industry or geographic cells and provides full street address information for each establishment. In addition, NETS is more likely to capture non-employer businesses (those with no paid employees) than other public records, like those

[3]Future analyses will include all five boroughs of New York City. Findings from the current analysis reflect entrepreneurial location decisions and success under extreme density; we expect that future analyses of other, less dense boroughs will provide takeaways for a wider range of economic sectors and density configurations.

issued by the Bureau of Labor Statistics (Neumark, Zhang, and Wal, 2005).[4] Therefore, we have the near-universe of businesses in New York City from 1994 to 2011. The data set also includes information on the establishment's level of employment, organizational structure (i.e. whether the establishment is part of a stand-alone firm or a branch of a multi-establishment firm), and type of economic activity (reported at the 6-digit NAICS level).[5] While NETS provides data at the establishment-year level, we do not rely on the annual counts. Instead, we aggregate the number of establishments up to the census tract, by year, and then average these numbers over three-year intervals, creating smoothed counts of establishments over tract-year-groups. We do this to avoid any noise or lags in annual reports of openings and closings; based on documented experience with the NETS data, a three-year interval seems to be a reasonable time span for minimizing this error (Neumark, Zhang, and Wal, 2005, Yang and Aldrich, 2012).

We merge the NETS data set with a number of other data sets. We access tract-level socioeconomic characteristics from GeoLytics and Urban Institute's Neighborhood Change Database for 1990, 2000 and 2010.[6] We obtain information on the physical building stock, infrastructure and access to transportation and recreation spaces from the New York City Department of City Planning's PLUTO data set. We also include information on crime (violent, property and lower-level public order offenses) from the New York City Police Department and on the boundaries and formation dates of 69 Business Improvement Districts (BIDS) from the New York City Department of Small Business Services.

We present an initial description of the raw data in table 1, where we show averages of two-digit NAICS observations by census tract for selected (three-year) periods. We use the census tract throughout to proxy for neighborhoods. Our sample of neighborhoods in Manhattan is quite diverse demographically, and the characteristics are largely stable over time. We do see, however, that the typical neighborhood has seen a growth in education and income levels over time. For instance, the share of residents with college degrees increased from 42 percent in the mid 90s to 65 percent in 2010, while the high school dropout share decreased by more than seven percentage points in the same period. The latest recession is associated with a slowdown of annual household median income growth: it surged between the mid 90s ($53,000) until the mid 2000s ($81,000), but fell by 2010 ($76,000). In addition, the share of tracts with predominantly white or black

[4]Ege (2009) critiques NETS' coverage of small science and technology sector firms, saying it is thin; this discrepancy, if it exists, should not affect our analysis as we focus on neighborhood services that are largely outside these sectors. Other critiques of NETS (Davis and Haltiwanger, 1995, Davis, Haltiwanger, and Schuh, 1996) focus largely on discrepancies in employment counts and business reporting reliability in the earlier iterations of Dunn & Bradstreet (from which NETS is derived); however, most of these concerns have been addressed with newer, more robust collection efforts by Dunn & Bradstreet (Neumark, Zhang, and Wal, 2005). In addition, since we focus primarily on firm counts rather than employment counts, such concerns on employment numbers are less threatening in the current analysis. Finally, we note that the NETS data are less adept at capturing within-city moves (Kaufman, Sheehan, Rundle, Neckerman, Bader, Jack, and Lovasi, 2015); for the small part of our analysis that relies on this metric, we recognize that it captures a subset of the relevant neighborhoods and likely under-represents the actual within-city activity.

[5]We have conducted a number of verification tests, confirming that business counts and statistics usually coincide with those from aggregated, publicly available data (such as LODES data from the Bureau of Labor Statistics and county business patterns data from the US Economic Census).

[6]The NCDB database is particularly useful for our analysis, since the census tract boundaries are normalized to 2010 definitions, which allows us to compare outcomes for consistently-drawn census tracts across multiple decades.

Table 1: Summary statistics for selected years

	1994–1996	2003–2005	2006–2008	2009–2011
Neighborhood demographics				
Population	5,440	5,594	5,725	5,730
Less than high school	24.8%	20.2%	17.1%	17.6%
High school	15.6%	14.1%	15.3%	15.6%
Some college	17.9%	15.9%	16.7%	16.9%
College graduate	41.7%	49.9%	66.1%	65.4%
Never married, divorced	54.4%	53.3%	57.5%	57.5%
Married	25.5%	24.9%	25.6%	25.3%
Majority white	34.4%	25.4%	20.9%	20.5%
Majority black	7.4%	6.1%	0.7%	0.8%
Annual household median income	$52,864	$63,879	$80,943	$76,307
Neighborhood environment				
Number of felonies		185.8	166.3	127.9
Number of violent felonies		40.3	35.8	25.2
Number of property felonies		112.1	95.8	73.8
Share of land area in BID		6.4%	6.9%	6.6%
Density of commercial building area		2.85	2.81	2.77
Neighborhood establishments' composition				
Number of births	10.44	11.30	16.01	18.98
Number of successes	0.94	1.00	0.95	0.85
Number of deaths	9.62	9.22	6.25	15.44
Number of moves	2.50	2.79	2.03	1.75
Proximity of establishments				
Same 2-digit establishments within 0.25 miles	0.29	0.24	0.24	0.27
Same 2-digit establishments, 0.25–0.5 miles away	0.62	0.55	0.53	0.58
Same 2-digit establishments, 0.5–1 miles away	1.94	1.75	1.70	1.87
Same 2-digit establishments, 1–5 miles away	17.71	16.46	16.16	17.66
All establishments within 0.25 miles	4.36	3.93	4.04	4.26
All establishments, 0.25–0.5 miles away	9.27	9.04	8.93	9.40
All establishments, 0.5–1 miles away	29.17	29.36	29.00	30.53
All establishments, 1–5 miles away	267.08	276.33	275.01	289.67
Number of census tracts	262	262	262	262

Notes: Variables are averages of two-digit NAICS (industry classification) observations by census tract in each period. Marital status is calculated as a share of the total population in each tract. A majority white (black) neighborhood has more than 80 percent of white (black) residents. Number of violent and property felonies may not add up to total felonies in a neighborhood. Density of commercial building area is calculated as the ratio of the total built commercial area divided by the land area determined in PLUTO. A successful establishment is one that experiences an increase of at least eight workers over the three consecutive years following its birth. Earnings are expressed in December 2011 euros. BID stands for Business Improvement District.

households (more than 80 percent of residents) went down over time. Crime also declined over the same time period, which is consistent with trends in cities across the US. Not surprisingly, building density was stable over time, as was the land coverage of Business Improvement Districts (both changed slowly and marginally over time).

Estimation

Following Rosenthal and Strange (2005), we examine opening decisions of establishments within Manhattan and explore how they are affected by agglomeration economies of existing nearby establishments. Rosenthal and Strange (2005) propose a firm location model derived from a profit maximization problem with heterogeneous firms. In their model, they estimate the number of firm births in a census tract (where births occur among the set of firms that would experience positive profits from such entry decision) as a function of the number of same-sector and overall establishments surrounding the census tract and two-digit industrial sector fixed effects. One advantage of this approach is that entrepreneurs willing to start a business take the existing environment of business composition as predetermined; in this way, one largely alleviates endogeneity concerns that apply if one were to relate location patterns of existing establishments to nearby operating establishments. We employ this framework as a baseline, though we plan to depart from it in several ways.

First, besides examining the determinants of establishment births we also study, within this group, the determinants of establishment success. Following Clayton, Sadeghi, Spletzer, and Talan (2013)'s definition of business success, we define a successful establishment as one that experiences an increase of at least eight employees over the three consecutive years following its birth. We also considered initially a more narrow definition of success for a subset of establishments or 'gazelles' that experience even higher employment growth rates (Acs, Parsons, and Tracy, 2008*b*). However, we prefer to rely on the broader definition given the relatively small number of establishments in the sample that experienced such higher rates of growth. Further, we do not have good theoretical priors and much empirical evidence on what should determine business success. Since firm successes are a subset of firm births, we may expect the same predictors that affect business openings to affect business successes, and thus, we study the same set of covariates for both establishment births and successes throughout all of our specifications.

Second, compared to Rosenthal and Strange (2005), we construct rings of establishment counts that are more confined in geographic space. These rings count the number of the same two-digit-sector and overall establishments within 0.25 miles, between 0.25 to 0.5 miles, between 0.5 to 1 miles, and between 1 to 5 miles of the census tract centroid. Figure 1 depicts the rings around the centroid of a census tract in midtown Manhattan to better illustrate the size of each concentric ring. As we will see when we present our results below, highly localized rings, less than half a mile away from the tract centroid, have huge explanatory power in the business entry and success models.

Third, we extend the baseline specification in Rosenthal and Strange (2005) and include other time-varying factors that can affect the firms' location decisions and prospects for success, such

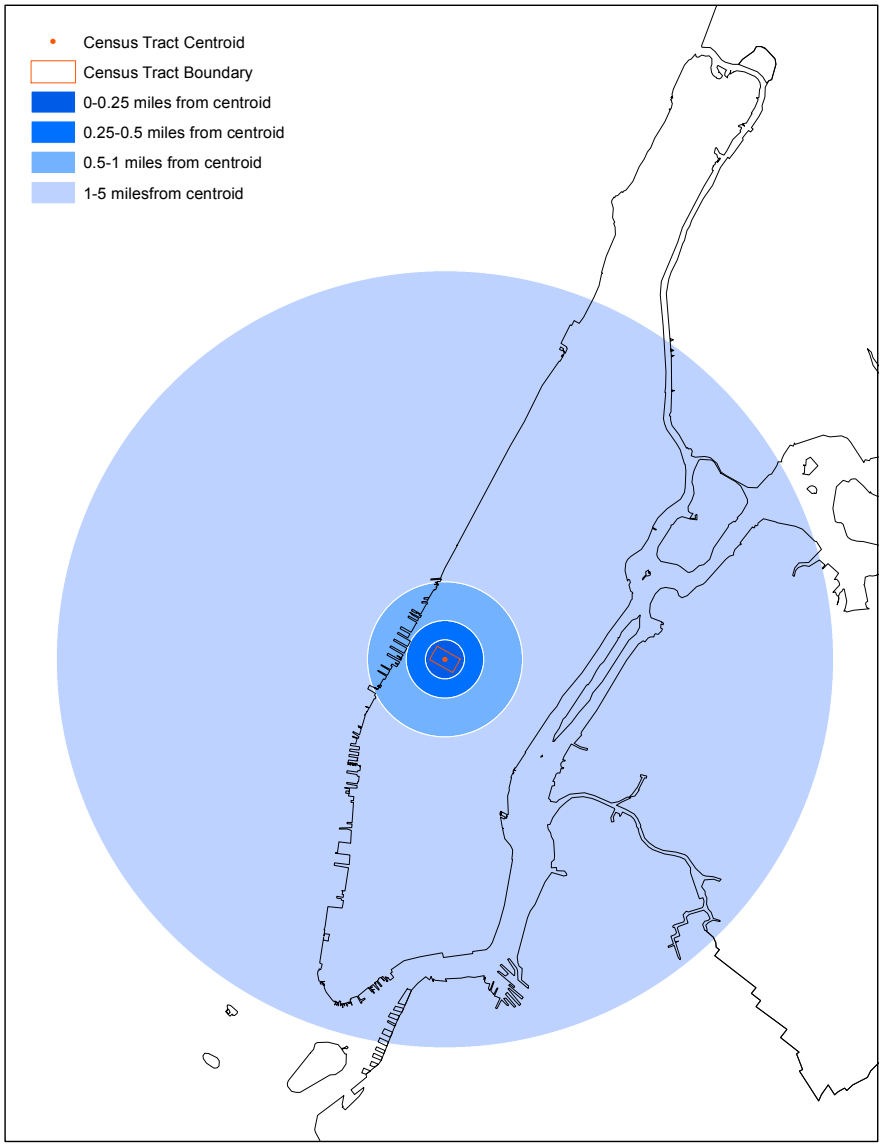


Figure 1: Size of concentric rings

as neighborhood crime, local land use patterns and the existence of targeted supplemental support services, such as those provided through a Business Improvement District (BID). If these factors turn out to be statistically significant and economically relevant, then then this suggests that available estimates that relate firm location to agglomeration economies may suffer from an omitted-variable bias.

Lastly, our panel structure allows us to control for time-invariant characteristics of the neighborhood that may explain business entry and success such as a prosperous historical commercial location or good accessibility to transportation. During the timeframe of our sample, these kinds of fixed infrastructures do not change dramatically in our neighborhoods over time. The inclusion of census tract fixed effects exploits time variation in business proximity for a given neighborhood to explain changes in births and successes over time. This richer data structure is an advantage relative to earlier studies that rely on cross-sectional data.

We estimate the following regression models:

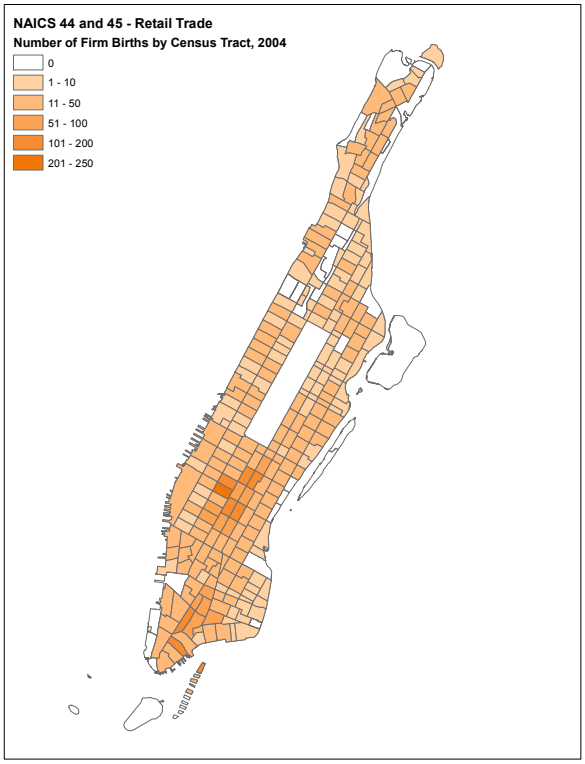
$$Y_{jst} = \sum_{d=1}^{4} \beta_d \, \text{Ring-2-digit}_{dt} + \sum_{d=1}^{4} \gamma_d \, \text{Ring-all}_d + x'_{jst}\,\theta + \eta_j + \delta_s + T_t + \varepsilon_{jst}\,, \tag{1}$$

where Y_{jst} is the number of business openings or successes in tract j, sector s and period t, η_j is a tract fixed effect, δ_s is a two-digit NAICS industry fixed effect and T_t is a (three-year) period fixed effect. Ring-2-digit$_{dt}$ counts the number of the same two-digit NAICS establishments in a concentric ring at distance d (within 0.25 miles, 0.25–0.5 miles, 0.5–1 miles and 1–5 miles) in period t while Ring-all$_{dt}$ counts the number of all establishments in concentric rings at the same distance intervals d in period t. X_{jst} is a vector of time-varying census tract demographic characteristics or environmental factors (e.g. number of felonies). β_d, γ_d and θ are parameters and ε_{jst} is an error term with mean zero or constant variance.

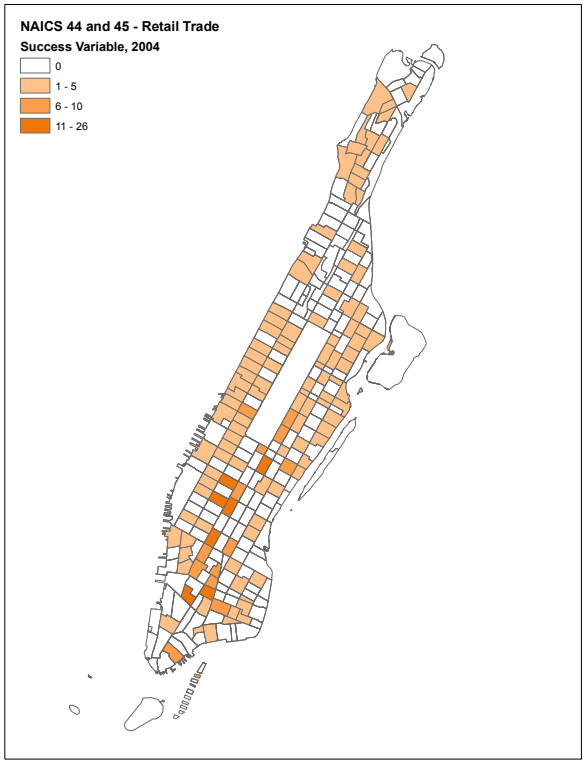
We run Tobit models to account for the censoring of the dependent variables at zero. We have also run ordinary least squares regressions with little changes in results, although we see some minor changes (in significance, mostly) in specifications for success given their higher rate of censoring at zero. All of our specifications include two-digit-sector indicator variables to allow for different rates of births and successes across sectors, such as manufacturing, wholesale trade and healthcare and social assistance (to name a few). In addition, we include three-year-period indicators to control for changes in the number of births or successes that are due to more macro expansions or downturns in the local economy.

The two subpanels at the bottom of table 1 show summary statistics for the neighborhoods' establishment compositions and clustering of establishments. While the churn (i.e. entry and exit) of establishments varies across time, the degree of their clustering is relatively stable. Specifically, the number of births per tract increases by about 80 percent over the entire study period; while the number of successes does not experience such dramatic shifts, it does exhibit more fluctuations. The number of deaths increases dramatically post-2008, which is not surprising in the wake of the Great Recession. Over the same time period, the number of establishments (both same-sector and more broadly) within close proximity of one another is relatively constant.

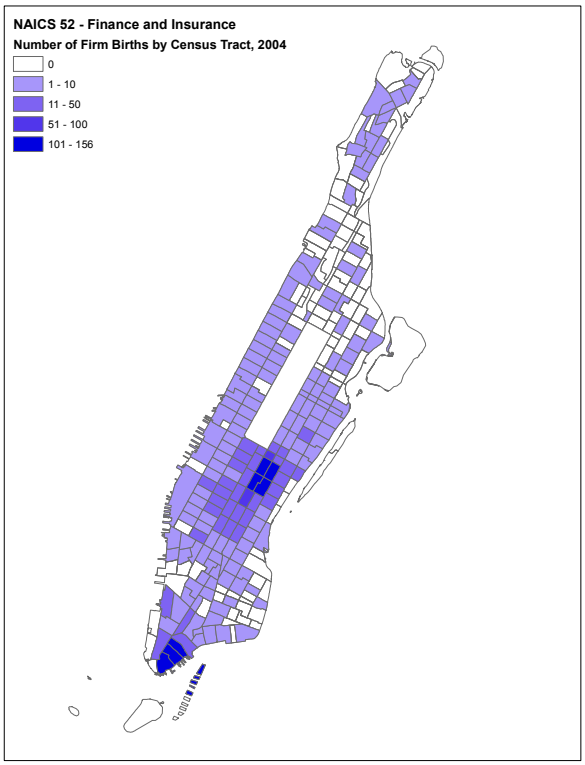
We provide a visualization of establishment births and successes by neighborhood in figure 2. In panels (a) and (b) we show total new and successful establishments, respectively, in retail and trade (NAICS 44 and 45) for the period 2003–2005. We see that births occur across the board in Manhattan with a higher intensity in midtown and in some neighborhoods in downtown. Successful establishments, instead, are infrequent and more unevenly distributed: many census tracts do not register a single establishment success and only very few neighborhoods accommodate more than ten. In panels (c) and (d) we also show total new and successful establishments for 2003–2005, but in finance and insurance (NAICS 52). Births are much more concentrated than in the retail and trade sector, with high degrees of clustering in east midtown and to a lesser extent in downtown. Successful establishments are even more clustered, with a handful of neighborhoods in midtown hosting more than 25 establishments.



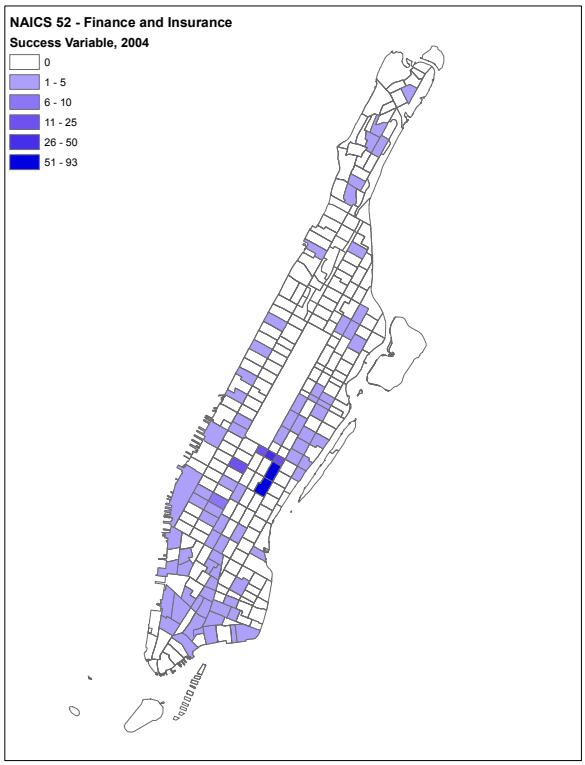
Panel (a)
New establishments, Retail and trade, 2004



Panel (b)
Successful establishments, Retail and trade, 2004



Panel (c)
New establishments, Finance and insurance, 2004



Panel (d)
Successful establishments, Finance and insurance, 2004

Figure 2: Establishment births and successes by census tract, 2003–2005

4. Results

We estimate a series of regressions that identify, separately, the determinants of establishment births and successes.[7] As already mentioned, all of the specifications include two-digit industry sector and year-group indicator variables; census tract fixed effects are progressively added into the fully-specified models.

External effects from proximate firms and residents

So that we can situate our analysis in the existing scholarship, we first consider how the proximity of other firms affects the likelihood of establishment formation and success. These results are displayed in table 2. Column (1) shows that, in general, localization effects are more pronounced than urbanization effects in explaining establishment births: specifically, the coefficients on the number of same two-digit sector establishments are consistently significant and positive, whereas the coefficients on the number of establishments overall are smaller and statistically significant only at further distances. We see that at the closest range of 0.25 miles, an additional establishment with the same two-digit industrial classification is associated with an increase in about three births in the tract over a three-year period. This amounts to a 21 percent increase in the sample mean of neighborhood births; and this effect attenuates with distance such that between 1 to 5 miles the increase in the number of births is just under 0.3. In contrast, the largest urbanization effect is found at a 0.5-to-1 mile distance: an additional establishment is related to an increase in births of 0.14 (about half the magnitude of the localization effect estimated for the 1-to-5-mile range). These findings are consistent with those from previous research and confirm the importance of both spatial and productive proximity in explaining establishment formations.[8]

We also see that the localization effects are not equally important for all industrial classifications (see appendix table A.8). Businesses that rely heavily on built infrastructure (that is typically more bulky in its appearance), such as those classified as manufacturing and transportation/utility, display larger and more significant localization coefficients (especially at very close proximity). More capital intensive or consumer-oriented businesses, like those classified as finance/real estate (FIRE) and arts/entertainment, also exhibit more pronounced localization effects.

The next two columns of table 2 include more neighborhood controls, adding in residential demographics and then census tract fixed effects. We first note that adding these neighborhood controls leaves the localization covariates essentially unchanged. The coefficients on the urbanization covariates shift, becoming negative, but insignificant, in the fully-specified models. These results now show that proximity to commercial activity broadly does not significantly affect the

[7] It is worth noting that our estimates should not necessarily be interpreted as causal, rather we present correlations of explanatory variables with number of births and successes in a neighborhood, NAICS economic activity and period. In future work we plan to extend our models and methods to get closer to causal estimates.

[8] We replicate the baseline models for three separate time intervals (see appendix table A.7) in order to see if the observed patterns change over time. Results for the localization effects are consistent across time; urbanization effects are more sensitive to changes in time periods and indicate that some of the insignificant results in the pooled sample obscure meaningful variation in affects across time intervals.

Table 2: Determinants of business entry and success

	Number of births in census tract			Number of successes in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	2.776 (.831)***	2.824 (.859)***	2.906 (.871)***	.342 (.088)***	.352 (.094)***	.375 (.097)***
# of 2-digit establishments, 0.25–0.5 miles	.517 (.269)*	.541 (.269)**	.549 (.264)**	.064 (.040)	.067 (.040)*	.069 (.038)*
# of 2-digit establishments, 0.5–1 miles	.239 (.118)**	.238 (.116)**	.250 (.113)**	-.063 (.017)***	-.061 (.016)***	-.057 (.015)***
# of 2-digit establishments, 1–5 miles	.280 (.041)***	.284 (.039)***	.287 (.039)***	-.011 (.008)	-.009 (.007)	-.007 (.007)
# of all establishments, within 0.25 miles	-.050 (.185)	-.164 (.121)	.120 (.290)	.019 (.033)	-.001 (.017)	-.027 (.022)
# of all establishments, 0.25–0.5 miles	.175 (.120)	.195 (.123)	.134 (.138)	.021 (.018)	.028 (.013)**	.002 (.007)
# of all establishments, 0.5–1 miles	.138 (.038)***	.039 (.043)	-.041 (.056)	.035 (.006)***	.015 (.006)***	.006 (.004)
# of all establishments, 1–5 miles	.086 (.014)***	.020 (.010)*	-.007 (.029)	.025 (.003)***	.012 (.002)***	-.0002 (.002)
Log population		-3.256 (1.711)*	2.891 (1.749)*		-.739 (.207)***	-.031 (.104)
Log annual median household income		9.615 (3.129)***	-3.571 (1.457)**		1.483 (.410)***	.140 (.152)
% never married, widowed or divorced		.154 (.161)	-.083 (.065)		.040 (.020)**	-.003 (.005)
% married		.176 (.220)	-.007 (.075)		.042 (.027)	.006 (.007)
% with high school diploma		-.068 (.185)	-.067 (.050)		-.003 (.024)	.005 (.004)
% with some college		-.012 (.168)	-.048 (.052)		.003 (.023)	-.002 (.005)
% with college degree		-.164 (.092)*	-.035 (.048)		-.023 (.011)**	-.003 (.003)
Majority white neighborhood		-.025 (.018)	-.022 (.017)		-.003 (.003)	.0008 (.0008)
Majority black neighborhood		-.009 (.022)	-.009 (.012)		-.006 (.004)	-.0006 (.002)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	23,740	23,645	23,645	23,740	23,645	23,645
Pseudo R^2	.032	.044	.074	.071	.1	.155

Notes: All specifications include a constant term and shares of individuals of different group ages in neighborhood. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 1994–2011.

likelihood of an establishment opening (and this is upheld even when not controlling for localization effects as seen in appendix table A.9). This is somewhat surprising, given the economic and structural benefits from firm clustering; however, it is possible that overall business activity operates at a rather large spatial scale (i.e., at a metropolitan area level beyond a five-mile range) or that the additional neighborhood controls and fixed effects absorb any hyper-local variation in clustering (which is already relatively invariant over time as shown in table 2).

When including tract fixed effects, we see that births are (marginally) more frequent in census tracts with larger populations; this could reflect the firms' preferences to locate near their patrons or employees. Firm births are less prevalent, however, in areas with higher average incomes; education has a negative but insignificant effect. Again, this could reflect more the availability or cost of space rather than the importance of those particular demographic characteristics. We will test this more directly in the regressions that follow.

The last three columns of table 2 show parallel models with the number of successes as the dependent variable.[9] While the proximity of similar industrial activity is also a stronger correlate than that of commercial activity more broadly, the patterns are distinct. Localization effects are positive and most pronounced at very close distances, i.e. within 0.25 miles; however their sign flips at a 0.5-to-1-mile distance (both results are consistent across all three specifications). At the closest range of 0.25 miles, an additional establishment of the same 2-digit NAICS classification is associated with an increase of 0.34 in the number of successes (or 35 percent based on the sample mean). This suggests that establishment success is much more dependent on similar economic activity in close proximity, and that even seemingly small distances from such activity can hurt the establishment's prospects. Like in the birth models, urbanization effects are smaller and also become insignificant in the fully-specified model. The residential correlates are even less meaningful in the success models, exhibiting insignificant coefficients across the board. Unlike the birth models, the importance of very proximate localization effects applies to almost all industry classifications (see appendix table A.11). Even though these effects still disappear or turn negative beyond 0.25 miles, in most cases, they suggest that clustering of like establishments may be more universally critical for success than for initial location decisions.

As an additional check, we also run similar models on two additional dependent variables: (i) the likelihood of an establishment permanently closing and (ii) the likelihood of an establishment closing and moving to a new location in a different census tract within New York City. These results are displayed in table 3. Without going into each specification in detail, we conclude that the results are consistent with those from the previous set of models: localization effects trump the urbanization ones (and exhibit similar gradients), and census tract demographics and fixed effects do little to change that. This makes sense if there is a limited supply of commercial space in the city through which establishments cycle and is consistent with the notion of 'creative destruction' or the fact that available resources are more abundant in places that have experienced similar economic activity (Caves, 1998).

[9]We replicate in appendix table A.10 the success models with a slightly different operationalization of success: a count of the number of successes over any consecutive three years (versus over the first three years after birth). While the magnitudes of the coefficients are larger, the patterns and precision of the estimates are consistent.

Table 3: Determinants of business exit and relocation

	Number of deaths in census tract			Number of moves in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	1.881 (.468)***	1.922 (.492)***	1.980 (.495)***	.782 (.191)***	.819 (.206)***	.872 (.210)***
# of 2-digit establishments, 0.25–0.5 miles	.324 (.203)	.344 (.195)*	.363 (.181)**	.168 (.137)	.190 (.136)	.207 (.135)
# of 2-digit establishments, 0.5–1 miles	-.002 (.093)	-.003 (.090)	.024 (.084)	.025 (.041)	.021 (.039)	.028 (.037)
# of 2-digit establishments, 1–5 miles	.080 (.033)**	.085 (.030)***	.087 (.029)***	.031 (.017)*	.030 (.016)*	.029 (.015)*
# of all establishments, within 0.25 miles	-.046 (.148)	-.145 (.093)	-.257 (.214)	.034 (.092)	-.024 (.044)	-.097 (.090)
# of all establishments, 0.25–0.5 miles	.172 (.097)*	.186 (.099)*	.072 (.206)	.077 (.048)	.090 (.038)**	-.040 (.035)
# of all establishments, 0.5–1 miles	.132 (.034)***	.044 (.038)	-.027 (.056)	.080 (.017)***	.027 (.016)*	-.046 (.028)
# of all establishments, 1–5 miles	.092 (.014)***	.030 (.010)***	.062 (.038)*	.065 (.009)***	.025 (.005)***	-.011 (.014)
Log population		-2.590 (1.463)*	2.772 (1.322)**		-1.643 (.608)***	.923 (.508)*
Log annual median household income		9.016 (2.633)***	-1.288 (1.331)		3.727 (1.089)***	.166 (.711)
% never married, widowed or divorced		.179 (.135)	-.042 (.040)		.124 (.059)**	.035 (.026)
% married		.175 (.168)	-.0009 (.068)		.117 (.064)*	.047 (.041)
% with high school diploma		.007 (.162)	.012 (.037)		.006 (.070)	.011 (.023)
% with some college		-.067 (.162)	-.031 (.039)		.027 (.068)	.036 (.030)
% with college degree		-.168 (.075)**	-.076 (.027)***		-.034 (.031)	.006 (.017)
Majority white neighborhood		-.021 (.015)	-.004 (.009)		-.009 (.007)	.009 (.005)**
Majority black neighborhood		-.020 (.023)	-.013 (.011)		-.019 (.011)*	-.005 (.009)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	23,740	23,681	23,681	23,740	23,681	23,681
Pseudo R^2	.034	.047	.079	.072	.099	.145

Notes: All specifications include a constant term and shares of individuals of different group ages in neighborhood. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 1994–2011.

Environmental effects

We now test for the effect of three important environmental factors on establishment births and successes: crime, land use and the presence of targeted business support services. Table 4 displays the results for the models including crime covariates; we show specifications without and with census tract fixed effects (all models include neighborhood demographic controls). We re-run the baseline specification (shown in appendix table A.12), which is now based off of a smaller sample and has slightly different proximity coefficients than those in the previous table (although the general pattern is the same).[10] This is due to a more limited sample of crime data, which covers only 2003-2011. Without census tract fixed effects more felonies are associated with more births; however, consistent with expectation, the coefficient turns negative in the presence of tract fixed effects implying that an increase in the number of felonies in a neighborhood over time deters business openings, although this effect is marginally significant in the fully-specified model. Next, we test for differences across types of crime in column (3): while property and violent crimes both exhibit negative and non-significant coefficients, violent crime is close to being significant at the 10 percent level and has a coefficient that is twice as large as well.[11] This finding suggests that violent crimes could be a bigger deterrent, possibly due to their disproportionate publicity. In all specifications, the coefficients (and the standard errors) on the other localization and urbanization coefficients are stable.

In columns (4) through (6) of table 4 we replicate the models with the number of successes as the dependent variable, and the results for the crime variables are different. First, they are less precisely estimated. Second, the sign on the crime variables show that higher levels of crime are associated with more instances of success. It is unlikely that firms are more likely to succeed among more criminal activities; rather, it is more probable that success is associated with more localized economic activity generally, which can also attract more crime (Lens and Meltzer, 2016).

Next, we augment the baseline model with measures of land use for the census tract (see table 5). We identify the amount of overall space available for commercial activity per unit of land and then disaggregate it by its designated use (based on the building's official classification). First, we control for the overall density of commercial building square footage. While it is positively associated with the likelihood of an establishment opening (and statistically significant), it is insignificant and turns negative in the fully-specified model (including census tract fixed effects). Therefore, neighborhoods with denser commercial activity experience more births, yet, this pattern may be driven by some unobserved neighborhood characteristic such as a convenient central location in Manhattan; once we look at changes in commercial activity and firm births over time in a neighborhood, we do not find any positive and significant association. In the second column we include a set of controls for the volume of buildings, by use classification. Once again, more commercial space is associated with more births. On the other hand, the other coefficients

[10] The demographic controls also exhibit similar coefficients, signs and significance levels. There are two meaningful exceptions: the percent with a college degree and majority white, both of which are reversed in sign and insignificant/significant, respectively.

[11] Felonies include all reported crimes, excluding misdemeanors; property crimes include arson, burglary, larceny and motor vehicle thefts; violent crimes include homicide, rape, robbery and aggravated assault.

Table 4: The role of crime on business entry and success

	Number of births in census tract			Number of successes in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	3.283	3.397	3.397	.310	.341	.341
	(1.373)**	(1.393)**	(1.393)**	(.096)***	(.101)***	(.101)***
# of 2-digit establishments, 0.25–0.5 miles	.502	.544	.544	.078	.080	.080
	(.351)	(.347)	(.347)	(.050)	(.049)	(.049)
# of 2-digit establishments, 0.5–1 miles	.180	.185	.185	-.064	-.063	-.063
	(.125)	(.124)	(.124)	(.017)***	(.016)***	(.016)***
# of 2-digit establishments, 1–5 miles	.276	.281	.281	-.011	-.009	-.009
	(.050)***	(.050)***	(.050)***	(.009)	(.008)	(.008)
# of all establishments, within 0.25 miles	.015	.279	.297	.024	-.023	-.024
	(.142)	(.302)	(.301)	(.018)	(.011)**	(.012)**
# of all establishments, 0.25–0.5 miles	.187	-.161	-.157	.019	-.001	-.002
	(.139)	(.225)	(.230)	(.013)	(.009)	(.009)
# of all establishments, 0.5–1 miles	.060	-.264	-.253	.017	.009	.009
	(.040)	(.159)*	(.147)*	(.005)***	(.006)*	(.006)
# of all establishments, 1–5 miles	-.003	.056	.056	.007	-.002	-.002
	(.009)	(.037)	(.039)	(.002)***	(.002)	(.002)
# of felonies in neighborhood	.083	-.013		.011	.0009	
	(.010)***	(.008)*		(.001)***	(.0007)	
# of property felonies in neighborhood			-.012			.0007
			(.012)			(.0009)
# of violent felonies in neighborhood			-.040			.002
			(.026)			(.002)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	Yes	Yes	No	Yes	Yes
Observations	12,358	12,358	12,358	12,358	12,358	12,358
Pseudo R^2	.058	.081	.081	.123	.165	.165

Notes: All specifications include a constant term, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of tables 2 and 3. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 2003–2011.

are mostly negatively and significant in some cases. Specifically, an additional garage-classified building is associated with a decline in the number of births in the tract in the range of -0.2 to -1.

These same land use patterns are reflected in the results for the success models (columns 4 and 5), albeit with smaller magnitudes. In the fully-specified model for successes (column 6), none of the coefficients is significant, and the only positive coefficient belongs to the number of commercial buildings: an additional commercial building is associated with an increase of 0.02 successes. These results could reflect the suitability of that space for certain commercial activity, and the tendency for garage properties to be located in otherwise industrial settings. We also note that when controlling for these land use factors, the coefficients on the localization and urbanization variables change only marginally; this suggests that proximity to other firm activity has value above and beyond what the fixed infrastructure induces (in terms of where and to what extent economic activity can cluster in a particular area).

Finally, we examine whether or not the existence of targeted supplemental support services, such as those provided through a Business Improvement District (BID), influences the likelihood of births or successes (see table 6).[12] The first two columns show the results for the birth models, and the coefficient on the BID variable is positive, and marginally significant only without census tract fixed effects. BID presence does not have a significant effect on business success either, but the coefficient does turn negative in the fully-specified model. This is suggestive evidence that BIDs could behave differently in attracting versus retaining businesses.

5. Conclusion and policy implications

The density, size and diversity of cities make them inherently attractive places for businesses to set up shop and, potentially, thrive. However, even when a firm decides on its municipal location, there are still a host of factors that drive its final address choice from among a number of neighborhoods and markets. What information do firms use in this decision-making process? Which factor is more influential—the characteristics of the other establishments nearby or the characteristics of the local built and social environment? We test these questions, using one of the densest and most diverse urban settings in the country, Manhattan. Furthermore, we are able to identify establishment births and successes across hyper-local neighborhoods and over a long period of time.

In line with extant studies, we find that localization effects are positive and larger in magnitude than urbanization effects: businesses seem to value proximity to establishments that produce similar goods or engage in similar activities, more than proximity to commercial activity more broadly. The importance of localization effects is most pronounced for infrastructure-heavy businesses (like manufacturing) and capital- and consumer-dependent businesses (like finance firms

[12] BIDs are privately initiated (but publicly sanctioned) special districts that use property assessments to fund exclusive services to their member properties (and the businesses that occupy them). This is admittedly a crude approximation of the BID effect, since different BIDs can provide different kinds and intensities of services to businesses. It is possible that there exists some variation in effects along these dimensions.

Table 5: The role of land use on business entry and success

	Number of births in census tract			Number of successes in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	3.306	3.339	3.392	.313	.321	.341
	(1.373)**	(1.375)**	(1.393)**	(.096)***	(.098)***	(.101)***
# of 2-digit establishments, 0.25–0.5 miles	.515	.489	.544	.078	.076	.079
	(.349)	(.352)	(.346)	(.050)	(.050)	(.049)
# of 2-digit establishments, 0.5–1 miles	.194	.205	.185	-.062	-.062	-.063
	(.125)	(.125)	(.124)	(.017)***	(.016)***	(.016)***
# of 2-digit establishments, 1–5 miles	.280	.278	.281	-.010	-.010	-.009
	(.050)***	(.050)***	(.050)***	(.009)	(.008)	(.008)
# of all establishments, within 0.25 miles	-.178	-.092	.324	-.002	.005	-.021
	(.118)	(.135)	(.299)	(.015)	(.015)	(.011)*
# of all establishments, 0.25–0.5 miles	.222	.205	-.173	.025	.021	-.002
	(.130)*	(.135)	(.213)	(.012)**	(.012)*	(.009)
# of all establishments, 0.5–1 miles	.009	-.071	-.235	.010	-.002	.012
	(.041)	(.039)*	(.122)*	(.005)**	(.004)	(.006)**
# of all establishments, 1–5 miles	.009	-.001	.052	.009	.007	-.002
	(.009)	(.008)	(.036)	(.002)***	(.002)***	(.002)
Density of commercial building area	2.319		-.196	.268		-.009
	(.756)***		(.199)	(.080)***		(.010)
# of commercial buildings in neighborhood		.541	.026		.065	.019
		(.074)***	(.197)		(.008)***	(.008)**
# of mixed buildings in neighborhood		-.062	-.178		-.002	.003
		(.038)	(.133)		(.005)	(.006)
# of residential buildings in neighborhood		.019	-.102		-.001	.008
		(.013)	(.083)		(.002)	(.008)
# of garage buildings in neighborhood		-1.040	-.175		-.117	-.013
		(.188)***	(.264)		(.020)***	(.008)*
# of other buildings in neighborhood		-.077	-.153		-.001	.008
		(.047)*	(.129)		(.007)	(.008)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	12,429	12,429	12,429	12,429	12,429	12,429
Pseudo R^2	.058	.063	.081	.120	.130	.165

Notes: All specifications include a constant term, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of tables 2 and 3. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 2003–2011.

Table 6: The role of targeted business support services on business entry and success

	Number of births in census tract		Number of successes in census tract	
	(1)	(2)	(3)	(4)
# of 2-digit establishments, within 0.25 miles	3.273	3.393	.311	.341
	(1.375)**	(1.392)**	(.096)***	(.101)***
# of 2-digit establishments, 0.25–0.5 miles	.526	.544	.079	.079
	(.349)	(.347)	(.050)	(.049)
# of 2-digit establishments, 0.5–1 miles	.184	.185	-.065	-.063
	(.126)	(.124)	(.017)***	(.016)***
# of 2-digit establishments, 1–5 miles	.279	.281	-.011	-.009
	(.050)***	(.050)***	(.009)	(.008)
# of all establishments, within 0.25 miles	-.125	.298	.004	-.026
	(.131)	(.301)	(.018)	(.012)**
# of all establishments, 0.25–0.5 miles	.206	-.166	.023	-.0008
	(.130)	(.224)	(.012)*	(.009)
# of all establishments, 0.5–1 miles	.041	-.271	.014	.010
	(.047)	(.156)*	(.006)**	(.006)*
# of all establishments, 1–5 miles	.018	.063	.010	-.002
	(.011)*	(.036)*	(.002)***	(.002)
Share of land area covered by BID	.206	.047	.021	-.011
	(.114)*	(.123)	(.011)*	(.010)
2-digit sector indicators	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes
Census tract fixed effects	No	Yes	No	Yes
Observations	12,429	12,429	12,429	12,429
Pseudo R^2	.052	.081	.109	.165

Notes: All specifications include a constant term, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of tables 2 and 3. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 2003–2011.

and entertainment venues). While the localization effects are significant and positive at a range of distances for establishment births (albeit with a clear negatively sloped gradient), they are positive and significant only at extremely close distances (i.e. 0.25 miles) for successes. And this is generally true regardless of the business' industrial classification. When we simultaneously consider other external factors, the predominance of localization effects persists.

The other environmental factors appear to play a marginal role in explaining firm entry and success. There are no significant effects from crime, although the coefficients suggest that more crimes (especially violent ones) are associated with fewer births. The prevalence of commercial space is important for entry decisions, and even more so for successes; and, yet, controlling for the amount of commercial infrastructure does not diminish the importance of the firm-generated localization effects. Lastly, BIDs, an example of geographically-targeted supplementary services for businesses, show no significant effect on the likelihood of entry or success (although there is suggestive evidence that BIDs might have a more positive effect on entry than short-term survival).

In their entirety, our findings indicate that the clustering of business activity, and similar business activity in particular, is paramount in a firm's location decision and survival outlook. This provides useful guidance for municipalities in how they should think about their economic development policies. Strategies that support local businesses without some connection to their relative spatial situation might not be very effective. For example, investing in commercial infrastructure without attention towards specifically how that space will be used (i.e. by which types of firms) could mean missed opportunities. In addition, the hyper-local context of proximity means that small adjustments in the concentration of such activity (and the infrastructure that supports it) can make a difference; this was evident in how clustering was only positively associated with success at very short ranges.

Future research needs to further tease out the independent effects of environmental and social factors. Our findings are suggestive in showing that crime can deter entry and that BIDs may attract births, but make success more difficult. While Manhattan is an ideal setting for examining hyper-local firm location decisions in a dense market, the variation along some of these environmental factors is more restricted than what it might be in other New York City boroughs. It would be beneficial to replicate the current analysis for the other boroughs, and certainly for other dense cities, to understand how a more varied set of determinants explains firm entry and success.

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Appendix A. Appendix tables

Table A.7: Determinants of business entry and success over time

	Number of births in census tract			Number of successes in census tract		
	1994–99	2000–05	2006–11	1994–99	2000–05	2006–11
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit estab., within 0.25 miles	1.923	1.341	4.113	.326	.208	.388
	(.504)***	(.425)***	(1.931)**	(.130)**	(.062)***	(.161)**
# of 2-digit estab., 0.25–0.5 miles	.137	.578	.220	.021	.107	.019
	(.174)	(.467)	(.325)	(.035)	(.073)	(.039)
# of 2-digit estab., 0.5–1 miles	.027	.079	.240	-.032	-.027	-.037
	(.118)	(.121)	(.134)*	(.012)***	(.013)**	(.013)***
# of 2-digit estab., 1–5 miles	.084	.077	.292	.005	.007	.005
	(.037)**	(.049)	(.050)***	(.006)	(.008)	(.006)
# of all establishments, within 0.25 miles	-.239	-.270	-.356	-.015	-.016	-.037
	(.116)**	(.212)	(.173)**	(.018)	(.015)	(.020)*
# of all establishments, 0.25–0.5 miles	-.117	.074	-.229	-.0002	-.005	.009
	(.074)	(.090)	(.105)**	(.008)	(.008)	(.011)
# of all establishments, 0.5–1 miles	-.032	-.006	-.057	.012	-.002	-.008
	(.034)	(.062)	(.062)	(.005)**	(.003)	(.003)**
# of all establishments, 1–5 miles	-.013	.068	.008	.002	.004	-.005
	(.023)	(.020)***	(.020)	(.002)	(.002)**	(.001)***
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,366	8,004	8,311	7,366	8,004	8,311
R^2	.396	.478	.51	.351	.353	.374

Notes: All specifications include a constant term, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of table 2. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels.

Table A.8: Determinants of business entry by two-digit NAICS

	Number of births in census tract					
	Manuf.	Wholesale	Retail	Transp.	FIRE	PST
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit est., within 0.25 miles	2.835 (1.004)***	1.068 (.999)	-.113 (1.608)	4.258 (.787)***	4.862 (1.708)***	.443 (1.416)
# of 2-digit establishments, 0.25–0.5 miles	1.793 (.476)***	.767 (.843)	.511 (.668)	-.071 (.877)	.757 (1.496)	-.770 (1.383)
# of 2-digit establishments, 0.5–1 miles	.429 (.277)	2.380 (.696)***	.931 (.484)*	-.198 (.269)	.688 (1.200)	-.963 (.743)
# of 2-digit establishments, 1–5 miles	.566 (.137)***	.328 (.283)	-.694 (.231)***	.703 (.180)***	.952 (.250)***	.280 (.367)
# of all establishments, within 0.25 miles	-.923 (.342)***	-.137 (.588)	.115 (.241)	.030 (.290)	-.395 (.214)*	-.025 (.183)
# of all establishments, 0.25–0.5 miles	-.256 (.202)	-.032 (.379)	-.022 (.226)	.413 (.246)*	.044 (.237)	.311 (.151)**
# of all establishments, 0.5–1 miles	-.353 (.107)***	-.628 (.279)**	-.230 (.162)	.00006 (.055)	.168 (.139)	.115 (.062)*
# of all establishments, 1–5 miles	-.018 (.050)	-.372 (.129)***	.031 (.059)	.008 (.013)	.038 (.022)*	.028 (.014)**
Pseudo R^2	.257	.215	.237	.229	.096	.252
	ASWMR	Education	Health	Arts & Ent.	AFS	Other
	(7)	(8)	(9)	(10)	(11)	(12)
# of 2-digit est., within 0.25 miles	1.072 (1.922)	-.071 (.397)	.054 (.583)	3.598 (1.402)**	.946 (.882)	.686 (.716)
# of 2-digit establishments, 0.25–0.5 miles	1.714 (1.512)	-.296 (.379)	-.431 (.313)	2.190 (1.310)*	.664 (.455)	1.473 (.778)*
# of 2-digit establishments, 0.5–1 miles	1.614 (.526)***	-.476 (.247)*	-.245 (.139)*	.328 (.305)	.539 (.180)***	1.537 (.294)***
# of 2-digit establishments, 1–5 miles	1.342 (.235)***	.184 (.104)*	.053 (.054)	-.122 (.153)	.235 (.090)***	.048 (.061)
# of all establishments, within 0.25 miles	.528 (1.536)	.018 (.072)	.503 (.245)**	-.300 (.140)**	-.047 (.096)	1.277 (.631)**
# of all establishments, 0.25–0.5 miles	.724 (.750)	.0004 (.031)	.106 (.153)	-.032 (.076)	-.087 (.078)	-.143 (.486)
# of all establishments, 0.5–1 miles	-.136 (.295)	.020 (.020)	.097 (.089)	.011 (.057)	-.071 (.038)*	-.392 (.115)***
# of all establishments, 1–5 miles	-.375 (.204)*	-.005 (.014)	.003 (.047)	.110 (.041)***	-.020 (.028)	.208 (.087)**
Pseudo R^2	.169	.222	.178	.241	.247	.167

Notes: All specifications include a constant term, census tract fixed effects, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of table 2. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. FIRE stands for Finance and insurance, information, real estate and rental and leasing; PST stands for Professional, scientific and technical services; ASWMR stands for Administrative, support, waste management and remediation services; AFS stands for Accomodation and food services.

Table A.9: Determinants of business entry and success excluding localization effects

	Number of births in census tract			Number of successes in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of all establishments, within 0.25 miles	.127	.016	.294	.042	.023	-.002
	(.218)	(.135)	(.301)	(.036)	(.018)	(.018)
# of all establishments, 0.25–0.5 miles	.207	.229	.159	.025	.032	.006
	(.113)*	(.118)*	(.133)	(.016)	(.012)***	(.008)
# of all establishments, 0.5–1 miles	.154	.056	-.030	.031	.012	.002
	(.037)***	(.043)	(.056)	(.006)***	(.005)**	(.004)
# of all establishments, 1–5 miles	.104	.038	.008	.024	.011	-.0007
	(.014)***	(.010)***	(.029)	(.003)***	(.002)***	(.002)
Log population		-3.212	2.857		-.739	-.040
		(1.718)*	(1.693)*		(.207)***	(.102)
Log annual median household income		9.537	-3.661		1.474	.143
		(3.120)***	(1.455)**		(.409)***	(.151)
% never married, widowed or divorced		.154	-.081		.039	-.002
		(.161)	(.064)		(.020)**	(.005)
% married		.181	-.006		.042	.006
		(.219)	(.075)		(.027)	(.007)
% with high school diploma		-.065	-.068		-.003	.005
		(.186)	(.049)		(.024)	(.004)
% with some college		-.009	-.042		.003	-.002
		(.169)	(.052)		(.023)	(.005)
% with college degree		-.161	-.034		-.023	-.003
		(.091)*	(.048)		(.011)**	(.003)
Majority white neighborhood		-.025	-.021		-.003	.0007
		(.018)	(.017)		(.003)	(.0008)
Majority black neighborhood		-.011	-.011		-.006	-.0007
		(.022)	(.012)		(.004)	(.002)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	23,740	23,681	23,681	23,740	23,681	23,681
Pseudo R^2	.030	.042	.071	.068	.097	.151

Notes: All specifications include a constant term and shares of individuals of different group ages in neighborhood. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 1994–2011.

Table A.10: Determinants of business success using alternative definitions

	Number of successes over previous 3 years in census tract			Number of successes over any 3 years in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	.342 (.088)***	.352 (.094)***	.375 (.097)***	1.027 (.263)***	1.055 (.283)***	1.126 (.292)***
# of 2-digit establishments, 0.25–0.5 miles	.064 (.040)	.067 (.040)*	.069 (.038)*	.192 (.120)	.200 (.120)*	.208 (.113)*
# of 2-digit establishments, 0.5–1 miles	-.063 (.017)***	-.061 (.016)***	-.057 (.015)***	-.188 (.051)***	-.183 (.048)***	-.172 (.046)***
# of 2-digit establishments, 1–5 miles	-.011 (.008)	-.009 (.007)	-.007 (.007)	-.032 (.024)	-.027 (.022)	-.022 (.021)
# of all establishments, within 0.25 miles	.019 (.033)	-.001 (.017)	-.027 (.022)	.058 (.099)	-.004 (.051)	-.080 (.066)
# of all establishments, 0.25–0.5 miles	.021 (.018)	.028 (.013)**	.002 (.007)	.063 (.053)	.083 (.039)**	.005 (.022)
# of all establishments, 0.5–1 miles	.035 (.006)***	.015 (.006)***	.006 (.004)	.106 (.019)***	.046 (.017)***	.018 (.012)
# of all establishments, 1–5 miles	.025 (.003)***	.012 (.002)***	-.0002 (.002)	.074 (.010)***	.035 (.006)***	-.0005 (.007)
Log population		-.739 (.207)***	-.031 (.104)		-2.217 (.621)***	-.092 (.312)
Log annual median household income		1.483 (.410)***	.140 (.152)		4.449 (1.229)***	.421 (.456)
% never married, widowed or divorced		.040 (.020)**	-.003 (.005)		.119 (.059)**	-.008 (.014)
% married		.042 (.027)	.006 (.007)		.125 (.081)	.017 (.022)
% with high school diploma		-.003 (.024)	.005 (.004)		-.009 (.071)	.016 (.012)
% with some college		.003 (.023)	-.002 (.005)		.010 (.068)	-.005 (.014)
% with college degree		-.023 (.011)**	-.003 (.003)		-.068 (.034)**	-.008 (.008)
Majority white neighborhood		-.003 (.003)	.0008 (.0008)		-.008 (.008)	.002 (.002)
Majority black neighborhood		-.006 (.004)	-.0006 (.002)		-.018 (.013)	-.002 (.005)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	23,740	23,681	23,681	23,740	23,681	23,681
Pseudo R^2	.071	.100	.155	.054	.075	.117

Notes: All specifications include a constant term and shares of individuals of different group ages in neighborhood. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 1994-2011.

Table A.11: Determinants of business success by two-digit NAICS

	Number of sucesses in census tract					
	Manuf.	Wholesale	Retail	Transp.	FIRE	PST
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit est., within 0.25 miles	.268 (.015)***	.134 (.004)***	.040 (.0005)***	.056 (.001)***	.699 (.126)***	.166 (.002)***
# of 2-digit est., 0.25–0.5 miles	-.544 (.013)***	-.022 (.001)***	.006 (.0005)***	-.009 (.004)**	.139 (.154)	.241 (.001)***
# of 2-digit est., 0.5–1 miles	-.066 (.006)***	-.103 (.003)***	-.032 (.0002)***	.066 (.002)***	-.018 (.028)	-.007 (.001)***
# of 2-digit est., 1–5 miles	.074 (.001)***	.105 (.001)***	-.017 (.00003)***	-.002 (.0007)***	-.016 (.024)	-.007 (.0003)***
# of all est., within 0.25 miles	.010 (.0003)***	.015 (.0001)***	-.006 (.00006)***	-.010 (.0001)***	-.096 (.049)**	-.094 (.0003)***
# of all est., 0.25–0.5 miles	-.0007 (.0002)***	.008 (.00007)***	-.010 (.00003)***	.012 (.00008)***	.011 (.029)	.012 (.0002)***
# of all est., 0.5–1 miles	.011 (.00006)***	-.011 (.00003)***	-.006 (1.00e-05)***	-.023 (.00003)***	.004 (.009)	-.018 (.00006)***
# of all est., 1–5 miles	-.006 (9.40e-06)***	-.0003 (3.91e-06)***	-.005 (2.16e-06)***	-.0003 (3.21e-06)***	-.003 (.006)	-.009 (7.83e-06)***
Pseudo R^2	.623	.679	.772	.785	.231	.547
	ASWMR	Education	Health	Arts & Ent.	AFS	Other
	(7)	(8)	(9)	(10)	(11)	(12)
# of 2-digit est., within 0.25 miles	.119 (.003)***	.046 (.001)***	.023 (.028)	-.071 (.001)***	.008 (.0005)***	.031 (.0002)***
# of 2-digit est., 0.25–0.5 miles	-.050 (.002)***	.013 (.0007)***	-.003 (.014)	.092 (.0007)***	-.016 (.0003)***	-.018 (.0002)***
# of 2-digit est., 0.5–1 miles	.012 (.0009)***	.018 (.0004)***	-.012 (.009)	.049 (.0002)***	.012 (.0001)***	-.002 (.00007)***
# of 2-digit est., 1–5 miles	-.013 (.0002)***	.024 (.00008)***	.004 (.005)	.025 (.00004)***	.011 (.00002)***	-.005 (1.00e-05)***
# of all est., within 0.25 miles	-.005 (.0003)***	.001 (.00005)***	.020 (.011)*	-.016 (.0001)***	-.002 (.00004)***	-.009 (.00009)***
# of all est., 0.25–0.5 miles	.041 (.0002)***	.006 (.00003)***	.007 (.008)	.017 (.00005)***	-.007 (.00003)***	.007 (.00004)***
# of all est., 0.5–1 miles	.001 (.00005)***	.003 (8.98e-06)***	.006 (.008)	.004 (1.00e-05)***	.003 (1.00e-05)***	-.002 (.00002)***
# of all est., 1–5 miles	.007 (5.53e-06)***	-.00005 (1.19e-06)***	-.003 (.003)	-.002 (1.77e-06)***	.002 (1.88e-06)***	-.001 (2.34e-06)***
Pseudo R^2	.682	.921	.807	.812	.906	.820

Notes: All specifications include a constant term, census tract fixed effects, shares of individuals of different group ages in neighborhood and all neighborhood variables in columns (2), (3), (5) and (6) of tables 2 and 3. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. FIRE stands for Finance and insurance, information, real estate and rental and leasing; PST stands for Professional, scientific and technical services; ASWMR stands for Administrative, support, waste management and remediation services; AFS stands for Accomodation and food services.

Table A.12: Determinants of business entry and success for restricted periods

	Number of births in census tract			Number of successes in census tract		
	(1)	(2)	(3)	(4)	(5)	(6)
# of 2-digit establishments, within 0.25 miles	3.245	3.285	3.393	.305	.313	.341
	(1.345)**	(1.374)**	(1.392)**	(.090)***	(.096)***	(.101)***
# of 2-digit establishments, 0.25–0.5 miles	.495	.521	.544	.076	.078	.079
	(.353)	(.352)	(.347)	(.050)	(.050)	(.049)
# of 2-digit establishments, 0.5–1 miles	.185	.182	.185	-.067	-.066	-.063
	(.127)	(.126)	(.124)	(.018)***	(.017)***	(.016)***
# of 2-digit establishments, 1–5 miles	.271	.278	.280	-.014	-.011	-.009
	(.051)***	(.050)***	(.050)***	(.010)	(.009)	(.008)
# of all establishments, within 0.25 miles	-.028	-.182	.288	.020	-.002	-.023
	(.214)	(.144)	(.299)	(.033)	(.018)	(.011)**
# of all establishments, 0.25–0.5 miles	.214	.232	-.165	.022	.026	-.001
	(.148)	(.144)	(.224)	(.017)	(.013)*	(.009)
# of all establishments, 0.5–1 miles	.140	.034	-.273	.034	.013	.010
	(.041)***	(.046)	(.158)*	(.006)***	(.006)**	(.006)*
# of all establishments, 1–5 miles	.089	.023	.063	.024	.011	-.002
	(.014)***	(.011)**	(.036)*	(.003)***	(.002)***	(.002)
Log population		-2.862	1.537		-.750	-.104
		(1.698)*	(2.364)		(.205)***	(.089)
Log annual median household income		11.177	-4.088		1.621	.218
		(3.482)***	(2.227)*		(.436)***	(.116)*
% never married, widowed or divorced		.096	.092		.031	-.004
		(.182)	(.143)		(.023)	(.004)
% married		.332	.051		.062	-.007
		(.262)	(.095)		(.030)**	(.006)
% with high school diploma		-.170	-.081		-.016	-.005
		(.188)	(.065)		(.024)	(.004)
% with some college		-.021	-.034		-.003	.008
		(.171)	(.077)		(.024)	(.005)
% with college degree		-.214	.073		-.030	-.004
		(.106)**	(.096)		(.013)**	(.003)
Majority white neighborhood		-.050	-.056		-.005	.001
		(.024)**	(.026)**		(.003)*	(.0006)**
Majority black neighborhood		.016	-.022		-.005	-.0001
		(.029)	(.017)		(.006)	(.001)
2-digit sector indicators	Yes	Yes	Yes	Yes	Yes	Yes
3-year group indicators	Yes	Yes	Yes	Yes	Yes	Yes
Census tract fixed effects	No	No	Yes	No	No	Yes
Observations	12,469	12,429	12,429	12,469	12,429	12,429
Pseudo R^2	.038	.051	.081	.076	.108	.165

Notes: All specifications include a constant term and shares of individuals of different group ages in neighborhood. Coefficients are reported with robust standard errors in parenthesis, which are clustered by census tract. ***, **, and * indicate significance at the 1, 5, and 10 percent levels. Period of analysis covers the years 2003–2011.