Local Economic Consequences of Stock Market Listings

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Abstract

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Abstract

On average, when a firm goes public there are positive spillover effects on the local economy where the firm's headquarters is. We show IPOs have non-trivial impacts on the local real estate, labor market, business environment, and economic growth. We mitigate concerns about unobserved heterogeneity with judicious subsample tests, restrictive geographic fixed effects, and a matching procedure. We show that it is the listing decision, rather than raising capital, that induces the economic spillovers.

1. Introduction

Anecdotal evidence suggests that the change in the listing status of a firm and the concomitant liquidity it provides its shareholders can have a significant impact on local economies. An example is Facebook. The Facebook initial public offering (IPO) was enormous, raising over $16 billion and making liquid the paper wealth that many Facebook employees had in the form of previously untradable stock. As one article about the Facebook IPO states, "When Facebook CEO Mark Zuckerberg rang the Nasdaq opening bell on Friday [May 18, 2012] to mark Facebook's public debut, he also rang in a crop of new millionaires and billionaires."[1] Without stating exact numbers, the article and others from around the same time suggest that thousands of Facebook employees became millionaires in the transaction. Another article of the time speculates that the Facebook IPO could create over $1 billion in property value in the San Francisco Bay area near the company's headquarters in Palo Alto, California, due to the number of millionaires competing to buy homes.[2] This phenomenon is not unique to Facebook; more than two decades earlier, Dell went public, creating liquidity for numerous employee-shareholders in the Austin, Texas, area near Dell's headquarters. These employees, sometimes referred to as 'Dellionaires,' got rich off their shareholdings and bought and built homes in the area, thereby popularizing the term "McMansion," which describes their ubiquitous domiciles.[3]

We study whether, in general, there are economic benefits to the local economy when there is an IPO nearby. We use data on IPO listing decisions over 1980-2011 to examine the effect of an IPO on the listing firm's MSA's economy. In our first set of tests, we use our full sample

[1] http://money.cnn.com/2012/05/21/technology/facebook-ipo-millionaires/index.htm, accessed October 25, 2012.
[2] http://www.huffingtonpost.com/david-j-cross/san-francisco-real-estate_b_1527172.html, accessed October 25, 2012.
[3] Austin, TX has residential design ordinances colloquially known as "McMansion regulations." See http://www.austintexas.gov/department/residential-design-compatability-standards, accessed October 18, 2015.

dataset of 11,712 MSA-years from 1980-2011. From this sample we run a pooled regression of several variables that measure various local economic conditions on whether or not an IPO recently occurred in the MSA with controls, fixed effects for time, and fixed effects for MSA.

We study the effect of IPOs on local real estate outcomes (mortgage originations, new housing starts, and home prices), labor market outcomes (employment growth, job creation), and other measures of economic growth (new business starts, per capita income growth). We use various measures of IPO activity and various subsamples to draw nuanced inferences about the effects we estimate. Broadly speaking, we find that IPOs on average are associated with positive economic outcomes in an MSA. Before discussing the specific results, their magnitudes, and the resulting implications, we first address some concerns over identification.

Our setting faces at least two problems related to identification. First, there could be reverse causality, wherein MSAs that are about to improve economically have more IPOs. We test for this directly and find that none of the outcome variables we study predicts the number of IPOs or the level of IPO proceeds in the MSA, suggesting causality does not run from local economic activity to IPO activity in our sample.

The second identification problem is the potential for omitted variables bias. For instance, IPO MSA-years (treated) and no-IPO MSA-years (untreated) observations may be qualitatively different in terms of their ex ante economic characteristics. They are. Treated MSA-years have more firms that are public, higher per capita income, more private firms, higher employment, and larger populations than untreated observations. In short, if left as-is, we would have covariate imbalance between the treated and untreated observations. To mitigate this covariate imbalance, we match treated observations to untreated observations based on the first lags of the following covariates (all variables are in natural logs): income per capita, the lagged number of public and

private firms, MSA population, and employment. We then take this matched sample and repeat our main tests; our conclusions are unchanged, with one important exception that we mention below. Moreover, following Altonji, et al. (2005), we estimate how big the magnitude of the bias due to selection on unobserved variables would have to be to explain our results. The selection on unobservables would have to be approximately 3.5 times as large as the effect of selection on our observed variables for our matched sample. Without true random assignment of IPOs to MSAs, we cannot definitively ascribe causality. However, having reduced the concerns of reverse causality and omitted variables bias, we believe that our results indicate a causal impact that IPOs have a positive impact on the local economy.

How big is the average effect of an IPO on these outcome variables? Our matched sample results suggest that following years of heavy IPO activity (i.e., top quartile of IPO proceeds over that last two years), relative to their matched sample counterpart MSAs, mortgage originations increase by 6.0% (one-sixth of a standard deviation), and new housing starts increase by 3.7% (one-twelfth of a standard deviation). Housing prices increase by 2.2%, (one-third of a standard deviation) but only for the highest priced homes. This result alone obtains only with our matched sample test; when we use the full sample, the estimate is insignificant. Labor markets improve as well, with employment growth increasing 33 bps (one-ninth of a standard deviation) and job creation rates increasing 46 bps (one-eleventh of a standard deviation). The rate of new business starts increases by 18 bps (one-fifteenth of a standard deviation), and per capita income growth increases by 33 bps (one-ninth of a standard deviation). Finally, as a result of a large IPO, low-income people are more likely to move away from the IPO firm's ZIP code to less expensive neighborhoods.

A remaining problem is one of interpretation. Is it the change in listing status that results in an economic spillover effect? Or is it simply the fact that a local firm is raising external capital? To assess which of these is the more likely explanation, we add to our tests a variable that measures seasoned equity offering (SEO) activity in the area. When we do so, the IPO variable remains qualitatively unchanged and the SEO variable is statistically insignificant. We interpret this finding as being consistent with changes in firms' listing status—rather than their raising external capital—being responsible for the economic spillover effects.

Finally, we note that a convenient aspect of our empirical design is the richness of some of the outcome variables we use. Because many of the outcomes we study vary at the geographically narrow zip code level, we can run many of our tests with *county-year fixed effects*. Doing so forces identification from economic outcomes across different zip codes in the same county in the same year. This design dramatically mitigates any remaining concerns over omitted variables bias driving our results. Any offending omitted variable would have to be correlated with both our outcome economic activity variable and our explanatory IPO activity variable, but unrelated to our control variables *and* varying by proximity to the IPO firm headquarters within the same county and within the same year. These stringent fixed-effects tests all support our main conclusions. Furthermore, we extend the empirical design to document a geographic radius of effect of the IPO.

Our paper adds to the finance-growth nexus literature (e.g., Jayaratne and Strahan (1996); Levine (2005)), particularly the body of work that addresses how equity market access affects economic growth. Our paper fits between the literature that examines how a firm's equity issues (e.g., Brown, Fazzari, and Petersen (2009); Brown and Floros (2012)) and listing status (Acharya and Xu (2016)) affect company activity and growth and the literature on how country-level equity market features affect country-level growth (e.g., Bekaert, Harvey, and Lundblad (2005); Beck

and Levine (2004); Brown, Martinsson, and Petersen (2013)). We show firm level activity that changes listing status has an impact on the surrounding geographic area's economic fortunes and thus provide some micro-foundation for the country-level results in the literature and some macro-implications consistent with the company-level results in the literature. The positive local economic spillover effects of IPOs we document here are consistent with studies that link employee wealth with increases in entrepreneurship (e.g., Cagetti and De Nardi (2006); Babina, Ouimet, and Zarutskie (2017)) and entrepreneurship with job creation (e.g. Haltiwanger, et al. (2013)). Finally, our results are consistent with previous studies finding that IPOs create positive externalities that facilitate private investment through information spillovers and supply chain linkages (see Badertscher, et al. (2013), and Kutsuna, et al. (2016)).

2. A panel analysis of the economic impact of IPOs on US metro areas

a. Overview of our baseline methodology

We start with panel regressions that estimate the relation between IPO activity in an MSA and changes in real estate activity, labor market outcomes, and other economic activity. Our baseline regression model is:

$$Ln(Y_{i,t}/Y_{i,t-1}) = \alpha_i + a_t + \beta(IPO\ activity)_{i,t-1,t-2} + X_{i,t} + \epsilon_{i,t}\ , \qquad (1)$$

where *i,t* indicates MSA-year. $X_{i,t}$ is a vector of MSA control variables (population, number of private firms, employment, and number of public firms). *Y* refers to one of our several outcome variables. All regressions include MSA and year fixed effects. The MSA fixed effect removes unobserved factors that influence per capita income and remain constant in time, and therefore our estimates obtain from time-series variation in IPO activity within a certain MSA. Time-period fixed effects capture the variation from systematic factors that affect per capita income across all

MSAs during different times in the business cycle. Later, for some outcome variables for which we have geographic variation at the zip-code level, we extend our MSA fixed effects plus year fixed effects specification to be county-year fixed effects. These specifications force identification from different areas—some of which had an IPO, some of which did not—in the same county in the same year. We use an indicator variable for each year, but when we use coarser indicators for the IPO cycles identified by Butler, Keefe, and Kieschnick (2014), our results are qualitatively unchanged (we do not tabulate these results). Moreover, we cluster standard errors at both the MSA level, to address potential correlation in per capita income within an MSA, and at the year level, to address the possibility that IPOs cluster within certain years (see Schultz (2003)).

b. Data

We gather IPO data on US firms from Securities Data Corporation (SDC) from 1980-2011 and use each firm's headquarters' ZIP code to determine its associated home MSA based on matched ZIP codes from the US Postal Service and US Census Bureau. MSAs vary by geographic size and have irregular borders that cross state lines in some cases (e.g. the Charlotte, North Carolina, MSA also includes the cities of Rock Hill and Fort Mill in South Carolina). Some firms may have operations in geographic areas other than where their headquarters locations are; this geographic dispersion should bias our estimates towards zero.

For each MSA, we gather economic data including per capita income, employment, number of public firms, and number of private firms from the Bureau of Economic Analysis (BEA) and the monthly Current Population Survey (CPS) to obtain population. CPS data is at the household level, so individual households are aggregated by MSA to form the population variable. The Home Mortgage Disclosure Act (HMDA) provides individual-level data on mortgage originations that we aggregate at the MSA-year level. We also collect data on new housing starts

from the US Census Bureau and home price data from Zillow. We exclude from our real estate analysis the years during the financial crisis (2007-2010) because the collapse of the housing market could bias our estimates.

We remove all ADRs, ETFs, REITS, non-stocks, financials, utilities, MLPs, and CEFs from the sample. From this sample, we determine the year of the IPO from the Securities Data Corporation (SDC) and the associated headquarters MSA from its headquartered ZIP code. We drop spin-offs, firms missing headquarters ZIP code data, and firms with market capitalization of less than $100 million. We also gather data on SEOs from 1980-2011 from the SDC to compare the effect of IPO offerings to that of SEO offerings. Although the results are insensitive to doing so, we winsorize all variables at the 1st and 99th percentiles of their empirical distributions. Winsorizing mitigates the effects of outliers, such as from MSAs that experience large changes in outcome variables after natural disasters.

We test the hypothesis that IPOs affect the following set of local economic-activity variables: mortgage origination, new housing starts, housing prices, employment and job creation, new business starts, and income growth. Our main analyses use pooled OLS regressions of these MSA economic variables on past levels IPO activity in that MSA. Specifically, we use the natural logarithm of the ratio of current MSA economic activity to previous year MSA income per capita, $Ln(Y_t/Y_{t-1})$, as the dependent variable. Augmented Dickey-Fuller tests confirm that the logged ratio of all the economic measures we use is stationary. In the regressions, we control for the following variables: population, number of private firms, employment, and number of public firms.[4] Including a lag of the dependent variable makes no substantive impact on our coefficient

[4] Our control variables are in natural logs of levels, but using differences of natural logs as controls does not change our results. Controlling for demographic variables such as ethnic diversity and educational attainment also does not affect the results.

estimates. In all our regressions, we include MSA fixed effects to absorb time-invariant unobserved heterogeneity and year-fixed effects to control for macroeconomic events that affect all MSAs. Excluding either or both fixed effects strengthens the magnitude and statistical significance of our results. In our regressions, we cluster standard errors by MSA and by year.

c. Summary statistics

Table I presents summary statistics for the main variables. The final sample consists of 366 MSAs over a 32-year period. The average MSA has a per capita income of $22,800, a population of approximately 600,000, 56,000 private firms, and 23 public firms. Although the median number of IPOs and SEOs in a given MSA-year in the sample is zero, the number of IPOs varies considerably across different years, as 275 distinct MSAs had at least one IPO satisfying our data screens at some point in the sample. The distribution of proceeds is skewed, with some IPOs exceeding $10 billion and average proceeds of approximately $86 million.

In Table I, Panel B, we divide the sample into five groups based on the level of IPO proceeds in a given year—observations with no IPOs and observations in each of the four quartiles of IPO proceeds—and present the group averages. MSAs with lower IPO proceeds have smaller populations than high IPO activity MSAs, they have lower income, and they have fewer private and public firms. The differences in these characteristics are statistically significant, and we address below whether this issue confounds our inference in our baseline tests.

d. Panel regression results

We want to test whether IPOs have spillover effects on the local economy. Specifically, in the following sections we investigate whether IPOs have a significant impact on local real estate and labor markets, business environment, and overall local income growth. To ease the comparison of our estimates across a large set of tests that measure the extensive and intensive

margin of IPO activity, we summarize our results in a "meta-table" (Table II) and provide the usual full regression tables in our appendix for readers interested in the detailed results.

In Table II, the real estate variables we study are mortgage origination growth (column A), new housing starts (column B), and home prices (columns C and D). We hypothesize that the liquidity shock of the listing effect should affect the demand mostly for expensive houses, so we test the effect of IPOs on bottom-tier and top-tier homes separately. Previous studies find that IPOs (delistings) are associated with an increase (decrease) in firm-level employment—see Bakke, Jens, and Whited (2012) and Borisov, Ellul, and Sevilir (2015). Therefore, we also test the hypothesis that IPO activity has a positive effect on local employment growth (column E) and job creation rate (column F). We also investigate the effect of IPOs on the growth of new business establishments (column G). The positive wealth shock to shareholders and employees holding stock grants after a successful IPO may also increase the number of people working for or launching new startups (see Babina, et al. (2017)). Finally, in column H, we test whether the spillover effects of IPOs affect the overall growth of local per capita income.

d.1. Panel regression results: baseline regression

Our baseline regression needs to address two empirical challenges. First, not all IPOs are equal, so we expect heterogeneity in IPO size will create variation in the treatment effect of IPOs on economic activity. For example, Facebook's IPO was an outlier in terms of size, and its impact on the local economy was large. We hypothesize that, other things equal, larger IPOs should have a larger impact on local economies. To this end, we group MSAs that have had at least one IPO into quartiles based on the size of IPO proceeds aggregated over all IPOs in that MSA during a two-year period. We then investigate the effects of IPO activity in MSAs that belong in the top quartile of IPO proceeds with all other MSAs.

Moreover, not all MSAs are the same, which creates a second empirical challenge. As we notice from Panel B of Table I, MSAs with high IPO activity are different from MSAs with lower levels of IPO activity. A legitimate concern, therefore, is whether the significant differences of MSAs' characteristics—their initial per capita income, population, employment levels, or number of public and private firms that operate there—correlate with unobserved factors that drive our estimates. These differences may confound our inference, and so we address this potential bias in our baseline regression by making apples-to-apples comparisons through a matching-plus-regression approach.

We want to match on five characteristics (lagged income per capita, the number of public and private firms, MSA population, and employment), which creates a potential "curse of dimensionality" problem. To balance inclusiveness of observations with closeness of match along all dimensions, we use a matching method called coarsened exact matching (see Blackwell, et al. (2009)). The procedure is similar to characteristic matching, but rather than trying to match well on multiple continuous dimensions, such as the characteristic matching in Barber and Lyon (1997), we match exactly on discretized bins of these variables. The result is a categorical match on every dimension for every observation that we use. First, we pick the main covariates that we need to balance between the treated and control group. These covariates are the number of public firms and private firms, employment, population, and the lag of the outcome variable. Then, we cut (or coarsen) these covariates into groups based on the yearly distribution of their values. This process creates a number of dimensional strata, or bins. Finally, we put all our observations in these bins and make sure that each bin has at least one observation from both the treated and control groups. We drop all observations that do not satisfy the above criteria. We repeat this matching process for each outcome variable we study. The resulting sample size varies with the availability of data

for the outcome variable. Median sample size is 1,310 (315 treated, 835 controls), with a minimum of 181 observations for the tests using low median home prices as the dependent variable (76 treated, 104 controls), and a maximum of 2,857 observations for the employment-growth outcome variable tests (479 treated, 2,378 controls). Once we match, the standardized differences suggest that our matched sample contains MSAs with well-balanced characteristics between treated and control MSAs, with all the standardized differences close to zero. We measure the imbalance over all the cell values with a multivariate distance metric (Blackwell, et al. (2009)) and find that our matching procedure reduces covariate imbalance by an average of 10-50%. We do not tabulate the standardized differences, but they are available upon request.

The regression results of our baseline specification are in row (1) of Table II. We start by investigating the impact of IPO activity on real estate markets (columns A-D). From row (1) in Table II, we find that MSAs at the top quartile of the IPO proceeds distribution over the last two years have approximately 6% higher subsequent mortgage origination growth than that of our control group—MSAs that are in one of the other three quartiles of IPO proceeds or that have no IPOs. This change translates to an additional $32 million worth of mortgages due to an above average increase in IPO activity in the area. In addition, we find that heavy-IPO activity increases growth of new housing starts from 3.5% to 3.63%. We also find that IPOs have a large impact on home prices. Consistent with the idea that stock listings are wealth shocks for shareholders (or employees with stock holdings) that increase the demand for expensive houses in the area, we find a 2.2% (one-tenth of a standard deviation) increase in the median price only for homes in the top third for that region.

We next investigate the effects of IPO activity on labor markets and the business environment. Our regression estimates in columns (E) and (F) suggest that after a two-year period

of heavy-IPO activity, MSAs experience a significant increase in employment growth (22 bps), net job creation (46 bps), and business starts growth (18 bps). Finally, MSAs at the top quartile of the IPO distribution also have approximately 33 bps higher subsequent income growth.[5] These results obtain with MSA and year-fixed effects in our regressions. Therefore, by combining matching methods with fixed-effect regressions, the results in this section mitigate potential concerns that our results are due to extrapolation or omitted variables bias and suggest that above average IPO activity within a metropolitan area creates significant economic spillover effects.

d.2. Panel regression results: Full-sample and subsample tests

This section assesses the external validity of our results, and discusses the possibility that outliers or omitted variables drive our estimates. We construct judicious subsample tests and use different measures of IPO activity and present our results in regressions (2)-(8) of Table II.

The regressions in row (2) and (3) of Table II use the full sample of MSA-years and estimate how broad the effects of IPO activity are on local economies. Specifically, in row (2), we regress local economic outcomes on two dummy variables that indicate whether the MSA had at least one IPO a year and two years before. In columns A-D, we find that MSAs with at least one IPO the year before experience approximately a 3.7% increase in new housing starts, but no large effect on mortgage origination or home prices. We find that having at least some IPO activity in the MSA leads to a 20 bps increase in the job creation rate and a 15 bps increase in new business starts. IPOs also have a broader spillover effect, leading to 29 bps, or a 6.5% increase relative to the mean rate of per capita income growth. The spillover effects of IPOs do not reverse: The

[5] The Bureau of Labor Statistics has a short time series from 1998 of annual incomes for high and low-income brackets. We find the effect of an IPO on local incomes is stronger for high-income groups than low-income groups in matched sample tests. However, because of the reduced sample size, we view this evidence as suggestive, but do not tabulate the results.

coefficient on the IPO dummy for two-years-prior is indistinguishable from zero (found in Appendix Table A.IX).

Our extensive-margin tests in row (2) do not differentiate between small and large IPOs, so, as expected, our estimated effects are economically smaller than the regressions in row (1). The regression model in row (3) maintains the full sample of MSA-years (as in row 2), but uses an intensive margin measure of IPO activity that is based on the distribution of IPO proceeds in the last two years. We find that the results from these regressions maintain the external validity of the previous tests when we use an IPO variable based on the intensity of IPO activity. The regression results in columns A-H of row (3) are economically similar to the results in row (1) and further corroborate our findings that IPO activity creates positive spillover effects on local real estate, labor markets, and economic development.

We continue our analysis by selecting subsamples to assess whether the possibility that IPOs do not randomly occur across MSAs drives the results. In rows (4)-(6), we reduce the sample to only MSA-years that are ex ante similar. In row (4), we exclude from the sample MSA-years with no IPO activity. Combined with MSA fixed effects, this regression allows us to compare the economic spillover effects in the same MSA after years of heavy IPO activity with the spillover effects after years of modest IPO activity. In row (5), we limit the sample to MSA-years with exactly one IPO or no IPOs. Comparing MSA-years with one IPO to MSA-years with no IPO activity is a weaker extensive margin test, but it is instructive because treated observations are more similar ex ante to control observations than in the full sample. Finally, the regressions in row (6) are analogous to the intensive margin tests in row (4) but exclude MSAs that never had an IPO during the sample period.

The empirical findings of our subsample tests corroborate the results of the baseline regressions. From rows (4)–(6), we find that IPO activity leads to a 5.3-5.5% increase in mortgage origination growth and a 3.7-4.7% increase in new housing starts. IPO activity also creates positive spillover effects on local labor markets, the business environment, and economic growth. Specifically, we find that heavy IPO activity increases employment growth by 19-28 bps, the job creation rate by 26-50 bps, and the growth of new business establishments by 15-17 bps. Consistent with our baseline estimates, we find that heavy IPO activity leads to a subsequent increase in income growth by 24-32 bps.

Very large MSAs present an empirical challenge, because on one hand, they might have inordinately heavy IPO activity, but on the other hand, they are potentially so large that any one IPO is unlikely to have any measurable impact. Aside from controlling for MSA population in our regressions, we address potential confounding effects of the size of the MSA in two ways. First, we normalize the size of IPO proceeds by MSA population (IPO proceeds per capita; see row 7), and second, we exclude the largest 20 MSAs from the sample (see row 8). The regression results are similar to the intensive margin tests in row (3) and suggest that heavy IPO activity has an economically and statistically large effect on mortgage origination growth (4.3-4.4%), housing starts (4.4-5.4%), and employment growth (24-28 bps). Our per capita measure of IPO activity in row (7) results in relatively smaller coefficient estimates, consistent with the idea that in big MSAs, any given IPO will have only a modest impact. Likewise, excluding the top population centers in row (8), we find that the economic magnitude of the IPO spillover effects on high-priced homes and income growth is larger than our estimates in row (3). These results suggest that the spillover effects of IPOs on local economies are larger in smaller MSAs.

d.3. Panel regressions: Listing status (IPOs) vs Raising capital (SEOs)

An important question is whether our results arise from the listing consequences of an IPO—such as establishing a market price, improving liquidity for shareholders, and improving the firm's access to external capital—or simply from the fact that firms are raising capital. To distinguish between the listing and capital-raising channels, we add to our regression of income on IPO activity an additional covariate: seasoned equity offering (SEO) activity. If firms' capital-raising activities drive our result, we should see a positive and significant coefficient on our SEO variable. If it is the change in listing after an IPO that creates the spillover effects, then the coefficient on the SEO variable should be indistinguishable from zero.

We group MSAs into quartiles based on the level of IPO proceeds and SEO proceeds over the last two years, and then we test whether heavy IPO and heavy SEO activity have a positive effect on local real estate, labor markets, business establishments, and income growth. IPO activity and SEO activity in an MSA are correlated (correlation = +0.28) but not enough to cause concern about multicollinearity. We present the results of these regressions in row (9) of Table II. Consistent with the story that the listing status drives the change in local economic outcomes, we find that high SEO activity does not create any spillover effects on local real estate markets or other business and economic variables. Meanwhile, the coefficient on high IPO-proceeds MSAs remains virtually the same in magnitude and statistically significant.

d.4. Panel regressions: crowding out effects of IPOs

Our findings suggest that IPOs create positive spillover effects to real estate markets and the local economies. Even though the spillover effects are broad and have a positive effect on local economies as a whole, the effect may not be symmetric across individual people with different income levels. For example, our baseline results suggest that IPOs affect only the market for high-priced homes in the area. This result suggests that lower-income people who own low-priced

houses do not benefit from IPOs as much as higher-income individuals. Therefore, we hypothesize that IPO activity could crowd out low-income people, forcing them to move to more affordable neighborhoods.

Specifically, we test whether heavy IPO activity in an area increases the likelihood that people move out of the IPO area to more affordable neighborhoods in the next two years. To test this hypothesis, we use a sample from Experian of more than 3 million individuals that reflects the characteristics of the US population. Our sample includes detailed information about individual characteristics, including their income, their credit score, their mortgage debt, and the ZIP code of their primary residence from 2005 until 2015. The median person in our sample has lived in two different ZIP codes.

Our analysis focuses only on people living in apartments or multi-unit complexes because these people are less likely to own their domiciles and can likely move more easily than someone who owns their home. Although we might misclassify some of these people as renters when they are actually owners, any such misclassification will bias against finding that IPOs result in people moving.

To create the dependent variable in our regression, we take all ZIP codes in the US and allocate them in five income groups based on the distribution of average household income in that ZIP code. Using rental prices from Zillow, we also segment ZIP codes into five groups based on the yearly distribution of median rent prices. Our dependent variable is an indicator variable that equals one if a person moves to a lower rent (alternately, lower income) ZIP code and zero if a person does not move to a lower rent (alternately, lower income) ZIP code. The probability that a person will move to a different ZIP code is 12.4%, which is consistent with historical migration

statistics from the US Census Bureau.[6] The unconditional probability that low-income people living in apartments or complexes will move to ZIP codes with lower average income (rent) is 11% (3.5%).

We present the results in Table III. Our findings in column (1) suggest that, on average, heavy IPO activity reduces the likelihood that people will move to ZIP codes with lower average income or rent. However, we expect IPOs to have a heterogeneous impact on people with different income levels. Consistent with the hypothesis that IPOs crowd out lower-income people, we find that heavy IPO activity increases the probability that people in the lowest quartile of the income distribution will, over the next two years, move to ZIP codes with lower income by 1.5%. As we would expect, this result does not hold for individuals with high income, or owners of single-family residences. Our results are not the outcome of chance. We find no evidence that heavy-SEO activity affects individuals' tendency to migrate to other zip codes. Finally, our findings in column (2) also suggest that low-income individuals move towards neighborhoods with lower average rent.

e. Is reverse causality or omitted variables bias a concern?

We empirically investigate whether past income growth and other measures of local economic activity affect the timing of IPOs in different cities. Further, we regress IPO proceeds in a given year on lags of income per capita growth, lagged IPO proceeds, and lagged measures of local economic activity. Because IPO proceeds are zero for the majority of MSA-years, the distribution of the dependent variable is highly skewed. To address this issue, we include a separate dummy variable that indicates whether the MSA had at least one IPO in that year. By including a separate intercept for MSA years that experience no IPO activity addresses the

[6] "U.S. Mover Rate Remains Stable at About 12% Since 2008, Census Bureau Reports" Release Number: CB15-47.

distribution issue, allowing us to use OLS regression with firm- and year-fixed effects. The results in row (10) of Table II suggest none of the lags of past economic activity predict the level of IPO proceeds (first column). On the other hand, consistent with the results in rows (1)-(9), we find that past IPO activity has a significantly positive effect on local real estate markets, labor markets, and income growth. That is, local IPO activity appears to predict future local economic outcomes, but local economic progress does not predict future local IPO activity.

Although our matched sample analysis mitigates concern over whether omitted variables bias drives our result, and our MSA fixed effects absorb time-invariant unobserved heterogeneity, it is still possible that time-varying unobserved factors drive the observed relation between IPO activity on local economic outcomes. We quantify how large the effect of selection on unobservable characteristics has to be to explain our results. Altonji, et al. (2005) formalize the procedure to estimate how the coefficients would change if selection on unobservable factors were equal to the treatment effect. Oster (2016) generalizes this methodology. We estimate the degree of selection on unobservables relative to selection on observables that would be necessary to explain away the estimated effect of IPO activity on income. In untabulated tests we find that the selection on unobservables has to be at least 3.5 times larger than selection on observables for the treatment effect of IPO activity to be zero for the matched sample regressions that comprise our baseline tests. Moreover, if the selection on unobservables and observables were equally important, the treatment effects of IPO activity on local economic outcomes drop, on average, by one quarter, but the effect would still be statistically significant. Taken together, the empirical results in this section are inconsistent with reverse causality or unobserved factors driving the effect of IPO activity on per capita income.

f. An off-the-shelf instrumental variable approach is unsatisfying

One approach to assessing causality would be to use an instrumental variable to generate quasi-random variation in the IPO process. Busaba, Benveniste, and Guo (2001) show that poor market returns during the thirty days after an IPO's filing period is a useful predictor of whether the IPO is withdrawn after the filing. About 15-20% of IPOs that are filed are ultimately withdrawn.[7] Bernstein (2015), studying whether public/private status impacts a firm's innovation, uses sixty-day market returns from the filing date to instrument for IPO activity: predicting IPO completion (as opposed to withdrawal) with market returns in a first-stage regression, he is able to generate plausibly exogenous variation in whether a given company becomes public compared to staying private. This instrument may meet exclusion requirements in his setting because a given firm's patent activity over the next five years is, arguably, unlikely to be related to sixty-day market returns during the filing period. It is more difficult to assert that market returns—which should reflect expectations of macroeconomic growth—are related to local economic activity *only through* local IPO activity. That the instrument has most predictive power when market returns are extremely negative (withdrawals are more likely in a sharp market downturn than in a modest one), causes us further concern about its validity. We therefore turn to another approach—a very restrictive fixed effects specification—that we discuss in the next section.[8]

3. Addressing the endogeneity between IPO activity and local economic development

[7] In our sample, the median length of time between filing date and IPO completion (withdrawal) date is about 64 (269) days.

[8] When—despite the question of whether the instrument is exogenous in our setting— we perform the two-stage least squares (2SLS) tests, we find results that are very sensitive to minor specification changes. This sensitivity is not surprising, because the instrument has power only for relatively extreme observations. That is, small changes in market returns have little impact on withdrawal decisions, but big changes do. Nonetheless, the estimates we find support our earlier conjectures weakly for some variables (income growth, wage growth, house price per square foot; positive point estimates, with t-statistics from 0.14 to 1.54), strongly for others (establishment growth, median house price; positive, statistically significant, with magnitudes similar to or larger than the other tests), and weakly counter for one (employment growth; negative point estimate, with a t-statistic of -0.99).

The timing of a firm's decision to go public is not random. If firms systematically decide to go public in advance of local economic booms, the regression coefficients we find could be the result of reverse causality. Although the literature offers ample evidence that overall stock market conditions play a significant role in firms' decisions to go public, there are no theoretical or empirical studies, to the best of our knowledge, suggesting that *local* economic conditions drive the timing of a firm's IPO.

Using survey responses from 366 CFOs, Brau and Fawcet (2006) find that overall the stock market condition is the most important factor that determines managers' timing of an IPO. Numerous empirical studies also suggest that managers and venture capitalists try, successfully or not, to time an IPO based on when they believe market conditions offer "a window of opportunity" for the firm (see, among others, Ritter (1991), Lerner (1994), Rajan and Servaes (1997), Baker and Wurgler (2000), Schultz (2003), and Butler, et al. (2005)). Factors that also affect the timing of IPOs include industry-wide information spillovers (Alti (2005)), overvaluation and investor sentiment (Pagano, et al. (1998), Lowry (2002)), product market competition (Brau, et al. (2003), Chemmanur and He (2011)), as well as the legal environment (Cumming, et al. (2006) and Cumming (2008)). Colak, Durnev, and Qian (2016), find evidence that political instability affects firms' decision to go public, but we absorb state-level factors that affect IPO activity by including MSA fixed effects.[9]

a. Methodology and identifying assumptions

Although the evidence in the previous section suggests that causality does not run from local economic conditions to IPOs, we provide additional evidence in support of our hypothesis

[9] The MSA fixed effect absorbs most of the state-level variation, so we do not include state fixed effects in the regressions.

that the positive effects of IPOs on local economies is not due to endogeneity. To address this identification problem, we shift our focus from metropolitan areas to zip codes. Specifically, we examine the impact of IPO activity on the economic development of zip codes within the same county and year. By comparing economic and business activity across zip codes with different levels of IPO activity within the homogeneous economy of a county, we strengthen the internal validity of our estimates. We provide detailed information about our methodology and identifying assumptions in the following subsections. We collect zip code level data and compare the economic development between zip codes that experience an IPO (treated) and zip codes that do not experience an IPO (control), when both are located inside the same county and the same year. By adding county-year fixed effects in our regressions we absorb time-varying and county-level conditions that may affect both, the timing of an IPO, and the economic development of zip codes. Therefore, our identifying assumption is that variation in IPO activity across zip codes within a given county-year is random.

Using zip code level data, we also address possible endogeneity in the choice of the headquarters location. However, this type of endogeneity is unlikely to be a problem in our setting for two reasons. First most firms choose their headquarters when they are founded, which happens, on average, more than fifteen years before the firm makes the decision to go public (Loughran and Ritter (2004)).[10] And second, it is even less plausible to argue that the choice of the specific location of the headquarters within a county is endogenous to the economic development of the zip code more than a decade later.

[10] Less than 10% of the IPOs happen within one year of a firm's foundation date.

We use a similar empirical design as in our baseline specification. We estimate the impact of IPO activity on business and economic development across zip codes within the same county-year using county-year fixed effect regressions:

$$\overline{Ln}(Y_{i,t+1}/Y_{i,t}) = \alpha_{j,t} + \beta(IPO\ activity)_{i,t} + X_{i,t} + \epsilon_{i,t}\ , \qquad (2)$$

where *i* indicates zip code, *t* indicates year, and *j* indicates county. The variable *IPO activity* is equal to one if the zip code had at least one IPO, and 0 otherwise. $X_{i,t}$ is a vector of control variables, such as zip code population, employment, and the lag of the dependent variable. The dependent variable is the two-year average natural logarithm of growth of the following economic variables: mortgage origination, median home value, home price index, employment, business establishments, wage income, and gross income.[11]

We also hypothesize that the economic impact of an IPO does not have to be limited within the zip code, and it may spill over to neighboring zip codes that are in close proximity. To test this hypothesis, we calculate for every zip code its distance from the closest IPO. We expect that a larger IPO should have more extensive spillover effects, so we measure the distance of a zip code from the closest large IPO (top quartile of IPO proceeds) in that year. Our distance metric, *Proximity to a large IPO,* is equal to zero if there is a large IPO in the zip code, and otherwise it's the negative of the minimum distance from the zip code with a large IPO. However, we also hypothesize that changes in proximity to a large IPO should not matter for zip codes that are already far from the IPO. For instance, if two zip codes are located more than 100 miles away from the closest large IPO, it should not make a difference if their proximity is 100 versus 120 miles away. To address this issue, we use the following regression model:

[11] Some of our outcome variables for MSAs level are not available at the zip code.

$$\overline{Ln}\left(Y_{i,t+1}/Y_{i,t}\right) = \alpha_{j,t} + \beta_1(IPO\ Proximity) * (Proximity \leq 50\ miles) + +\beta_2(IPO\ Proximity\ ) +$$

$$\beta_3\ (Proximity \leq 50\ miles) + X_{i,t} + \epsilon_{i,t}\ , \qquad (3)$$

where, *IPO proximity* is a continuous variable that measures the proximity of a zip code from the closest large IPO, and *Proximity≤50 miles* is a dummy variable that equals one if the zip code is located within 50 miles from a large IPO and zero otherwise (our conclusions are unchanged if we use a radius of 50, 75, 100, 150, or 200 miles). We hypothesize that IPO proximity should have a larger effect on zip codes that are located closer to the location of a large IPO.

b. Zip code economic data and summary statistics

We have zip code level variation for the following outcome variables: housing (mortgage growth, home price value, and home price index), business environment (employment growth and business establishment growth) and income (wage growth and income growth). We compute mortgage growth from HMDA's database. Zillow provides information on housing price values per square foot, available from 1995 until 2015. Unlike metro areas, Zillow does not provide separate median house price values by top, middle, and bottom tier in for zip codes, so we focus only on home price values. We also collect data on home price index from the Federal Housing Finance Agency (covering 1990-2015). To construct business environment variables we use the County Business Patterns data series from the Census Bureau, and calculate employment growth and business establishments (available from 1995 until 2015). Finally, the IRS provides detailed information on average wage and average gross income derived from annual returns in each zip code.[12] We winsorize all outcome variables at the 1st and 99th percentile.[13]

[12] The IRS provides this information only for years 1998, 2001, 2002, and 2004-2015.
[13] Our results are robust to the exclusion of the financial crisis years (2007-2009).

The median zip code (statistics not tabulated) has approximately $34,400 in wage income and $42,200 in total income. On average, lenders originate $104 million worth of mortgages in a zip code every year. The average mortgage amount is approximately $117,300 (713 applications per zip code), and the average home price is $216,100. The distribution of employment and establishments in zip codes is heavily skewed and employment is exactly zero for ten percent of the sample.[14] The median (average) number of establishments in a zip code is 56 (225), and median (average) employment is 530 (3,427).

c. Empirical results

Zip codes are considerably smaller geographical areas than counties or metro areas (the average MSA (county) is about 27 (17) times as large as the average zip code), and there is significant heterogeneity in the distance from each other. The zip code level analysis allows us to address two important identification issues. First, this level of analysis allows us to include county-year fixed effects to absorb unobservable regional factors that may impact the timing of an IPO. Second, heterogeneity in our *Proximity* variable allows us to capture the magnitude of the spillover effects from the IPO.

Our first set of tests compares the economic and business development between zip codes that have an IPO (treated), with zip codes that have no IPO activity (control) in the same county and year. We start by investigating the impact of IPO activity on real estate outcomes. We calculate the average growth rate in the two-year period after an IPO for the following zip code real estate variables: mortgage origination, median house value (per square foot), and home price index (HPI). Table IV, columns (1)-(3) present the regression estimates. First, we observe that home price growth is approximately 21-26 bps higher in zip codes with an IPO when compared to zip

[14] Some zip codes exclusively denote large businesses, hospitals, and the like. We exclude these from the analysis.

codes with no IPOs in the same county-year. We then examine the impact of IPO activity on subsequent employment and establishment growth of local economies. The fixed effect estimates in column (4)-(5) of Table IV suggest that an IPO leads to a 1.38% higher increase in employment growth and 76 bps higher increase in establishment growth compared to zip codes with no IPO activity. From Table IV, we note that the impact of IPOs on wage and gross income growth is considerably larger in our zip code sample than our baseline specifications. Specifically, the regression results suggest that an IPO relates to about 1-1.1% increase in the growth rate of wages and income, on average.[15]

Lastly, we use our distance-based measure of IPO activity (*Proximity*) to estimate the extent of the spillover effects of an IPO to nearby zip codes. The results in Table V suggest that proximity to a large IPO has a positive impact on local real estate markets, business environment, and income growth. The estimates in columns (1)-(7) are beta coefficients and represent standard deviations of the dependent variable. We find that zip codes within a 50 mile radius from a large IPO experience, on average, a 43-48 bps increase in home price growth, 57 bps increase in employment growth, 43 bps increase in establishment growth, and 60-63 bps increase in wage and gross income growth. Importantly, zip codes that are one standard deviation—or 12 miles— closer to a large IPO within the 50 mile radius, experience an additional 25-30 bps increase in home price growth, 33 bps increase in employment, 20 bps increase in establishment growth, and 38 bps increase in gross income and wage growth. Taken together, these results are consistent with the hypothesis that IPOs have large economic spillover effects, especially for local economies located close to the headquarters of the firm that goes public.

[15] In untabulated results we find that the increase in zip code income growth is driven by top earners.

4. Discussion

Although the apparent effect of the Facebook IPO on the area near the company's headquarters is the inspiration for this paper's line of inquiry, the spillover effects from an IPO to the local economy seem to be real and quite general. It is remarkable that an IPO can have a spillover effect on the listing firm's local economy because the transaction is not creating a new firm but, rather, simply changing an existing firm's listing status. This change in listing status makes the firm's equity liquid and gives the firm better access to financial markets to raise external capital. Not surprisingly, firms that have larger IPOs have larger spillover impacts, on average. Yet it is not the per se act of raising capital that causes this effect, because seasoned equity offerings have no measurable spillover effect on real estate or the business and economic environment. These findings show a positive role of financial markets in economic wealth and growth.

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Table I: Summary Statistics. This table presents the summary statistics for MSA and IPO related variables. Panel A presents means, medians, standard deviations as well as the top and lowest decile for each variable. *Per capita income* is the average personal income within an MSA. *Population* and *Employment* are the number of people and the number of employed people, respectively, in each MSA. The number of *Private firms* is the number of non-listed firms, and *Public firms* is the number of firms listed on a stock exchange in each MSA. *Net job creation rate* is the count of jobs created minus the jobs destroyed within the MSA in the last 12 months divided by the average employment between years t and t-1. For the following variables, we approximate growth rates (%Δ) using natural logs. *Mortg. Origination* is the total amount of all mortgages originated in the MSA. *New housing starts* is the total amount of new housing units authorized by building permits. *Home prices-bottom (top)* are the median house prices for homes within the *bottom (top)* tercile of housing values in the MSA. *Establishments* is the number of business establishments in the MSA. In the list of IPO variables, we calculate the total number of IPOs (*# of IPOs)* and sum of all the proceeds from IPOs in the MSA (*IPO Proceeds)*. We also calculate the number of seasonal equity offerings (*# SEOs*) and the sum of the proceeds of the SEO issues (*SEO Proceeds).* Our sample period is 1980-2011. The real estate variables do not include the period during the housing and financial crisis (2007-2010). Panel B shows averages of all variables for MSAs conditioned on IPO activity. The first column presents averages of MSA variables with no IPO activity. Columns two-five (Q1-Q4) present average variables of MSAs that belong to the lowest quartile (Q1) through the highest quartile (Q4) of IPO proceeds in any given year. We describe in more detail the filters that produce these samples in section 3 of the main text.

Panel A: Summary statistics

	MSA-years	**Mean**	**SD**	**Min**	**10th**	**50th**	**90th**	**Max**
MSA-Variables								
Per Capita Income (`000s)	11,712	22.8	9.7	5.3	11.2	21.5	35.9	80.1
Population (`000s)	11,712	604.4	1,414.9	11.2	95.7	205.9	1,281.5	19,015
# of Private Firms (`000s)	11,712	56.0	135.4	0.7	7.9	19.6	112.7	2,410
# of Public Firms	11,712	22.9	83.6	0.0	0.0	3.0	42.0	1,323
Employment (`000s)	11,712	344.3	808.6	4.2	49.1	113.7	752.6	11,061
Net Job creation rate (%)	11,616	0.17	0.04	0.07	0.12	0.16	0.21	0.75
%Δ(Mortg. Origination)	5,934	17.6	34	-67	-25	16.2	62.2	99
%Δ(New Housing Starts)	8,300	4.8	41	-124	-45	6	53	113
%Δ(Home prices)-Bottom	2,644	5.7	6.1	-8.5	-0.3	4.6	13.7	26.3
%Δ(Home prices)-Top	2,873	5.9	5.3	-7.8	0.8	4.9	12.8	23.7
%Δ(Establishments)	11,616	1.36	2.72	-1.83	-1.65	1.30	4.10	34.34
%Δ(Per Capita Income)	11,346	4.5	3	-5.9	1.38	4.5	7.9	12.5
IPO-Variables								
# of IPOs	11,712	0.9	4.6	0.0	0.0	0.0	1.0	125
# of SEOs	11,712	0.9	6.5	0.0	0.0	0.0	1.0	150
IPO Proceeds ($ m)	11,712	86.2	669	0.0	0.0	0.0	57.8	25,915
SEO Proceeds ($ m)	11,712	102	1,237	0.0	0.0	0.0	12.8	67,104

(Table I: continued)

Panel B: Average values of variables for quartiles based on IPO Proceeds

	No IPOs	Q1	Q2	Q3	Q4
MSA-Variables					
Per Capita Income (`000s)	22.2	23.7	24.3	25.7	28.7
$Ln(PCI_t/PCI_{t-1})$	4.4	4.6	4.6	4.7	4.8
Population (`000s)	305.8	778.5	1081.8	1652.2	4523.7
# of Private Firms (`000s)	27.9	74.7	104.3	154.8	417.7
# of Public Firms	5.8	25.5	39.7	72.3	273.7
Employment (`000s)	168	451	629.2	976.8	2637.5
Job creation rate (%)	0.161	0.171	0.171	0.174	0.177
%Δ(Establishments)	1.24	2.00	1.82	1.83	1.72
IPO-Variables					
# of IPOs	0	1.1	1.4	3	14.2
# of SEOs	0.3	1.2	1.4	1.8	10.2
IPO Proceeds ($ m)	0	22.5	69	204.6	1656.4
SEO Proceeds ($ m)	52	110.3	139.5	132.8	960.4

Table II: Regression estimates. This table includes the estimates of regressions of outcome variables that describe local economic activity at the MSA level on measures of IPO activity. Each cell of the table reports a coefficient estimate for a different regression, varying the outcome variable, IPO activity measure, and/or subsample. Statistical significance is reflected as *** (1%), ** (5%), or * (10%). All regressions contain MSA- and year-fixed effects and a vector of control variables; we suppress the coefficients of the control variables but report the full regression output in the appendix. Columns (A)-(G) contain the dependent variables. Some economic variables, like per capita income, are persistent, so we use growth rates as dependent variables. For consistency, we use growth rates across all outcome variables as follows: (A) Mortgage origination growth: *Ln(Mortgage Origination(t)/Mortgage Origination(t-1))*. (B) Housing start growth: *Ln(Housing Start(t)/Housing Starts(t-1)).* (C) Home price growth (low-priced): *Ln(Median home price low(t)/Median home price low(t-1)). (D)* Home price growth (high-priced): *Ln(Median home price high(t)/Median home price high(t-1)).* (E) Employment growth: *Ln(Employment(t)/Employment(t-1)).* (F) Net job creation rate: the count of jobs created minus the jobs destroyed within the MSA in the last 12 months divided by the average employment between years t and t-1. (G) Business starts growth: *Ln(Establishments(t)/Establishments(t-1)).* (H) Per capita income (PCI): *Ln(PCI(t)/PCI(t-1)).* In regression (1), the independent variable of interest is an indicator variable for MSA-years that belong in the top quartile of distribution of IPO proceeds over the previous two years; the sample is limited only to MSA years with similar population, employment, private firms, public firms, and the lagged dependent variable. In regression (2), the independent variable of interest is an indicator variable for MSA years that had at least one IPO in the previous year; this regression uses the full sample of MSA-years. In regression (3), the independent variable of interest is an indicator variable for MSA-years that belong in the top quartile of distribution of IPO proceeds over the previous two years; this regression uses the full sample of MSA-years. In regression (4), the independent variable of interest is an indicator variable for MSA years that belong in the top quartile of distribution of IPO proceeds over the previous two years; this regression excludes MSA years with no IPO activity. In regression (5), the independent variable of interest is an indicator variable that identifies MSA years with exactly one IPO; this regression excludes all MSA years with more than one IPO. In regression (6), the independent variable of interest is an indicator variable for MSA years that belong in the top quartile of distribution of IPO proceeds over the previous two years; this regression excludes MSAs that never experience an IPO during the sample period. In regression (7), the independent variable of interest is an indicator variable for MSA years that belong in the top quartile of distribution of IPO proceeds normalized by population over the previous two years; this regression uses the full sample of MSA-years. In regression (8), the independent variable of interest is an indicator variable for MSA years that belong in the top quartile of distribution of IPO proceeds over the previous two years; this regression excludes from the sample the top 20 MSAs by population. In regression (9), there are two independent variables of interest: an indicator variable for MSA years that belong in the top quartile of distribution of IPO proceeds over the previous two years, and an indicator variable for MSA years that belong in the top quartile of distribution of SEO process over the previous two years; this regression includes the full sample of MSA years. In regression (10), the dependent variable is the natural log of IPO proceeds; the independent variables of interest are the first three lags of the dependent variable (A)-(H); this regression also includes the first three lags of IPO proceeds and uses the full sample of MSA-years.

		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Description of test and sample	**Rationale for / interpretation of test**	**Mortgage origination growth**	**Housing starts growth**	**Low-priced home price changes**	**High-priced home price changes**	**Employment growth (bps)**	**Job creation rate (bps)**	**Business starts growth (bps)**	**Income growth (bps)**
Mean		17.6%	3.1%	2.3%	3.2%	150	1170	140	450
Standard deviation		36.6%	44.5%	9%	7.1%	240	490	270	300
(1) Heavy IPO activity; matched sample	Our baseline test. Matching reduces omitted variables bias and balances the covariates.	6%***	3.7%**	Insignif.	2.2%***	22.2*	46**	18.1*	33**
(2) Any IPO; full sample	Comparing MSA-years with an IPO of any size to MSA-years with no IPO activity establishes the extensive margin.	Insignif.	3.7%**	Insignif.	Insignif.	29.1***	19.8*	15.4**	29***
(3) Heavy IPO activity; full sample	Comparing MSA-years with heavy IPO activity to MSA-years with modest or no IPO activity partially establishes the intensive margin.	5.7%**	5.1%***	Insignif.	Insignif.	29.7***	26.6**	16.9**	35***
(4) Heavy IPO activity; sample of only MSA-years with non-zero IPO activity	Comparing MSA-years with heavy IPO activity to only MSA-years with modest IPO activity establishes the intensive margin and mitigates concerns of omitted variables bias, as all observations had some treatment.	5.3%**	3.7%**	Insignif.	Insignif.	23.6**	49.6***	15.3*	24**
(5) Any IPO; sample of singleton IPO and no IPO observations	Comparing MSA-years with one IPO to MSA-years with no IPO activity is a weaker extensive margin test; treated observations are more similar ex ante to control observations than in the full sample.	Insignif.	3.2%***	Insignif.	Insignif.	18.5***	Insignif.	17.4**	23***
(6) Heavy IPO activity; sample excludes MSAs that never had an IPO during our sample	An intensive margin test analogous to (4) but omitting only the MSAs that never had an IPO in our sample.	5.5%**	4.7%***	Insignif.	Insignif.	28.4***	25.8**	15.7**	32***
(7) Heavy IPO activity on a per capita basis; full sample	An intensive margin test analogous to (3) but heavy activity is characterized on a per capita basis so that large MSAs do not skew results.	4.3%**	5.4%***	Insignif.	Insignif.	23.9**	Insignif.	Insignif.	23**
(8) Heavy IPO activity; sample excludes 20 largest MSAs	An intensive margin test analogous to (3) but omitting the largest MSAs by population so that large MSAs do not skew results.	4.4%***	4.4%*	Insignif.	2.9%*	27.8*	27.2*	18.7**	49***
(9) Heavy IPO activity; matched sample; add SEO activity variable	Analogous to (1), but adds a variable for MSA-year SEO activity to allow us to differentiate between change of listing status and equity capital raising	IPO: 5.9%*** SEO: Insig	IPO: 3.7%* SEO: Insig	IPO: Insig SEO: Insig	IPO: 2.2%** SEO: Insig	IPO: 23.7* SEO: Insig	IPO: 46.2** SEO: Insig	IPO: 18* SEO: Insig	IPO: 33** SEO: Insig
(10) Reverse causality tests	Full sample Granger-causality style tests to determine if the outcome variable Granger-causes IPO activity	Insignif.	Insignif.	Insignif.	Insignif.	Insignif.	Insignif.	Insignif.	Insignif.

Table III: The regressions estimate the probability that individuals move to a ZIP code with lower average income or lower average rent prices after years of heavy IPO activity. In columns (1) and (2), the dependent variable is an indicator variable that takes the value of one if in year t+1 or t+2 the individual moves to: (1) a ZIP code with a lower average income, (2) a ZIP code with lower average rent prices. *Large IPO (SEO)* is an indicator variable that takes the value of one if the proceeds from the IPO (SEO) belong in the top quartile of the distribution of IPO (SEO) proceeds in year t. *Low Income* is an indicator variable that takes the value of one if the individual belongs in the bottom quartile of the yearly distribution of incomes in that ZIP code. The regressions include only people living in an apartment, condo, or another multi-family unit. We control for the person's credit score and marital status. We collect information from Experian for people for the period of 2005-2015. Median ZIP code rental prices are from Zillow (wherever available). All regressions exclude the years of the financial crisis (2007-2009). The regressions include ZIP code and year fixed effects. We cluster at the individual and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)
Dependent variable = 1 if:	**Individual moves to lower income Zip Code**	**Individual moves to lower rent Zip Code**
Large IPO	-0.0134	-0.0097***
	(0.0083)	(0.0019)
Large SEO	-0.0060	-0.0032
	(0.0062)	(0.0036)
Large IPO * Low Income	0.0149***	0.0074*
	(0.0055)	(0.0039)
Large SEO * Low Income	0.0105	-0.0034
	(0.0068)	(0.0063)
Low Income	0.0454***	0.0105***
	(0.0019)	(0.0011)
Credit Score	-0.0328***	-0.0063***
	(0.0023)	(0.0006)
Single	0.0244***	0.0132***
	(0.0032)	(0.0013)
Individual-year obs.	644,027	463,256
Adjusted R^2	0.125	0.051
Year FEs	Yes	Yes
Zip code FEs	Yes	Yes

Table IV: The effects of IPOs on real estate, business, and economic development of zip codes

The dependent variables are average yearly growth rates in the two-year period after an IPO in the zip code. In columns (1)-(7) the dependent variables are: (1) growth rate of mortgage origination, (2) median home value per square foot, (3) home price index, (4) employment growth, (5) business establishment growth, (6) gross income growth, and (7) wage growth. The independent variable *IPO>0* is a dummy variable indicating if the zip code had at least one IPO in the last year. In all regressions we control for the first lag of the dependent variable, and lags for zip code population and employment. All coefficients are standardized and represent standard deviations from the mean All regressions include county-year fixed effects. We cluster at the zip code and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	%Δ(Mortgages)	**%Δ(Home Value)**	**%Δ(HPI)**	**%Δ(Employment)**	**%Δ(Establishments)**	**%Δ(Income)**	**%Δ(Wages)**
IPO>0	-0.0011	0.0021**	0.0026**	0.0138***	0.0076***	0.0101**	0.0106***
	(0.0053)	(0.0007)	(0.0006)	(0.0034)	(0.0012)	(0.0020)	(0.0014)
Lag-%Δ(Mortgages)	-0.0434**						
	(0.0037)						
Lag-%Δ(Home Value)		0.0941***					
		(0.0115)					
Lag-%Δ(HPI)			-0.1111***				
			(0.0146)				
Lag-%Δ(Employment)				-0.1639***			
				(0.0072)			
Lag-%Δ(Estab.)					-0.1178***		
					(0.0072)		
Lag-%Δ(Gross Income)						-0.3128***	
						(0.0289)	
Lag-%Δ(Wages)							-0.2551***
							(0.0234)
Observations	479,901	184,277	233,199	437,554	484,422	210,556	210,526
Adjusted R^2	0.729	0.922	0.903	0.105	0.119	0.444	0.583
County-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table V: The effect of IPO activity on business environment

The dependent variables are average yearly growth rates in the two-year period after an IPO in the zip code. In columns (1)-(7) the dependent variables are: (1) growth rate of mortgage origination, (2) median home value per square foot, (3) home price index, (4) employment growth, (5) business establishment growth, (6) gross income growth, and (7) wage growth. The independent variable *Proximity to large IPO* is the negative of the distance from a zip code that had a large IPO. *Proximity≤50 miles* is a dummy variable that equals one if the variable *Proximity to large IPO* is less than 50 miles and zero otherwise. In all regressions we control for the first lag of the dependent variable, and lags for zip code population and employment. All regressions include county-year fixed effects. All coefficients are standardized and represent standard deviations from the mean. We cluster at the zip code and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** ($p<0.01$), ** ($p<0.05$), and * ($p<0.10$).

	(1) **%Δ(Mortgages)**	(2) **%Δ(Home Value)**	(3) **%Δ(HPI)**	(4) **%Δ(Employment)**	(5) **%Δ(Establishments)**	(6) **%Δ(Income)**	(7) **%Δ(Wages)**
Proximity to large IPO *	0.0125	0.0350***	0.0523***	0.0240**	0.0206**	0.0800***	0.1002***
Proximity≤50 miles	(0.0003)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Proximity≤50 miles	0.0194	0.0585***	0.0846***	0.0409**	0.0469***	0.1270***	0.1668***
	(0.0161)	(0.0029)	(0.0020)	(0.0044)	(0.0026)	(0.0031)	(0.0017)
Proximity to large IPO	0.1051**	0.0111	0.0295	0.1102**	0.0632	-0.0014	-0.0779
	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Lag-%Δ(Mortgages)	-0.0665**						
	(0.0056)						
Lag-%Δ(Home Value)		0.0932***					
		(0.0114)					
Lag-%Δ(HPI)			-0.1121***				
			(0.0147)				
Lag-%Δ(Employment)				-0.1643***			
				(0.0073)			
Lag-%Δ(Estab.)					-0.1183***		
					(0.0073)		
Lag-%Δ(Gross Income)						-0.3128***	
						(0.0289)	
Lag-%Δ(Wages)							-0.2565***
	0.0125	0.0350***	0.0523***	0.0240**	0.0206**	0.0800***	0.1002***
Observations	420,936	184,277	233,199	436,893	483,573	210,508	210,484
Adjusted R^2	0.710	0.922	0.903	0.105	0.119	0.445	0.584
County*Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.I: (a) MSA Outcome Variables, Sources, and Granularity

Outcome Variable	Source	Frequency	Level
Mortgage Origination	HMDA	Yearly	Individual
New Housing Starts	US Census	Monthly	MSA
Home Prices	Zillow	Monthly	MSA
Employment	Bureau of Economic Analysis (BEA)	Yearly	MSA
Job Creation Rate	US Census	Yearly	MSA
New Business Starts	US Census	Yearly	MSA
Income Growth	Bureau of Economic Analysis (BEA)	Yearly	MSA
Zip Code Migration Data	Experian	Yearly	Individual

Table A.I: (b) Zip Code Outcome Variables, Sources, and Granularity

Outcome Variable	Source	Frequency	Level
Mortgage Origination	HMDA	Yearly	Individual
Median Home Values	Zillow	Monthly	Zip Code
Home Price Index	Federal Housing Finance Agency	Yearly	Zip Code
Employment	County Business Patterns (Census)	Yearly	Zip Code
Establishments	County Business Patterns (Census)	Yearly	Zip Code
Gross Income	IRS	Yearly	Zip Code
Wage Income	IRS	Yearly	Zip Code

Table A.II: The effect of IPO activity on Mortgage Origination Growth

This table corresponds to column A of the meta-table presented as Table II. The dependent variable is mortgage origination growth Ln[*Mortg.origination*(*t*)/ *Mortg.origination* (*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO in two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had IPOs; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA- and year-fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.021									
	(0.013)									
IPOs>0 - Lag 2	0.016									
	(0.015)									
1-IPO				0.024						
				(0.015)						
IPO Proceeds - High (quartile)		0.057**	0.053**			0.044***	0.055**	0.057**	0.060***	0.059***
		(0.025)	(0.020)			(0.013)	(0.022)	(0.025)	(0.020)	(0.019)
IPO Proceeds/Capita - High (quartile)					0.043**					
					(0.016)					
SEO Proceeds High								-0.037*		0.054
								(0.018)		(0.045)
Ln(Population)	0.475	0.464	-0.676	0.674*	0.470	0.537	-0.028	0.466	-0.372	-0.333
	(0.335)	(0.335)	(0.396)	(0.346)	(0.336)	(0.346)	(0.281)	(0.335)	(0.549)	(0.522)
Ln(Private firms)	-0.134	-0.132	-0.261	-0.084	-0.133	-0.125	-0.031	-0.133	0.066	0.060
	(0.089)	(0.089)	(0.222)	(0.090)	(0.090)	(0.089)	(0.090)	(0.089)	(0.447)	(0.450)
Ln(Employment)	1.148***	1.151***	2.125***	1.083***	1.145***	1.172***	1.404***	1.150***	1.303	1.270
	(0.277)	(0.274)	(0.489)	(0.259)	(0.277)	(0.270)	(0.317)	(0.274)	(0.923)	(0.904)
Ln(Public firms)	0.045**	0.047**	0.024	0.045**	0.045**	0.045**	0.027	0.047**	-0.199	-0.210
	(0.020)	(0.021)	(0.048)	(0.021)	(0.021)	(0.021)	(0.026)	(0.021)	(0.118)	(0.121)
Observations	5584	5584	926	5062	5584	5424	4176	5584	573	573
Adjusted R^2	0.695	0.695	0.901	0.681	0.695	0.694	0.737	0.695	0.906	0.906
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.III: Changes in new housing starts

This table corresponds to column B of the meta-table presented as Table II. The dependent variable is the change in new housing starts Ln[*housing starts*(*t*)/ *housing starts* (*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.037**									
	(0.014)									
IPOs>0 - Lag 2	0.022*									
	(0.012)									
1-IPO				0.032***						
				(0.011)						
IPO Proceeds - High (quartile)		0.051***	0.037**			0.044*	0.047***	0.050***	0.037**	0.037*
		(0.018)	(0.017)			(0.023)	(0.017)	(0.018)	(0.017)	(0.018)
IPO Proceeds/Capita - High (quartile)					0.054***					
					(0.017)					
SEO Proceeds High								0.025		0.011
								(0.032)		(0.023)
Ln(Population)	-1.920***	-1.927***	-2.425***	-1.859***	-1.922***	-1.916***	-2.294***	-1.928***	-0.557	-0.552
	(0.353)	(0.355)	(0.578)	(0.343)	(0.354)	(0.349)	(0.393)	(0.355)	(0.714)	(0.712)
Ln(Private firms)	-0.600***	-0.601***	-0.586**	-0.553***	-0.600***	-0.576***	-0.642***	-0.600***	-0.926*	-0.925*
	(0.108)	(0.108)	(0.258)	(0.105)	(0.108)	(0.110)	(0.132)	(0.108)	(0.456)	(0.457)
Ln(Employment)	2.926***	2.939***	3.837***	2.785***	2.936***	2.908***	3.296***	2.939***	2.911***	2.903***
	(0.399)	(0.401)	(0.604)	(0.378)	(0.401)	(0.397)	(0.463)	(0.401)	(0.972)	(0.972)
Ln(Public firms)	-0.032	-0.029	0.045	-0.031	-0.030	-0.026	-0.014	-0.029	0.084	0.083
	(0.024)	(0.024)	(0.073)	(0.024)	(0.024)	(0.024)	(0.027)	(0.024)	(0.154)	(0.153)
Observations	8632	8632	1559	7749	8632	8150	6474	8632	572	572
Adjusted R^2	0.432	0.432	0.557	0.427	0.432	0.429	0.453	0.432	0.644	0.644
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.IV: House Price Growth (Bottom-Tier)

This table corresponds to column C of the meta-table presented as Table II. The dependent variable is the change in house price growth of houses whose value belongs in the lowest tercile in the MSA Ln[*home price*(*t*)/*home price*(*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had IPOs; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.004									
	(0.008)									
IPOs>0 - Lag 2	0.004									
	(0.006)									
1-IPO				0.003						
				(0.008)						
IPO Proceeds - High (quartile)		-0.004	-0.000			0.021	-0.007	-0.004	0.005	0.004
		(0.015)	(0.019)			(0.015)	(0.014)	(0.015)	(0.010)	(0.010)
IPO Proceeds/Capita - High (quartile)					-0.007					
					(0.012)					
SEO Proceeds High								-0.025*		0.038**
								(0.012)		(0.012)
Ln(Population)	-0.153	-0.154	-1.605***	0.046	-0.152	-0.059	-0.535*	-0.148	-1.888***	-1.929***
	(0.252)	(0.254)	(0.320)	(0.269)	(0.255)	(0.262)	(0.274)	(0.255)	(0.470)	(0.453)
Ln(Private firms)	-0.268***	-0.269***	-0.104	-0.298***	-0.269***	-0.296***	-0.163**	-0.269***	-0.280	-0.292
	(0.063)	(0.063)	(0.112)	(0.065)	(0.063)	(0.065)	(0.063)	(0.063)	(0.207)	(0.208)
Ln(Employment)	1.273***	1.277***	2.421***	1.153***	1.275***	1.195***	1.484***	1.272***	2.998***	3.043***
	(0.150)	(0.151)	(0.399)	(0.162)	(0.151)	(0.153)	(0.204)	(0.150)	(0.462)	(0.421)
Ln(Public firms)	0.017	0.017	-0.039	0.020	0.018	0.019	0.037*	0.018	-0.145	-0.147
	(0.014)	(0.014)	(0.046)	(0.015)	(0.014)	(0.015)	(0.018)	(0.014)	(0.110)	(0.109)
Observations	2391	2391	438	2113	2391	2203	1950	2391	181	181
Adjusted R^2	0.512	0.512	0.535	0.517	0.512	0.503	0.524	0.512	0.802	0.804
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.V: House Price Growth (Top-Tier)

This table corresponds to column D of the meta-table presented as Table II. The dependent variable is the change in house price growth of houses whose value belongs in the top tercile in the MSA Ln[*home price*(*t*)/*home price*(*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.007									
	(0.007)									
IPOs>0 - Lag 2	0.004									
	(0.005)									
1-IPO				0.008						
				(0.007)						
IPO Proceeds - High (quartile)		0.008	0.010			0.029*	0.006	0.008	0.022***	0.022**
		(0.011)	(0.013)			(0.015)	(0.011)	(0.011)	(0.007)	(0.007)
IPO Proceeds/Capita - High (quartile)					0.007					
					(0.008)					
SEO Proceeds High								-0.027***		-0.003
								(0.008)		(0.018)
Ln(Population)	-0.090	-0.091	-1.164***	0.020	-0.093	-0.039	-0.444*	-0.085	-1.142***	-1.136***
	(0.197)	(0.199)	(0.281)	(0.215)	(0.198)	(0.202)	(0.207)	(0.200)	(0.236)	(0.257)
Ln(Private firms)	-0.191***	-0.191***	-0.077	-0.200***	-0.192***	-0.204***	-0.118*	-0.192***	-0.218*	-0.217*
	(0.047)	(0.047)	(0.105)	(0.050)	(0.047)	(0.049)	(0.053)	(0.047)	(0.109)	(0.107)
Ln(Employment)	1.099***	1.101***	2.025***	1.014***	1.102***	1.044***	1.331***	1.096***	2.263***	2.253***
	(0.118)	(0.119)	(0.366)	(0.137)	(0.118)	(0.121)	(0.142)	(0.118)	(0.261)	(0.311)
Ln(Public firms)	0.014	0.014	-0.012	0.017	0.014	0.015	0.013	0.014	-0.054	-0.053
	(0.012)	(0.012)	(0.035)	(0.012)	(0.012)	(0.013)	(0.016)	(0.012)	(0.031)	(0.031)
Observations	2602	2602	444	2324	2602	2422	2033	2602	349	349
Adjusted R^2	0.543	0.542	0.601	0.538	0.542	0.535	0.552	0.543	0.846	0.846
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.VI: Employment Growth

This table corresponds to column E of the meta-table presented as Table II. The dependent variable is employment growth Ln[*employment*(*t*)/*employment*(*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.291***									
	(0.069)									
IPOs>0 - Lag 2	0.056									
	(0.063)									
1-IPO				0.185***						
				(0.059)						
IPO Proceeds - High (quartile)		0.297***	0.236**			0.278*	0.284***	0.290***	0.222*	0.237*
		(0.098)	(0.094)			(0.153)	(0.093)	(0.099)	(0.112)	(0.116)
IPO Proceeds/Capita - High (quartile)					0.239**					
					(0.097)					
SEO Proceeds High								0.234*		-0.527
								(0.128)		(0.368)
Ln(Population)	-4.255***	-4.237***	-2.786***	-4.327***	-4.229***	-4.265***	-4.698***	-4.241***	-3.398*	-3.191*
	(0.710)	(0.711)	(1.003)	(0.721)	(0.710)	(0.719)	(0.820)	(0.710)	(1.733)	(1.709)
Ln(Private firms)	1.149**	1.148**	0.796	1.166**	1.147**	1.193**	1.169**	1.148**	0.250	0.207
	(0.481)	(0.485)	(0.770)	(0.482)	(0.485)	(0.486)	(0.451)	(0.485)	(1.612)	(1.597)
Ln(Public firms)	0.036	0.057	0.556**	0.031	0.054	0.057	0.134	0.057	-0.783*	-0.789*
	(0.093)	(0.092)	(0.254)	(0.092)	(0.093)	(0.091)	(0.094)	(0.092)	(0.452)	(0.455)
Observations	11346	11346	1911	10264	11346	10695	8525	11346	2857	2857
Adjusted R^2	0.457	0.456	0.526	0.452	0.456	0.449	0.507	0.456	0.734	0.737
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.VII: Net Job Creation Rate

This table corresponds to column F of the meta-table presented as Table II. The dependent variable is net job creation rate (job creation rate – job destruction rate). In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.198*									
	(0.113)									
IPOs>0 - Lag 2	-0.044									
	(0.146)									
1-IPO				0.097						
				(0.130)						
IPO Proceeds - High (quartile)		0.266**	0.496***			0.272*	0.258**	0.253**	0.460**	0.462**
		(0.120)	(0.123)			(0.150)	(0.116)	(0.118)	(0.192)	(0.192)
IPO Proceeds/Capita - High (quartile)					0.115					
					(0.122)					
SEO Proceeds High								0.466		-0.043
								(0.270)		(0.413)
Ln(Population)	-15.668***	-15.676***	-15.929***	-15.528***	-15.674***	-15.691***	-17.834***	-15.677***	-10.514***	-10.488***
	(2.001)	(2.002)	(2.761)	(1.980)	(2.001)	(2.018)	(2.320)	(1.998)	(2.895)	(2.950)
Ln(Private firms)	-3.118***	-3.124***	-2.327	-3.237***	-3.125***	-3.269***	-2.795***	-3.117***	-7.265***	-7.276***
	(0.827)	(0.830)	(1.536)	(0.842)	(0.829)	(0.854)	(0.805)	(0.830)	(1.706)	(1.775)
Ln(Employment)	15.713***	15.731***	17.016***	15.474***	15.736***	15.899***	16.387***	15.722***	16.183***	16.167***
	(2.750)	(2.756)	(3.360)	(2.659)	(2.751)	(2.781)	(2.830)	(2.755)	(3.445)	(3.417)
Ln(Public firms)	-0.170	-0.161	0.624	-0.179	-0.162	-0.174	-0.066	-0.162	-0.351	-0.348
	(0.175)	(0.175)	(0.422)	(0.180)	(0.175)	(0.180)	(0.169)	(0.175)	(0.419)	(0.424)
Observations	10202	10202	1646	9276	10202	9631	7629	10202	2309	2309
Adjusted R^2	0.263	0.263	0.417	0.253	0.263	0.253	0.316	0.263	0.604	0.604
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.VIII: Business Establishment Growth

This table corresponds to column G of the meta-table presented as Table II. The dependent variable is the growth of new business establishments Ln[*establishments*(*t*)/*establishments*(*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.154**									
	(0.074)									
IPOs>0 - Lag 2	0.154**									
	(0.070)									
1-IPO				0.174**						
				(0.081)						
IPO Proceeds - High (quartile)		0.169**	0.153*			0.187**	0.157**	0.166**	0.181*	0.180*
		(0.070)	(0.083)			(0.071)	(0.067)	(0.069)	(0.102)	(0.101)
IPO Proceeds/Capita - High (quartile)					0.061					
					(0.047)					
SEO Proceeds High								0.106		0.201
								(0.122)		(0.228)
Ln(Population)	-8.570***	-8.594***	-9.121***	-8.674***	-8.592***	-8.656***	-9.850***	-8.596***	-9.072***	-9.126***
	(1.587)	(1.583)	(1.873)	(1.618)	(1.585)	(1.606)	(1.732)	(1.582)	(3.094)	(3.038)
Ln(Private firms)	-1.842***	-1.856***	-2.060**	-1.935***	-1.862***	-1.934***	-1.804***	-1.856***	-2.503	-2.502
	(0.532)	(0.534)	(0.950)	(0.521)	(0.535)	(0.514)	(0.562)	(0.534)	(1.699)	(1.706)
Ln(Employment)	9.433***	9.490***	11.723***	9.483***	9.500***	9.568***	10.517***	9.489***	13.492***	13.500***
	(1.173)	(1.175)	(2.483)	(1.101)	(1.177)	(1.164)	(1.392)	(1.174)	(3.178)	(3.188)
Ln(Public firms)	-0.038	-0.020	0.217	-0.045	-0.020	-0.032	0.011	-0.020	-0.804*	-0.799*
	(0.101)	(0.099)	(0.264)	(0.098)	(0.099)	(0.096)	(0.117)	(0.099)	(0.399)	(0.397)
Observations	10527	10527	1820	9478	10527	9917	7917	10527	2651	2651
Adjusted R^2	0.450	0.449	0.516	0.445	0.449	0.446	0.473	0.449	0.640	0.640
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.IX: Per Capita Income Growth

This table corresponds to column H of the meta-table presented as Table II. The dependent variable is growth in per capital income Ln[*per capita income*(*t*)/per capita income (*t*-1)]. In regression (1), the independent variables of interest are two indicator variables for MSAs that had at least one IPO in the last year and whether the MSA had at least one IPO two years. In regressions (2)-(3) and (6)-(10), the independent variable of interest is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of proceeds from IPOs in the last two years across all MSAs. Regression (2) includes the full sample; regression (3) includes only MSA years with at least one IPO; regression (6) excludes largest 20 MSAs; regression (7) excludes MSAs that never had an IPO; regression (8) includes an indicator variable that identifies whether the MSA belongs in the top quartile of SEO activity in that year. In regression (4) we include only MSA-years with exactly one IPO. The independent variable of interest in regression (5) is an indicator variable that identifies if the MSA belongs in the top quartile of the distribution of IPO proceeds normalized by MSA population. Regression (9) includes only MSAs with similar characteristics (matched on population, employment, the number of public firms, the number of public firms, and lagged dependent variable). Regression (10) is the same as (9) but includes the high SEO activity indicator. In all regressions we control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. We include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IPOs>0 - Lag 1	0.293***									
	(0.075)									
IPOs>0 - Lag 2	0.001									
	(0.061)									
1-IPO				0.228***						
				(0.065)						
IPO Proceeds High		0.351***	0.236**			0.493***	0.321***	0.350***	0.326**	0.332**
		(0.113)	(0.114)			(0.156)	(0.104)	(0.113)	(0.140)	(0.139)
IPO Proceeds/Capita - High					0.228**					
					(0.092)					
SEO Proceeds High								0.029		-0.158
								(0.130)		(0.135)
Ln(Population)	-5.219***	-5.239***	-6.214***	-5.155***	-5.229***	-5.280***	-6.919***	-5.239***	-8.427***	-8.402***
	(1.319)	(1.319)	(2.229)	(1.330)	(1.316)	(1.355)	(1.292)	(1.319)	(1.849)	(1.857)
Ln(Private firms)	-1.995***	-2.003***	-2.825***	-1.896***	-2.005***	-2.005***	-1.816***	-2.003***	-2.725**	-2.752**
	(0.557)	(0.558)	(0.937)	(0.519)	(0.558)	(0.545)	(0.586)	(0.558)	(1.162)	(1.154)
Ln(Employment)	5.783***	5.826***	8.625***	5.536***	5.826***	5.811***	6.928***	5.826***	11.453***	11.468***
	(1.413)	(1.413)	(2.295)	(1.388)	(1.414)	(1.426)	(1.389)	(1.413)	(1.955)	(1.953)
Ln(Public firms)	-0.012	0.005	0.205	-0.025	0.003	0.002	0.013	0.005	-0.328	-0.320
	(0.085)	(0.085)	(0.247)	(0.085)	(0.085)	(0.086)	(0.095)	(0.085)	(0.365)	(0.365)
Observations	11346	11346	1911	10264	11346	10695	8525	11346	2047	2047
Adjusted R^2	0.566	0.566	0.647	0.566	0.565	0.555	0.619	0.565	0.669	0.669
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table. A.X: The Effect of Local Economic Activity on Future IPO Activity

This table corresponds to row (10) of the meta-table presented in Table II. The dependent variable in each regression is Ln(1+IPO Proceeds$_t$). In each of the regressions in (1)-(10), the independent variables of interest are the first three lags of the following real estate and economic outcome variables X: (1) mortgage origination; (2) new housing starts; (3) median home price for houses in the bottom tercile of home values in the MSA; (4) median home price for houses in the top tercile of home values in the MSA; (5) employment; (6) net job creation; (7) business establishment starts; (8) per capita income. All regressions include the first three lags of the dependent variable. We also control for MSA characteristics such as population, the number of private firms, the number of people employed, and the number of public firms. All regressions include MSA and year fixed effects. We cluster at the MSA and year level and report standard errors in parentheses. Significance at the 1%, 5%, and 10% is indicated respectively with *** (p<0.01), ** (p<0.05), and * (p<0.10).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Y = Ln(1+IPO Proceeds)							
	X= Mortgage origination	*X= Housing starts*	*X=Home price (Low)*	*X=Home price (High)*	*X=Employment*	*X=Net job creation*	*X=Business starts*	*X=Per capita income*
Lag 1 of X	-0.016	-0.016	-0.262	-0.229	-0.341	-0.155	0.000	0.003
	(0.021)	(0.027)	(0.192)	(0.171)	(0.410)	(0.131)	(0.267)	(0.004)
Lag 2 of X	-0.012	-0.015	0.293	0.161	-0.360	-0.249*	-0.246	0.001
	(0.019)	(0.020)	(0.321)	(0.270)	(0.407)	(0.141)	(0.258)	(0.003)
Lag 3 of X	-0.027	-0.016	-0.174	-0.074	-0.473*	-0.033	-0.238	-0.006*
	(0.017)	(0.023)	(0.219)	(0.181)	(0.246)	(0.102)	(0.193)	(0.003)
Observations	5,235	8,300	3,144	3,411	10,248	7,198	10,164	10,248
Adjusted R^2	0.932	0.926	0.947	0.945	0.928	0.925	0.928	0.928
MSA, Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes