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UNDERSTANDING SMALL BUSINESS HETEROGENEITY

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ABSTRACT

In this paper, we show that substantial heterogeneity exists among U.S. small businesses owners with respect to their ex-ante expectations of future performance, their ex-ante desire for future growth, and their initial motives for starting a business. Specifically, using new data that samples early stage entrepreneurs just prior to business start up, we show that few small businesses intend to bring a new idea to market. Instead, most intend to provide an existing service to an existing customer base. Further, using the same data, we find that most small businesses have no desire to grow big or to innovate in any observable way. We show that such behavior is consistent with the industry characteristics of the overwhelming majority of small businesses, which are concentrated among skilled craftsmen, lawyers, real estate agents, doctors, small shopkeepers, and restaurateurs. Lastly, we show non pecuniary benefits (being one's own boss, having flexibility of hours, etc.) play a first-order role in the business formation decision. We conclude by discussing how failing to acknowledge the ex-ante heterogeneity can lead to biased inferences of the importance of entrepreneurial talent, entrepreneurial luck, and financial frictions from the ex-post distribution of firm size.

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1. Introduction

Economists and policy makers alike have long been interested in the effects of various economic policies on business ownership.[2] In fact, the U.S. Small Business Administration is a federally funded agency whose sole purpose is to help Americans "start, build, and grow businesses." Researchers and policy makers often either explicitly or implicitly equate small business owners with "entrepreneurs." While equating the two may simply be viewed as a tautology, economic models and policy makers often have a very specific notion of an entrepreneur in mind when making the comparison. For example, economic theory usually considers entrepreneurs as individuals who (1) innovate and render aging technologies obsolete (Schumpeter, 1942), (2) take economic risks (Knight (1921); Kihlstrom and Laffont (1979); Kanbur (1979), and Jovanovic (1979)), or (3) are considered jacks-of-all-trades in the sense that they have a broad skill set (Lazear, 2005). Policy makers often consider entrepreneurs to be job creators or the engines of economic growth.

In this paper, we document that there is tremendous heterogeneity among small business owners not only in ex-post outcomes such as growth and innovation but also in ex-ante expectations and desires about future business outcomes. Using new data from the Panel Study of Entrepreneurial Dynamics, we show that most small businesses start with little expectations of growth, little desire for growth, and no plans to innovate along observable measures. Such findings suggest that much of the ex-post differences between small businesses with respect to firm size may not solely be attributable to differences in ex-post productivity draws (e.g., Bonini and Simon (1958), Jovanovic (1982), Pakes and Ericson (1989), Hopenhayn (1992)), differences

[2] For example, recent academic work has evaluated the implications of various tax regimes on business formation See Cullen and Gordon (2007) and Cagetti and De Nardi (2009). Just recently, policy makers advocating legislation to overhaul the U.S. health care system in part justified the reform as promoting entrepreneurial activity and economic growth by "reducing the [health care] burden on small firms and their workers." (U.S. Council of Economic Advisers Report (2009))

in entrepreneurial talents (e.g., Lucas (1978)), or differences in binding liquidity constraints (e.g., Evans and Jovanovic (1989) and Clementi and Hopenhayn (2006)). Instead, much of the variation in ex-post firm size may be due to heterogeneity in the desire to grow or innovate among those who start small firms.

To complement this analysis, we show there is tremendous heterogeneity across new business owners in their reason for starting the business. Slightly under half of new small business owners report that non pecuniary benefits (being one's own boss, having control over job, etc.) was the primary motive for staring this small business. Likewise, most small businesses report that they are starting a business where there are already many firms producing the exact same product or service to the customer base that they plan to target. Those that report starting for non pecuniary reasons or who start a business where many others are providing the same product are much less likely to actually grow, much less likely to actually innovate, much less like to report wanting to grow, and are much less likely to report wanting to innovate.

The paper proceeds in four parts. We begin by highlighting the industrial breakdown of small business within the U.S. When referring to small businesses, we primarily refer to firms with between 1 and 19 employees. However, throughout our analysis, we also define alternative classifications such as firms with between 1 and 100 employees.[3] As we show in this section, over two-thirds of all small businesses (with either fewer than 20 or fewer than 100 employees) are in only 40 narrow 4-digit NAICS industries. All of these industries are ones where participants provide a relatively standardized good or service to an existing customer base. These industries primarily include skilled craftsmen/construction (e.g., plumbers, electricians,

[3] Within the U.S., twenty percent and thirty five percent of the private sector workforce works in businesses with fewer than twenty employees and fewer than one-hundred employees, respectively.

contractors, painters), skilled professionals (e.g., lawyers, accountants, and architects), insurance and real estate agents, doctors, dentists, mechanics, beauticians, restaurateurs, and small shop keepers (e.g., gas station owners and grocery store owners). The point of this section is to illustrate descriptively the nature of small businesses across types of narrow industries so as to put structure on the results in the later sections. In particular, the results below showing that most small business owners report not wanting to grow or innovate in any substantive way when they start their business makes more sense when one considers that most small business owners are plumbers, lawyers, dentists, real estate agents, and beauticians.

In Section 3 of the paper, we show a set of facts pertaining to small business growth and innovation behavior. First, using a variety of data sets, we show that most surviving small businesses never grow by any significant margin. Most firms start small and stay small throughout their entire lifecycle.[4] Also, most surviving small firms do not innovate along any observable margin. Hardly any small firms report spending resources on research and development, getting a patent, or even copywriting or trade marking something related to the business (including the company's name). When asked to assess their businesses, nearly half of all new small businesses report that they are starting a business that is going to provide a very similar product to the same customer base as an existing firm. Again, given the data above, this is not surprising. A new plumber or a new lawyer who opens up a practice often does so in an area where existing plumbers and existing lawyers already operate.

Most of the existing research attributes the differences in outcomes across firms with respect to ex-post performance to either differences in constraints facing the firms, differences in

[4] Haltiwanger et al. (2010) show that controlling for firm age there is no systematic relationship between firm size and growth. They conclude that the small firms that tend to grow fast (relative to large firms) are those newly established small firms. We discuss how our results add to these findings in later sections. In particular, we show that most surviving new firms also do not grow in any meaningful way.

luck across the firms, or differences in entrepreneurial ability of the firms owners. For example, some firms may have access to capital that allows them to grow while another firm does not. This could generate ex-post differences in innovation or growth behavior across firms. Likewise, some firms could get a good productivity draw while others do not. In the next part of the paper, we use new data which samples nascent small business owners about their expectations for the business in the future to show that these stories are incomplete at best. When asked at the time the business was being formed, most business owners report that they have no desire to grow big and that they have no desire to innovate along observable dimensions. In other words, when starting their business, the plumber or lawyer is doing so with the expectation that they will remain small well into the foreseeable future and that they have no plans or desire to innovate in any observable way.

If most small businesses do not want to grow or do not want to innovate, why do they start? We address this question in Section 4. Again, we use a new data set that samples nascent business owners at the time they were starting their business. The data asks the business owners specifically as to why they are starting their business. We find that over 50 percent of new businesses reported that non pecuniary benefits were the primary reason as to why they started their business. Non pecuniary benefits included answers such as "wanting flexibility over schedule" or "to be one's own boss". By comparison, only 34 percent of respondents reported that they were starting the business to generate income and only 40 percent indicated that they were starting a business because they wanted to create a new product or because they had a good business idea. Four percent reported starting a business because they had no other employment options. These percentages were constant across business owners of varying degrees of business

activity.[5] Using the panel nature of the data, we show that those small businesses that started for other than innovative reasons were much less likely to subsequently grow, were much less likely to report wanting to grow, were much less likely to subsequently innovate, and were much less likely to report wanting to innovate.

Collectively, these results suggest that there are other important reasons why small businesses are started aside from the entrepreneurial motives discussed in most theories of small business formation where the business owners want to grow the business (or to innovate) if possible. For example, the natural size of production may be quite low (like with an insurance agent) or there could be substantial non pecuniary benefits from running a small business. Such preferences or industry specific production functions can reconcile why small businesses are formed by many individuals despite the lack of interest in subsequent growth or innovation. In the final section of the paper, we discuss how the facts that we document in this paper challenge the interpretation of many of the commonly held results in the entrepreneurship and small business literatures.

There is little work discussing the heterogeneity among small business owners in developed economies with respect to the reasons why they started their business or their expectations for future firm growth or innovation.[6] The work discussing the heterogeneity and nature of small businesses in developing economies is more extensive. Recent work by La Porta and Shleifer (2008) and Banerjee and Duflo (2011) show that most small businesses in developing economies do not grow or innovate in any observable way. In our final section, we

[5] The sum of the percentages exceed one hundred percent because respondents could provide up to two reasons why they started their business. We discuss this data and the nature of the question in subsequent sections.

[6] Two notable exceptions include Bhide (2000) and Ardagna and Lusardi (2008). Bhide (2000) examines the attributes of the founders of many successful firms and concludes that the actions and behaviors of the founders are an important determinant of firm growth. Ardagna and Lusardi (2008) use survey data from the Global Entrepreneurship Monitor (GEM) to show that there are demographic differences between those individuals who report starting a business because they had a good business opportunity or other business owners.

also discuss how our work complements and differs from the work documenting small business heterogeneity in developing economies.

Overall, our results show that there is a tremendous amount of heterogeneity among small businesses within the U.S. Understanding what drives small business behavior can help to understand small business growth dynamics more broadly. Additionally, understanding the heterogeneity among small businesses can help to inform policies that are designed to stimulate either innovation or job growth. We conclude that our results suggest that it is often inappropriate for researchers to use the universe of small business (or self employment) data to test standard theories of entrepreneurship. Most small businesses do not want to grow or innovate which are the usual cornerstones of most of these entrepreneurial models. Researchers interested in testing theories of entrepreneurship may need to use more specialized data sets like the ones that track small businesses seeking venture capital funding.[7]

2. Industrial Composition of Small Businesses

The goal of this section is to show that most small businesses are concentrated in a small number of 4-digit NAICS industries that mostly provide standard services to local customers. This context is important when interpreting our findings that the majority of small businesses do not *intend* to grow or innovate in any substantive way.

To examine the types of small businesses that exist within the U.S., we use data from the Statistics of U.S. Businesses (SUSB) compiled by the U.S. Census Bureau.[8] To create these statistics the Census compiles data extracted from the Business Register, which contains the

[7] Some papers in the literature take this approach. See, for example, recent work by Kaplan and Lerner (2009), Puri and Zarutskie (2010), and Hall and Woodward (2010).

[8] For a complete description of the data, see http://www.census.gov/econ/susb/.

Census Bureau's most current and consistent data for U.S. business establishments.[9] The data cover most U.S. firms with at least one paid employee. We focus our attention on the statistics from the years 2003 to 2007, all of which are coded using the NAICS 2002 industry definitions; additional data from the Economic Census are also available for 2007. However, it should be noted that our results are nearly identical if we pick any year between 1998 and 2008. Throughout the paper we classify business size by total firm employment in order to exclude large firms operating many small establishments.[10] For most purposes, we focus on businesses with fewer than 20 employees when referring to "small businesses", although we consider alternative definitions based on different employment size cutoffs.

As is already well known, small businesses are a very large fraction of the population of firms. In Figure 1, we use the SUSB data from 2007 to construct the cumulative distribution function for firm size using several measures of economic activity. In 2007, there were roughly 6 million firms with paid employment in existence; 90 percent of these firms had fewer than 20 employees.[11] These firms comprised 20 percent of aggregate paid employment and about 15 percent of sales receipts and payroll.[12] The conclusions only change slightly if we look at firms with fewer than 100 employees. For example, over 98 percent of all firms had fewer than 100

[9] The Business Register is updated continuously and incorporates data from the Census Bureau's economic censuses and current business surveys, quarterly and annual Federal tax records, and other departmental and federal statistics. The data includes information from all NAICS industries aside from crop and animal production; rail transportation; National Postal Service; pensions, welfare, and vacation funds; trusts, estates, and agency accounts; private households; and public administration.

[10] A firm may consist of many establishments, which are distinct locations of business activity. For example, the Starbucks corporation operates thousands of small establishments. Given our focus on total firm employment, we do not treat the individual Starbucks establishments as small businesses.

[11] There are an enormous number of non-employer firms (zero paid employees). In 2007, for example, there were an additional 21.7 million zero employee firms. Often, these are second businesses or independent consultants who report self employment income on their Federal income tax returns, although they are an important source of future paid employee firms. See Davis, et al. (2007) for a more detailed discussion.

[12] Again, these numbers are likely biased downward to the extent that the three percent of employment that takes place in non-employer firms are omitted from our analysis.

employees with 35 percent of aggregate employment being in these firms. No matter how the data are cut, small firms represent a non-trivial amount of economic activity.

The next few tables and figures explore the concentration of small businesses at very fine levels of industry classifications. These results yield two important messages. First, most small businesses are concentrated in a few detailed industry classifications. Second, within these few detailed industries, the distribution of employment across all firm sizes is dramatically different than the overall distribution for all other industries.

We start by taking the universe of all firms with fewer than 20 employees. Within these small firms, we rank the represented 4-digit industries by a crude measure of concentration, namely each industry's share of the set of small firms.[13] This measure gives the importance of those industries in the universe of small businesses with fewer than 20 employees. There are 294 four-digit NAICS industries in the SUSB data; industries are ranked from 1 to 294, with the industry with the highest fraction of small businesses out of all small businesses being ranked 1.

Figure 2 shows the cumulative sum of all small businesses with fewer than 20 employees in each of the 4-digit industries by rank For example, the first twenty 4-digit industries account for just about 50 percent of all firms with fewer than 20 employees. In other words, when talking about small businesses, roughly half of them fall into only 20 narrowly defined 4-digit industries. The top 40 4-digit industries comprise two-thirds of all firms with fewer than 20 employees. The employment shares for the top 20 industries and the top 40 industries (out of all employment in firms with fewer than 20 employees) were also nearly 50 percent and 65 percent, respectively.

[13] The national SUSB data are available at the 6-digit level of aggregation. Without much loss of generality, we aggregate these data to a 4-digit level of aggregation.

Table 1 lists those top forty 4-digit industries ranked by their firm share of all firms with fewer than 20 employees. Again, two-thirds of all small businesses in 2007 are in one of these fourty 4-digit industries. As seen from the list, most small business are either restaurants (full service, limited service, or bars), skilled professionals (doctors, dentists, lawyers, accountants, architects, consultants), skilled craftsmen (general contractors, plumbers, electricians, mason workers, painters, roofers), professional service provides (clergy, insurance agents, real estate agents, and travel agents), general service providers (auto repair, building services such as landscaping, barbers/beauticians), or small retailers (grocery stores, gas stations, pharmacies, and clothing stores).

These results are robust to alternative cuts of the data. If we extended our classification to the top sixty 4-digit industries (which comprise over 80 percent of all firms with fewer than 20 employees), the type of industries in which small businesses reside are not altered. The firms ranked 41 to 60 are similar in spirit to those in the top 40. For example, they include dry cleaners, office supply stores, hardware stores, auto dealers, specialty food stores, furniture stores, and the like. Additionally, if we extend our results to those firms with fewer than 100 employees, our results are very similar. The 40 industries listed in Table 1 also represent 66 percent of the firms and 61 percent of the employment in firms with fewer than 100 employees.

The results in Figure 2 and Table 1 make it very clear that most small businesses are concentrated in only a handful of industries. To be clear, nearly 15 percent of all businesses with fewer than 20 employees are doctors, dentists, lawyers, accountants, and other health practitioners. These small businesses are high on human capital and provide relatively standardized services to local customer bases. A very similar story can be made for the skilled craftsmen on Table 1 which comprise another 13 percent of all small businesses. These skilled

craftsmen industries include building equipment contractors (plumbers, heating, air conditioning, electricians), residential builders (general contractors), building finishing contractors (drywall and painting), and building exterior contractors (masonry, roofing, siding). Restaurants and bars make up another 8 percent of these small businesses. Another 5 percent are real estate agents, lessors of real estate, insurance agents, and travel agents.

The composition of these important small business industries over all firm sizes is very different than the composition of industries that are relatively less important for small businesses. To see this, we compare the distribution of firm sizes for "high small business concentration" industries and "all other" industries. We define the high small business concentration industries as the top 22 industries shown in Table 1. These industries account for 50 percent of small firms (those with fewer than 20 employees. All of the remaining 272 industries as classified in the all other industry group.

In Figure 3, we plot the cumulative distribution of firm sizes and cumulative employment share for both groups. The distributions of firm size and employment are quite different across the two groups. For example, in the high small business concentration industries, firms with fewer than 20 employees account for 35 percent of employment and over 90 percent of firms. This is in contrast to the remaining industries where firms with fewer than 20 employees account for just over 10 percent of employment and about 80 percent of total firms. The main conclusion is that the industries that comprise the bulk of small businesses are also the same industries in which the firm size distribution and employment distribution are skewed towards the firms with few employees.

The major take away from this section is that most small business are from a handful of narrow industries where most economic activity takes place in small firms. As we discuss in the

last section of the paper, these industries usually do not match the theoretical models of "entrepreneurship" that is usually put forth in the literature. Moreover, as we show in Section 4, most firms report not wanting to grow or not wanting to innovate when they start their business. These results are less surprising when one recognizes that the modal small businesses are plumbers, lawyers, barbers, and insurance agents.

3. Heterogeneity in Ex-Post Small Business Growth and Innovation

A. Heterogeneity in Small Business Growth

It is well documented that there is heterogeneity in the extent to which small businesses grow across observable factors such as firm size or firm age. Most recently, Haltiwanger et al. (2010) find, for example, that there is little relationship between firm size and firm growth conditional on firm age. The results in that paper show that it is the young firms that grow. In this section, we use some new and existing data sets to illustrate some additional facts about the heterogeneity across firms with respect to their growth propensities. Specifically, we show that even conditional on survival, most young firms do not grow.

Tables 2a and 2b show data from the 2005 Business Dynamic Statistics (BDS). The BDS is produced by the U.S. Census Bureau from longitudinal annual establishment-level administrative data similar to the source data for the SUSB discussed above. The BDS provides measures of gross job creation and destruction by firm size and age for the years 1977 through 2009. Sector level measures are available for the US, and overall measures are available by state. Again, like the SUSB, the database only tracks the employment patterns of employer firms. Table 2a shows the percent of businesses within different firm age categories that are businesses

with fewer than 20 employees. We do this for the entire economy (top row) and then separately within different one digit sectors.[14]

The way Table 2a should be read is as follows. In 2005, of all operating firms within the economy that have survived fewer than ten years, 92 percent have fewer than 20 employees (column 1). Within the construction industry (column 1, fourth row), 93.6 percent of operating "young" firms have fewer than 20 employees. Table 2b shows the share of employment in firms with fewer than 20 employees as opposed to the share of firms. The employment share exhibits similar patterns: for example, firms with fewer than 20 employees have 44.8 percent of the total employment for all firms who have been in existence for fewer than ten years.

Tables 2a and 2b highlight two important facts. First, among mature firms (firms in existence between ten and twenty-five years), most firms and much of the employment is in firms with fewer than twenty employees. For example, across the economy as whole, small firms represent nearly 90 percent of all firms and nearly 25 percent of all employment out of all firms that have been in existence between ten and twenty-five years. Even well into their lifecycle, the overwhelming majority of firms remain small.

Second, similar to the results in the previous section, there is substantial variation among industries. Relative to construction, very little of employment of mature firms is in small businesses within the manufacturing industry (16 percent). Additional industries that include a high concentration of the employment of mature firms being in small businesses include the FIRE, wholesale trade, retail trade and service industries. Again, this is consistent with the fact that most small businesses are skilled craftsmen, professionals such as lawyers and doctors,

[14] One digit categories are the finest level of disaggregation available in the public use files.

small shop keepers, restaurants, and real estate and insurance agents. The heterogeneity in the firm size distribution across sectors implies differences in dynamics.

To shed light on employment dynamics for firms of different ages and industries, we use data from a variety of additional sources. We start by using data from the 2003 Survey of Small Business Finances (SSBF).[15] The SSBF is a random sample of businesses with fewer than 500 employees and was conducted by the Board of Governors of the U.S. Federal Reserve. The survey is designed to measure the financial position of these businesses. However, the survey also contains other background questions. In 2003, firms were asked to state whether in the past year the total employees within their business grew, remained the same, or contracted. Firms were also asked the same question over a three-year horizon. The responses to these questions by small firms are shown in Table 3. Like above, we define small firms as those firms with fewer than 20 employees. We break down the responses by firm age to try to highlight differences between newer businesses and more established businesses. The NSSBF asks businesses to report how long the business has been in existence. As seen from the table, the overwhelming majority of small firms do not grow by adding employees year to year or even over three-year periods.[16] Not conditioning on firm age, only 14 percent of surviving small businesses added an employee between 2002 and 2003 and only 21 percent added employees between 2000 and 2003. Taking the converse, roughly 80 percent of surviving small firms did not grow at all over a relatively long three year period. The percentages are slightly higher among newer firms. However, even among small firms which have been in existence between 1 and 10 years, only 19

[15] The SSBF was formerly known as the National Survey of Small Business Finances. It was a quinquennial survey that began in 1983 and was last conducted in 2003.

[16] We exclude newly founded firms that are unable to answer the employment change question because they did not exist in the base year. The firms responding to the 1 year change question are at least 1 year old, and the firms responding to the 3 year change question are at least 3 years old.

percent grew between 2002 and 2003 and only 28 percent grew between 2000 and 2003. These data show that while most aggregate employment growth may come from small (new) firms growing big, the vast majority of small (new) firms never grow, even over long horizons.

The NSSBF data does show that while most firms do not grow at all over multiple years, some firms did grow. The NSSBF data does not tell us by *how much* they grew. To assess this question, we turn to the Kauffman Firm Survey (KFS). The KFS is a panel study of 4,928 businesses that were newly founded in 2004 administered by the Kauffman Foundation.[17] As shown in Haltiwanger et al. (2010), it is the new firms that contribute, on average, to job growth. Yet, as we have just shown, there is a substantial amount of heterogeneity in growth propensities even among the new firms.

To create the KFS sample, researchers began with a sample frame of nearly 250,000 new businesses started in 2004 provided by the Dun and Bradstreet database. From this data, the KFS oversampled businesses in high tech industries and businesses for whom research and development employment in the primary business industry was high. The final sample admits 4,928 firms, which are re-surveyed annually in follow up interviews. Currently, data is available on these firms up through 2009. For the work below, we only focus on those firms that have survived through 2008. There were 2,617 such firms in the data.

Because the KFS is a four year panel, we can assess the growth rate of employment for businesses within the KFS over four years. In each wave of the survey, the KFS asks firms to report the number of their employees. Column I of Table 4 shows that between 2004 and 2008, 41.9 percent of the surviving firms in the KFS reported growing the total number of employees within their business. In columns 2 and 3 of Table 4, we show the fraction of new surviving

[17] The Kauffman Foundation is an organization whose goals are to study and understand entrepreneurship. Information about the organization can be found at http://www.kauffman.org/.

businesses who added more than 5 employees (column 2) and 10 employees (column 3) between 2004 and 2008. While about forty percent of the surviving new firms within the KFS added employees, very few added more than one or two employees. Specifically, 60 percent of all new firms in this sample did not add an employee, 90 percent added fewer than 5 employees, and 97 percent added fewer than 10 employees. While, on average, new small firms contribute to net employment growth, most new small surviving firms never grow beyond adding a handful of employees.

The results from the KFS hold more broadly in the U.S. We find that industries important for small businesses (doctors, lawyers, plumbers, etc.) have lower than average job creation rates. To see this we pool employment change data from the SUSB from the years 2003 to 2006. These data are released as a companion to the levels reported in the SUSB annual data. Using the same administrative data, the Census Bureau measures the number of jobs created (either from expanding or new establishments) or destroyed (either from contracting or exiting establishments) at the establishment level and aggregates these into annual measures of gross job creation and destruction by industry and firm size.[18] At the 6-digit industry level, we compute for each size category the gross job creation rate, the gross job birth rate, and the gross job destruction rate. We split job creation into jobs created at existing establishments (the gross job creation rate) and jobs created at opening establishment (the gross job birth rate). The job destruction rate reflects job loss at both contracting or exiting establishments. We follow Davis, et al. (1996) and define these rates as follows:

[18] The distinction between firms (referred to as enterprises by the Census Bureau) and establishments is important. The SUSB data report expansions (contractions) by *firm* size, by measuring the employment changes at the establishment level. If the Starbucks Corporation opens 100 new stores in a year and closes 50, the gross job creation and destruction from the establishment births and deaths (as well as from continuing establishments) would be attributed to the 2500+ firm size category.

$$g^{X}_{ist} = \frac{X_{is,t}}{(E_{is,t} + E_{is,t-1})/2}$$

where $X_{is,t}$ represents either jobs created from expansion, jobs created from births, or overall jobs destroyed from contracting and exiting establishments within industry i for firm size category s between period t and $t-1$, and $E_{is,t}$ represents total employment in industry i and firm size category s in period t. Davis, et al. (1996) show that this form of growth rate has a number of desirable properties: it accommodates entry and exit, and is equivalent to a log difference up to 2nd order.

We use these growth rates to ask whether or not industries which have a high concentration of small businesses (proxied by the industries firm share out of all small businesses) can predict the degree of job creation or destruction for small businesses within that industry, conditional on the industry's aggregate characteristics. To do this we regress the two measures of small business job creation rates and the small business job destruction rate on the industry's small business share and other controls.[19] Again, the industry share of small firms is defined analogously to what we displayed in Figure 2 and Table 1 (except defined at the 6-digit level instead of the 4-digit level). Table 5 reports the estimation results. We estimate each specification first where each industry is equally weighted and second where each industry is weighted in proportion to its share of small businesses. The weighted estimation is similar to a grouped data estimator and would deliver the same point estimates as firm level data if each small firms employment share within an industry were equal.[20]

[19] These other controls include time effects and combinations of industry levels of gross job creation, industry levels gross job births, and industry levels of gross job destruction.

[20] This is a reasonable approximation since all firms have fewer than 20 employees, so there would be very little variation in the employment share within an industry if this were estimated with the underlying administrative micro data.

The results support our earlier claims that the typical small business does not create jobs. The small business share of an industry has little to say about job creation through new businesses or job destruction. However, it is a powerful predictor of weaker than average job creation. The most common small businesses (e.g. doctors, lawyers, plumbers, shopkeepers, etc.) grow slower than average, even controlling for each industry's overall characteristics. According the to the weighted results, for each percentage point increase in the share of small businesses, an industries small business job creation rate falls by a little less than three-quarters of a percentage point. To provide greater context, a one-standard deviation increase in the industry share out of small businesses (7.4 percentage points) reduces the job creation rate by roughly 5 percentage points. The base job creation rate was about 16 percent. So, a one-standard deviation increase in the industry share of small businesses reduces the job creation rate by about 31 percent (5 divided by 16). When industries are treated equally, so the important small business industries exert much less influence, the percentage point increase in share predicts a two percentage point decline in job creation. All the results are robust to alternative specifications of industry controls.

It may initially be surprising that so little job creation comes from the industries that most small business owners are likely to enter. However it is consistent with an understanding of the important heterogeneity among small businesses. Most small businesses (plumbers, doctors, real estate agents) start small and stay small throughout the life of their business.

We conclude three things from the results in Tables 2-5. First, there is substantial heterogeneity across firms in the extent to which they grow over time. While some firms do grow (in terms of the number of employees) over time, most do not. Only a small portion of small firms add a more than ten employees over the life of their business. To this end, the bulk of employment in mature firms is still concentrated in firms with fewer than 20 employees.

Second, even among new or young firms, most firms do not grow by any meaningful amount, even conditional on survival. Finally, a portion of the heterogeneity in employment growth for small firms is explained by industry. While many mature businesses in manufacturing are quite large, most mature businesses in other industries like construction remain quite small. The industries that tend to remain small are the industries that tend to comprise the bulk of small businesses.

B. Heterogeneity in Small Business Innovation

In this sub-section, we document that there is also substantial heterogeneity across firms in the extent to which they successfully innovate along observable measures. Again, while some authors have shown that small businesses do a large share of innovation along observable dimensions, the converse is not true.[21] Most small firms do not innovate along observable margins.

We document the fact that very few firms innovate along observable dimensions using two data sources. First, we continue our use of the Kaufman Firm Survey focusing on the same sample as above. The KFS survey asks respondents to report separately whether they have already applied or are in the process of applying for any patents, copyrights, or trademarks. We focus on the responses in 2008 when the firms have been in business for four years already. Of course patents, copyrights, and trademarks are imperfect measures of innovation. Many firms can innovate without applying for a patent, and many firms can trademark their company name without doing any real innovation. We focus first on these measures because they are

[21] See Acs and Audretsch (1990) and the cites within.

observable in the KFS. Our second data set, described below, will allow us to focus on broader measures of innovation.

These results using the 2008 data from the KFS are shown in Table 6. Within the first four years of business, only 2.7 percent of the businesses in the sample had already applied or were in the process of applying for patents. Copyright and trademark usage is slightly higher but still most firms do not innovate at least according to these crude observable measures. According to the KFS, nearly 85 percent of small businesses do not acquire a patent, trademark or copyright during their first four years of existence. Although these measures are a crude proxy for innovative activity, they are the first sign that most small businesses do not innovate.

To put more structure on the innovation process of new businesses, we augment our analysis using data from the Panel Study of Entrepreneurial Dynamics II (PSED).[22] The PSED started with a nationally representative sample of 34,000 individuals during the fall of 2005 and the early winter of 2006. An initial screening survey identified 1,214 "nascent entrepreneurs". To be considered a nascent entrepreneur, individuals had to meet the following four criteria. First, the individual had to currently consider themselves as involved in the firm creation process. Second, they had to have engaged in some start up activity in the past twelve months. Third, they had to expect to own all or part of the new firm. Finally, the initiative, at the time of the initial screening survey, could not have progressed to the point that it could have been considered an operating business. The goal was to sample individuals who were in the process of establishing a new business.

In the winter of 2006, after the initial screening interview, the 1,214 respondents that had been initially identified as being in the process of starting a business were surveyed about a wide

[22] There was an early wave of the PSED (PSED I) that was a test run for the bigger PSED II. We do not use the initial data in our analysis. All data and documentation for the PSED can be found at http://www.psed.isr.umich.edu/psed/data.

variety of the activities associated with their business start up. As part of the first real interview, respondents were asked detailed questions about their motivation for starting the business, the current activities undertaken as part of the start up process, the competitive environment in which the business would take place, and their expectation of desired future business size and activities. Follow up interviews occurred annually for 4 years so that the data has a panel dimension. When analyzing the PSED data, we use three samples. The first is a sample of all 1,214 PSED respondents. The second sample is the 602 respondents who actually had positive revenues during their first interview in 2006. This latter sample distinguishes people who only said that they were planning to start a business from those who actually followed through and engaged in some market business activity. The third sample is the 162 respondents who had positive revenues from the same business venture in 2010, four years after the first interview.

In terms of innovation activity, the PSED asks three different types of questions. First, the PSED respondents were asked a similar question as the KFS respondents in that they were asked about the application process for patents, trademarks, and copyrights. However, instead of being asked about the three observable measures of innovation separately, they were asked one joint question. As seen from the PSED data in Table 7, only between 5 and 6 percent of the new firms apply for patents, trademarks, and copyrights during their first few years in existence. By the fifth year of operation, surviving firms appear similar to those in the KFS with roughly only 17 percent having obtained a patent, trademark or copyright.

In a separate set of question, the PSED asked businesses whether they have developed any proprietary technology, processes, or procedures. This is a slightly broader measure of innovation in that it conceivably covers a more fluid set of activities that the business owner could relay about the innovation in production or business model that is taking place within their

business. Yet, only between 6 and 8 percent of small businesses (depending on the sample) report than they have developed any proprietary business practices or technology at the time of their starting their business. Even conditional on survival five years later, 80 percent of firms still don't report developing any proprietary technology, process or procedure.

Finally, PSED respondents were asked the following question: "Right now, are there many, few, or no other businesses offering the same products or services to your customers?" Respondents were allowed to provide one of the following answers: many, few, or no other. This question is informative in the sense that it states whether the firm is providing a new product or service to existing customers or an existing product or service to new customers. Across the three samples, between 36 and 43 percent of new business owners report providing a similar service to an existing customer base as existing firms in the market. Again, this is consistent with the results in section 2 showing that most businesses are doctors, lawyers, plumbers, real estate agents and the like. These businesses, more often than not, provide a standardized service to existing local customers. Owners who reported starting a business in the professional, health, construction and real estate industries, were between 7.5 and 9.5 percentage points more likely to report saying that they were staring their business in an area where there were many current providers of the service to their targeted customer base. Table 7 also shows that fewer than 20 percent of respondents reported that no one other business was provided their expected product or service to their expected customer base. Again, firms that started in the professional, construction, real estate and health industries were nearly 10 percentage points less likely to report that they were providing a product or service where there was no one providing their expected product or service to their expected customer base.

Collectively, the results show that most small businesses do not innovate by these observable measures. Quite to the contrary, most small businesses provide an existing service to an existing customer base with a small and non-growing workforce.

4. Heterogeneity In Ex-Ante Expectations About Growth and Innovation

A key insight when considering the dynamics of small businesses is that much of the variance in ex-post outcomes is known ex-ante by the businesses' founders. As we discuss in Section 6, most existing literature attributes ex-post differences across firms in performance and innovation to the fact that some firms got lucky (i.e., some firm's product was better than others) or to the fact that some firms are bound by constraints (i.e., all firms want to grow or innovate but some are unable to get the capital to do so). In this section, we document a new reason to explain ex-post differences in firm performance. As we show, most firms, when they start their business, have no plans to grow or innovate along any observable dimension.

One of the strengths of the PSED data is that it asks the nascent business owners about their expectations for the business, their desired future business size, and for their motivations for starting the business. For example, all new firms were asked the following: "Which of the following two statements best describe your preference for the future size of this new business: 'I want this new business to be as large as possible' or 'I want a size I can manage myself or with a few key employees'". The top row of Table 8 shows the response to this question across our three different PSED samples. For the sample of those businesses who lasted to 2010, we report their expectations when they were first asked in 2006. Nearly three quarters of all respondents, regardless of sample, reported they wanted to keep their business small.

Of course the meaning of a manageable size could vary across respondents. In a separate part of the survey, the respondents were asked to provide their expectation as to the number of employees that the firm would employ when the firm was 5 years old. Again, we report the responses for each sample when they were first asked in 2006. The median number of employees was between 3 or 4, depending on the sample. Even the 75th percentile of responses was small as respondents only expected to employ between 6 and 10 employees. Not only do very few small businesses grow, most of them do not want or expect to grow when they form their new business.

Likewise, most new businesses do not expect to innovate along observable dimensions. As seen from Table 7, most new businesses report providing a similar service to an existing customer base as existing firms in the market. In addition, the PSED also asks about expected innovative activity. Specifically, businesses where asked, at the inception of starting their business, whether they expected to innovate in the future. These results are also shown in Table 8. For example, only roughly 10 percent of all new businesses reported that they plan to develop proprietary technology, processes, or procedures in the future. The numbers are slightly higher with respect to a business's expectation about future patent, copyright and trademark behavior. This is likely because many firms trademark the name of their business.

The results in Table 8 suggest that not only do most new businesses not grow or innovate, most also do not plan to grow or innovate in the future when they are starting their business. So, despite people's expectation that they will not grow or innovate, many firms are still willing to start businesses. In the next section we examine their motives and how motives correlate with expectations.

5. Heterogeneity in Motivations For Starting Businesses

The vast majority of U.S. small businesses do not grow, do not want to grow, do not innovate, and do not want to innovate. These results are consistent with casual observations about the innovative and growth patterns of plumbers, real estate agents, book store owners, lawyers, and doctors. As shown above, these occupations make up the bulk of small businesses within the U.S. These results, however, beg the question as to why small businesses form.

To explore heterogeneity in founders' motives, we again turn to the PSED data. As part of the initial survey of the PSED, the business owners were asked "Why did you want to start this new business?". The respondents provided unstructured answers and the PSED staff coded the answers into 44 specific categories. All the categories are listed in Appendix Table A1, along with the number of all PSED respondents who provided the reason on either their first report (in the first parentheses) or on their second report (in the second parentheses).

We took the raw responses to the question "Why did you start your business" and created five broad categories of our own. The five categories were: (1) non pecuniary reasons, (2) reasons related to the generation of income, (3) reasons related to the desire to develop a new product or because they had a good business idea, (4) reasons related to the fact the respondent has no better job options, and (5) all other reasons. The main responses in the non pecuniary category include: "want to be my own boss", "want flexibility over my schedule", "want to work from home", "enjoy the work/it is my hobby". The main responses in the generating income category include: "to make money" or "need extra income". The main responses in the new product/business idea category include: "satisfy a business need", "there is high demand for this product/business", "untapped market", and "lots of experience at this type of work". A full

breakdown of our classification of the raw responses into these five broad categories can also be found in Appendix Table A1.

Table 9 provides the distribution of first responses by category (column A) and the distribution of either the first or second response by category (column B) for the three PSED samples discussed above. Three preliminary things should be noted. First, only 60 percent of respondents provided a second response. Second, given that the respondents could provide any answer they wanted, the first and second response often fell into the same broad category (e.g., answer 1 was "be own boss" and answer 2 was "have flexibility over schedule", both of which we count as being a non pecuniary benefit of starting a business). Third, summing down column A exactly equals 100 percent while summing down column B exceeds 100 percent given that respondents could report a second answer.

The main result from Table 9 is that there is substantial heterogeneity across respondents in their reported primary reason for starting a small business. In particular, non pecuniary benefits play a leading role for most respondents. These results are consistent across all three PSED samples. For example, between 35 and 37 percent of first reports across all samples referred to non pecuniary reasons being the primary driver of the business start up decision. Combining the first and second reports, over half of all respondents in all samples stated that non pecuniary benefits were an important component of their start up decision.

The second most common response for the business start up motivation was having a good business idea/creating a new produce. Roughly 30 percent of first reports and roughly 38 percent of combined reports referred to the fact that the reason the business was started was because of a good business idea or a new product. Many people also reported that they wanted to "generate income". Answers in this broad category represented roughly 20 percent of first

reports and 32 percent of combined reports. Finally, very few people reported starting the business because of a lack of other employment options.[23]

In the remainder of this section, we explore to what extent the respondents' reported motives can predict their expected and actual values of growth and innovation measures. We focus on two motives in particular: new business idea and non pecuniary. The first is the motive most closely associated with the traditional role of an entrepreneur whereas the second is typically ignored or only considered anecdotally. To do this, we define a dummy variable for each motive that is equal to one if that motive was identified in either the first or second mention. Then we run a simple regression of the various measures described in Tables 7 and 8 from the PSED on the two dummy variables.[24] Note that since a motive can be identified in either mention, it is possible for both dummies to be equal to one. The results to these regressions are shown in Tables 10a and 10b. We only show these results for the first two PSID samples (in Tables 10a and 10b respectively). Given the small sample size for the third sample (those that are still earning revenues in 2010), power is an issue for the interpreting the coefficients. We do wish to note, however, that even in this sample the patterns for the signs of the coefficient were very similar to what are shown for the other samples in Table 10.

For each sample in Table 10, we show four sets of results. The first two columns show the coefficients on the two dummy variables for the reason that the business was started. These coefficients can be interpreted as the percentage difference in probability of the outcome (or difference in employment forecast) relative to respondents that mention *neither* business idea or

[23] Ardagna and Lusardi (2008) show that the lack of employment options is a much more important motivation for starting a small business in developing economies.

[24] Estimating the saturated version of this regression with an interaction term had almost no effect on the point estimates and p-values shown in Tables 10a and 10b. We also estimated the same regression with each category that could be named in either mention represented. This also did not change the results.

non pecuniary motives.[25] In the third column, we show the difference in the coefficient on the non-pecuniary motivation dummy (column 2) relative to the coefficient on the business idea motivation dummy (column 1). This can be interpreted as the difference in probability of the outcome (or employment) for those that mention exactly one of the motives. For example, respondents who specified a business idea and did not mention non pecuniary motives were 13 percent less likely than those that specified non pecuniary motives and not a business idea to enter a market already offering the same product or service In column 4, we show the p-value of a two-sided test for equality.

Individuals who start their business because they think they have a good idea or because they want to create a new product are much more likely to 1) want to grow, 2) want to innovate, and 3) actually innovate. Conversely, those who start for non pecuniary reasons are less likely to want to grow, less likely to want to innovate, and are less likely to actually innovate. As mentioned above, those with non pecuniary motives were much more likely to enter an already crowded market relative to those with a new business idea. Likewise, they were 5.1 percentage points less likely to report that they have already developed some proprietary technology or processes as part of their business start up and are 9.0 percentage points less likely to report expecting to get a patent, trademark, or copyright in the future. The p-values on both these differences are 0.01.

As can also be seen in Table 10, those who reported starting their business because they had a new idea were much more likely to want to be big in 5 years and to grow their business than those who started for non-pecuniary reasons. For example, those who started because they

[25] Respondents that mention neither motive, would have specified either for income reasons, lack of other options, or some other motive. The vast majority of these cases specified income motives .

had a good idea were 8.3 percentage points less likely to report wanting to remain small opposed to growing the business.

We wish to highlight a few additional results not shown in Table 10. First, there is little statistical difference in survival rates to 2010 for those who reported non pecuniary benefits as a primary motivation of starting the business relative to those who reported a new idea as the reason they started. If anything, in some samples and specifications, those that reported non pecuniary benefits as a primary motivation survived with a higher probability.[26] Second, there is no statistical difference of actual firm size across the different groups based on the reason they started the business in 2010. The reason for this is that nearly all firms have only 1 or fewer employees even four years after the business started. There is not much variation across the firms in this small sample of survivors. This is consistent with the results shown in Tables 1 and 2 showing that most surviving firms remain really small. Finally, there is some variation across industries with respect to non pecuniary reasons being an important driver relative to wanting to create a new product. Specifically, those in the finance industry were statistically much more likely, relative to other industries, to have people report non pecuniary benefits be an important motive for starting in that industry. A similar pattern appears among those starting businesses in retail trade. Two industries where the dominant reason to start the business was because of a desire to create a new product/service was in manufacturing and wholesale trade. The data lack enough power to draw decisive conclusions about the other industries.

The results in this section show that there is substantial ex-ante heterogeneity across individuals in why they started their businesses. Only a fraction of firms start because they have

[26] This would be consistent with a model where non pecuniary benefits are a large part of the return to small business formation as shown in Hurst and Pugsley (2011). In that model, individuals will be willing to stay in business even if they get a bad productivity draw because the pecuniary returns are just a small portion of the total return to business entry.

a good business reason. However, these firms at the time of inception report a higher desire to grow and innovate and higher actual realizations of innovation. Many firms, however, report non pecuniary benefits as being an important driver of small business behavior. Incorporating such ex-ante heterogeneity into models of small business dynamics will almost certainly alter conclusions about the importance of ex-post measures of heterogeneity such as stochastic productivity draws or binding financial constraints. We turn to this discussion in the next section.

6. Why Heterogeneity in Starting Motives/Expectations Can Matter

There are a number of reasons why ignoring the *ex-ante* heterogeneity in motives and expectations may matter. We sketch how this ex-ante heterogeneity confounds inferences in a number of relevant contexts. We consider three literatures: firm dynamics, the measurement of the private equity risk-return tradeoff, and the emerging literature on the misallocation of capital within sectors. Finally, we also assess how our work relates to the recent papers documenting the nature and growth patterns of small businesses in developing economies.

A. Heterogeneity and Firm Dynamics

In theoretical models, differences in employment growth across firms are attributed to either differences in entrepreneurial ability (e.g., Lucas (1978); Jovanovic (1982)) , differences in realized productivity draws (e.g., Simon and Bonini (1958); Pakes and Ericson (1989); Hopenhayn (1992)), differences in access to capital markets (e.g., Evans and Jovanovic (1989); Vereshchagina and Hopenhayn (2009)), or some combinations of the above (e.g., Clementi and Hopenhayn (2006)). While all of the above highlights some potential drivers of firm dynamics, the results we document in the prior sections suggest that these stories are, at best, incomplete.

It is not only differences in luck, talent, or credit market access are the only determinants of firm size. As we show above, there is also substantial ex-ante heterogeneity in the desires and expectations of new business owners with respect to their growth process. In other words, some firms do not grow or innovate simply because they do not want to grow or innovate.

What drives these differences in ex-ante expectations and desires across owners of newly formed firms with respect to their desire to grow or innovate? The results in the prior sections point to at least two potential channels. First, many small business owners start their businesses, in part, because of the non pecuniary benefits associated with small business ownership. As seen from the PSED data, many small business owners report starting their business because they value the control and flexibility provided by small business ownership. If these benefits diminish with firm size, individuals who start for these reasons will prefer to keep their businesses small. We do find evidence of such correlations in the data: those business owners that report starting their business in part for non-pecuniary reasons were much more likely to want to keep their firm size small well into the future.

Second, some businesses may stay persistently small because they are in industries which have low natural efficient scales. Many small businesses are dentists, plumbers, real estate and insurance agents, small shop keepers, and beauticians. Within these industries, the productivity of the firm is directly linked to the individual's skill set. Given the fixed costs of production may be small relative to the variable costs, optimal firm size may be quite small. As a result, firms may start with no expectations of growth given that their natural scale is quite low.[27]

[27] This idea is consistent with recent research by Holmes and Stevens (2010) which attributes the variation in firm size within narrowly defined manufacturing industries to differences between large plants who produce standardized goods and small plants that make custom or specialty goods.

Pugsley (2011) and Hurst and Pugsley (2011) formalize the insights put forth in this paper by writing down models of small business formation and small business dynamics where individuals are allowed to have differential utility from small business ownership and industries differ in their natural returns to scale. In these models, they show that many of the predictions of the standard models of firm dynamics can be replicated in a model with no differences across firms in entrepreneurial ability and no difference across firms in their financing constraints. There are two important results from these papers. First, Hurst and Pugsley (2011) show that the existence of non pecuniary benefits can generate a positive relationship between wealth and starting a business, by making business ownership a normal good, where wealthier individuals "purchase" these benefits as their marginal utility of consumption diminishes. Second, Pugsley (2011) shows that there is not a one-for-one mapping between the distribution of firm size and productivity draws (like the ones emphasized in much of the literature outlined above) when industries differ in their fixed costs and owners have a preference for keeping their business small, which cautions against using unconditional firm level dynamics to estimate a process for entrepreneurial productivity.

Finally, much of the empirical work on firm dynamics proceeds by studying either the universe of firms, or focuses specifically on only sector thought to be representative of that universe. Typically, this is the manufacturing sector where micro-level administrative data have historically been the most available. It is in this empirical context where the applicability of "Gibrat's" law, which states firm growth rates are on average independent of size, or why the distribution of firm sizes appears to follow a particular power law ("Zipf's" law) are frequently demonstrated.[28] Why these empirical regularities appear at the aggregate level is an interesting

[28] See, for example, Sutton (1997) and Gabaix (2008).

question. However, consistent with Pugsley (2011) it does not suggest that imposing this structure on a particular industry, or assuming a representative industry typified by manufacturing, is appropriate. The concentration of small businesses in industries varies considerably, and the heterogeneity we consider is especially important for industries we highlight in this paper. Preliminary work done by the authors suggest that Zipf's law does not hold at detailed industry levels. There is considerable cross industry variation in the distribution of firm sizes, even conditional on average firm size.[29]

B. Understanding the Risk-Return Tradeoff

There is a separate literature assessing the risk-return trade off of small business owners. For example, Moskowitz and Vissing-Jorgensen (2002) document that the returns to investing in private equity (business ownership) are no higher than the returns to investing in public equity despite the poor diversification and higher risk. Their focus is only on the pecuniary returns of private business investment. This spans a large class of businesses, many of which are the small businesses we study here. However, even among venture-backed startups, which are a tiny fraction of small businesses, the risk-return tradeoff looks poor. Hall and Woodward (2010) perform a careful study of entrepreneurs backed by venture capital, and find the risk adjusted return to entrepreneurs to be low relative to their outside options in paid employment.

Not surprisingly, a model with non pecuniary benefits can help to explain these findings. If there are private benefits to small business ownership (relative to allocating effort to the labor market), the measured pecuniary return could be lower than the total return. Our results above suggest that for many individuals, non pecuniary benefits are an important motive for starting

[29] Figure 3 highlights these patterns at broad industry groupings.

their small business. While the results above are based on survey reports, they are consistent with the work of Hamilton (2000) that shows the median small business owner receives lower accumulated earnings over time relative to paid employment .[30]

Overall, our results suggest that for many individuals, non pecuniary benefits could be an important factor driving their small business formation. Incorporating such preferences into our models of small business formations can alter our assessment of the risk-return tradeoff of small business ownership.

C. Misallocation or Motives

There is also a growing literature about the within sector misallocation of resources at the firm level. Recently, in dynamic models calibrated to match US establishment level data, Moll (2010) and Midrigan and Xu (2010) have studied the effects of firm level financing constraints on aggregate TFP. In a similar setting, Restuccia and Rogerson (2008) find firm level wedges in marginal products and prices produce substantial effects on aggregate TFP. In empirical work, these firm level distortions appear to play a prominent role. Hsieh and Klenow (2009) estimate firm level wedges between marginal products and factor prices in India, China, and the US, which they use to estimate the aggregate effect on TFP. They find substantial (30 to 60 percent) potential TFP gains for India and China from eliminating the wedges, relative to those measured in the US.

The goal of this literature is to understand what efficiency gains, if any, could be had from a reallocation of resources across firms. The heterogeneity in motives we document

[30] Hamilton (2000) does not take into account of income underreporting by the self employed when performing his analysis. Hurst et al. (2011) show that such income underreporting by the self employed is important. Although, the results of Hamilton are mitigated when income underreporting is account for, it still appears that the median self employed individual takes a pecuniary earnings loss when becoming self employed.

presents a confounding factor. A preference for remaining small could also be modeled as a gap between marginal revenue product and factor prices. Owners who prefer to keep their business would have higher marginal revenue products, which would be mistaken as a policy distortion. Alternatively, these owners could choose to operate small scale businesses distorting output prices relative to the efficient benchmark. Hsieh and Klenow (2009) already consider reallocation in developing countries relative to the US. Similar studies of misallocation should consider the role of this ex-ante heterogeneity when interpreting their results.

D. Small Businesses In Developing Economies

Recent work has emphasized the fact that most small businesses in developing economies do not grow, do not innovate, and are started because of a lack of jobs in the larger firms within the economy. For example, La Porta and Shleifer (2008) examine the importance of the informal sector in developing economies. They conclude that, on average, the small firms that populate the informal sector in developing economies are much less productive than similar small firms in the formal sector. As a result of the low quality of the inputs into production (including human capital), it is not surprising that the small firms in the informal sector do not grow or innovate in any observable way. Banerjee and Duflo (2011) document the existence of "reluctant entrepreneurs" in developing economies. They find that most individuals who own a small business in the developing countries they analyze do not grow, are not profitable, and often do so because of the lack of jobs in larger, established firms.

The results in our paper both complement this literature and show that different mechanisms are at play in a developed country like the United States. In terms of similarities with the literature on small businesses in developing economies, it is true that most small

businesses in the U.S. never grow. However, the reason that small business seem to exist and the nature of the small business owners seem quite different. In the U.S., many of the small business owners are highly skilled (lawyers, doctors, dentists, etc.). It is a well established fact that there is little relationship between formal years of schooling and the propensity for either small business entry or survival.[31] Additionally, as we have shown above, very few of the small business owners in the U.S. (less than 4 percent) report starting a business because of a lack of employment options. In other words, it does not appear that the U.S. small business owners are "reluctant entrepreneurs".

Overall, our results showing that most small business in the U.S. do not want to grow or innovate is consistent with small businesses in developing economies, the underlying reasons for this may be very different. A more formal analysis of the similarities and differences between small businesses within developed and developing economies would be a worthy area for future research.

7. Conclusion

In this paper, we have shown that there is substantial ex-ante heterogeneity in the desires and expectations of individuals who start small businesses. Specifically, many small business owners never expect to grow, report not wanting to grow, never expect to innovate along observable dimensions, and report not wanting to innovate along observable dimensions. For example, almost half of all small businesses report that they are providing an existing product or service to an existing customer base. The results are consistent with the fact that most small businesses are in a few narrow industries such as skilled craftsmen (plumbers, electricians),

[31] See, for example, Evans and Leighton (1989) or Asoni (2011).

skilled professionals (doctors, lawyers, accountants), real estate and insurance agents, small service providers (barbers and mechanics), small shop keepers, and restaurateurs. These same narrow industries that comprise the bulk of small business activity are also the same industries where most economic activity within that industry is done by small firms.

We also show that there is also substantial heterogeneity in the reported reasons for why individuals start their business. In particular, only about one-third of new businesses (on the eve of their start up) reported that they were starting their business because they have a product or service that they want to bring to market. Instead, the most common response for why individuals were starting their business was the existence of non pecuniary benefits. Individuals reported that they liked being their own boss and like the flexibility that small business ownership provided.

Our results suggest that much of the current literature has overlooked an important component of small business heterogeneity. Essentially all of the current literature on firm dynamics explains the ex-post distribution of firm size with models emphasizing differences in entrepreneurial talent, differences in entrepreneurial luck, and differential access to credit markets. The results in this paper, however, suggest that another factor may be at play: many small business owners just do not wish to grow big or innovate along observable dimensions in any meaningful way. The paper shows two potential reasons for the ex-ante differences in desires and expectations with respect to future growth. First, the natural scale of some industries may be quite small. For example, the fixed costs in being a plumber, barber, lawyer, or insurance agent may be small relative to the variable costs making the returns to scale quite small. Second, the existence of non pecuniary benefits of owning a small business (because of increased flexibility and control) may cause individuals to forgo some natural benefits of

agglomeration in exchange for higher utility. Regardless of the exact reason, most individuals who start their small business have little desire or expectation to grow their business beyond having a few employees.

Lastly, we conclude that our results suggest that it is often inappropriate for researchers to use the universe of small business (or self employment) data to test standard theories of entrepreneurship. Most small businesses do not match our conceptual measures of entrepreneurship which focuses on the desire to innovate or grow. Researchers interested in testing such specific theories of entrepreneurship may need to use more specialized data sets like the ones that track small businesses seeking venture capital funding.

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Table 1: Share of Small Businesses Within Narrow 4 Digit NAICS Industries

Rank	4 Digit NAICS Industry	Percent of Small Businesses	Cum. Percent	Rank	4 Digit NAICS Industry	Percent of Small Businesses	Cum. Percent
1	Full-Service Restaurants (7221)	4.0	4.0	21	Lessors of Real Estate (5311)	1.2	48.8
2	Offices of Physicians (6211)	3.7	7.7	22	Other Professional Serv. (5419)	1.2	50.0
3	Limited Service Restaurants (7222)	3.5	11.2	23	Computer System Design (5415)	1.2	51.2
4	Religious Organizations (8131)	3.5	14.7	24	Other Specialty Contractors (2389)	1.2	52.3
5	Build. Equip Contractors (2382)	3.3	18.0	25	Business/Political Orgs (8139)	1.1	53.4
6	Dentists (6212)	3.1	21.1	26	Grocery Stores (4451)	1.0	54.4
7	Auto Repair (8111)	2.6	23.7	27	Other Recreation Industries (7139)	1.0	55.5
8	Legal Services (5411)	2.6	26.2	28	Building Material Dealers (4441)	1.0	56.5
9	Res. Bldg Construction (2361)	2.5	28.8	29	Pharmacies (4461)	0.9	57.4
10	Service to Build. (5617)	2.5	31.3	30	Real Estate Agents/Brokers (5312)	0.9	58.3
11	Build. Finishing Contractors (2383)	1.9	33.2	31	Other Real Estate (5313)	0.9	59.3
12	Build. Exterior Contractors (2381)	1.9	35.1	32	Bars (7224)	0.9	60.2
13	Insurance Agents (5242)	1.8	36.9	33	Nonresident. Construction (2362)	0.9	61.0
14	Other Health Practitioners (6213)	1.7	38.7	34	Travel Agents (7211)	0.9	61.9
15	Arch./Engineering Services (5413)	1.6	40.3	35	Machinery Wholesalers (4238)	0.8	62.8
16	Accounting Services (5412)	1.6	41.9	36	General Freight Trucking (4841)	0.7	63.5
17	Barbers/Beautician Services (8121)	1.6	43.4	37	Special. Freight Trucking (4842)	0.7	64.2
18	Mgmt Consulting Services (5416)	1.4	44.9	38	Clothing Stores (4481)	0.7	64.9
19	Gas Stations (4471)	1.4	46.3	39	Automotive/Tire Stores (4413)	0.7	65.6
20	Child Day Care Services (6244)	1.3	47.6	40	Wholesale Agents/Brokers (4251)	0.7	66.3

Note: The table shows the results of taking all small businesses (specifically firms with fewer than 20 employees) in the 2007 Economic Census and segmenting them by their 4 digit NAICS industry code. The specific NAICS codes are shown in parenthesis. We then rank the industries based on the number of small businesses in that industry relative to all small business in the data. Given there are 294 4-digit NAICS industry codes, we rank the firms from 1 through 294. The table lists the top 40 industries.

Table 2a
Small Businesses Out of All Firms, By Firm Age and Industry,
2005 Business Dynamic Statistics Data

	Firm Age		
Industry	0-10 Years Old	10-25 Years Old	All Firm Ages
All	92.0	85.7	87.2
FIRE	95.5	91.8	91.9
Agriculture	94.8	88.1	91.6
Construction	93.7	86.0	88.9
Wholesale Trade	93.0	83.2	84.1
Services	92.7	88.4	89.1
TCU	92.3	82.2	86.0
Retail	88.6	81.8	84.6
Manufacturing	85.5	71.5	72.4

Table 2b
Small Business Employment Out of All Employment, By Firm Age and Industry,
2005 Business Dynamic Statistics Data

	Firm Age Categories		
Industry	0-10 Years Old	10-25 Years Old	All Firm Ages
All	44.8	24.7	19.4
FIRE	50.8	31.7	19.0
Agriculture	57.7	47.1	50.1
Construction	59.1	38.4	39.4
Wholesale Trade	52.8	30.6	21.7
Services	40.7	23.1	20.8
TCU	44.2	14.7	11.8
Retail	46.9	24.8	18.8
Manufacturing	34.6	16.0	8.5

Notes: All data in Tables 2a and 2b can be found at http://www.ces.census.gov/index.php/bds/bds_database_list. The industry classifications are the ones provided by the Business Dynamic Statistics (BDS). Like the Statistics on U.S. Business (SUSB) data, the BDS data only includes information on firms with paid employees. The data in each column of Table 2a should be read as the percent of small business firms in a given firm age and industry grouping out of all firms in that firm age and industry grouping. Table 2b is analogous except it is for employment instead of firms. In these tables, we define small businesses as firms with fewer than twenty employees.

Table 3: Change in Employment By Existing Small Businesses, By Firm Age, 2003 Survey of Small Business Finances Data

	Percent Changing Employment Over Last 1 Year				Percent Changing Employment Over Last 3 Years			
	Age of Firm				Age of Firm			
Direction of Emp. Change	1-10 Years	11-20 Years	20+ Years	All	1-10 Years	11-20 Years	20+ Years	All
Increase Employment	18.9	10.6	9.1	13.9	27.6	19.4	15.3	21.3
No Change in Employment	74.3	79.7	84.0	78.4	61.0	65.0.7	72.5	65.6
Decrease Employment	6.8	9.8	6.9	7.7	11.3	15.7	12.2	13.1
Sample Size	1,163	817	727	2,707	847	818	725	2,386

Table 4: Change in Employment By New Businesses, By Firm Age, Kaufman Firm Survey Data

	Percent Changing Employment Over Last 4 Years		
	Percent With Δ Employment > 1 Employee	Percent With Δ Employment > 5 Employees	Percent With Δ Employment > 10 Employees
All New Firms	41.9	10.8	3.6
Sample Size	2,617	2,617	2,617

Notes: See text for a description of both the 2003 SSBF sample (used in Table 3) and the KFS sample (used in Table 4). We restricted the SSBF to focus only on those firms with fewer than 20 employees. For the KFS sample, we looked at all new firms regardless of firm size. However, we did restrict the KFS sample to only those firms that remained in business for the four years since the survey started. The median and mean number of employees for the firms in the KFS sample was 1 and 3, respectively. The 90^{th} percentile of number of employees for the firms in the KFS sample was 14. All data was weighted using the sample weights provided within the survey.

Table 5: Using Industry Share of Small Businesses to Predict Small Business Job Creation and Destruction
Pooled 2003 to 2006 Statistics of U.S. Businesses Employment Change Data

	(1)	(2)	(3)	(4)	(5)
	Small Bus. Gross Job Creation Rate	Small Bus. Gross Job Creation Rate	Small Bus. Gross Job Creation Rate	Small Bus. Gross Job Birth Rate	Small Bus. Gross Job Destruction Rate
	A. Equally Weighted				
Industry Share of Small Firms	-2.14	-1.98	-2.05	0.10	-0.23
	(0.25)	(0.23)	(0.29)	(0.17)	(0.17)
Observations	929	929	652	666	656
R-squared	0.077	0.093	0.205	0.351	0.353
	B. Weighted by Number of Small Firms within Industry				
Industry Share of Small Firms	-0.73	-0.73	-0.73	0.03	0.04
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	929	929	652	666	656
R-squared	0.42	0.421	0.437	0.588	0.531
Controls					
Industry Gross Job Creation	Yes	Yes	Yes		
Industry Gross Job Births		Yes		Yes	
Industry Gross Job Destruction		Yes			Yes
Time Effects	Yes	Yes	Yes	Yes	Yes

Notes: The table reports estimation results of five specifications estimated with and without firm frequency weights. The regressions are small firms (firms with between 1 and 19 employees) gross job creation rate (columns 1-3), gross job birth rate (column 4), and gross job destruction rate (column 5) on the industry's share of small firms out of all small firms. The unit of observation is 6-digit industries. The regression assesses, for example, whether the gross job creation rate of small firms within a narrow industry is related to the industry's share of small firms out of all small firms. Data for these regressions come from the pooled 1003-2006 SUSB data. All regressions included time effects. Other controls are listed on the table (when included). Robust standard errors are in parentheses. The weighted estimation can be viewed as a grouped data estimate of firm level job creation/destruction from administrative records if employment shares of small firms within an industry are approximately equal.

Table 6
Innovation Behavior of New Businesses
Kaufman Firm Survey Data

	Measure of Innovative Activity By Year 4			
	Percent of Firms Who Have or Are Applying for a Patent	Percent of Firms Who Have or Are Applying for a Copyright	Percent of Firms Who Have or Are Applying for a Trademark	Percent of Firms Who Have Either a Patent, a Trademark, or a Copyright
All New Firms	2.7	8.9	12.3	17.3
Sample Size	2,581	2,550	2,546	2,510

Notes: Data are from the 2004-2008 Kaufman Firm Survey (KFS). Sample sizes differ slightly over the responses due to different response rates for different questions. See the text for a full discussion of the KFS. All data are weighted using the provided survey weights.

Table 7
Innovative Activities of New Business Owners
PSED Data

	First Year of Business (2006)		Fifth Year of Business (2010)
	Sample 1: All	Sample 2: Positive Revenues	Sample 3: Positive Revenues
Percent of Firms that Already Developed Proprietary Technology, Processes, or Procedures	6.5	8.3	20.3
Percent of Firms that Already Applied for Patent, Copyright, or Trademark	4.9	6.0	17.6
Percent of Firms Stating That Many Existing Firms Already Offer Same Product/Service to Customer Base	35.7	43.3	39.6
Percent of Firms Stating That No Existing Firms Offers Same Product/Service to Customers	19.2	13.3	17.3
Sample Size	1,214	602	162

Notes: This table summarizes the responses to the questions asked of the nascent small business owners in the PSED about their actual and expected innovative activities. See text for the details. We focus on three samples. The first sample is all PSED respondents of nascent small business owners. The second sample is the set of all nascent entrepreneurs who actually had positive revenues during 2006 (first wave of the survey). The third sample is the set of all nascent entrepreneurs who actually had positive revenues during 2010 (most recent follow up wave of the survey). All data are weighted using the PSED sample weights from their respective survey wave. Responses for samples 1 and 2 are from the initial wave. Responses for sample 3 are from fifth wave.

Table 8:
Ex Ante Expectations and Desires About Future Firm Growth and Innovation
PSED Data

	Sample 1: All PSED Respondents	Sample 2: Positive Revenues In First Year (2006)	Sample 3: Positive Revenues in Fifth Year (2010)
Percent of New Firms That Report That They Want to Be "Big"	24.3	23.0	28.3
Expected Number of Employees Working in Firm When it is 5 Years Old (25^{th} percentile)	1	0	0
Expected Number of Employees Working in Firm When it is 5 Years Old (Median)	4	3	3
Expected Number of Employees Working in Firm When it is 5 Years Old (75^{th} percentile)	10	8	6
Expected Number of Employees Working in Firm When it is 5 Years Old (90^{th} percentile)	29	24	25
Percent of Firms that Expect To Develop Proprietary Technology, Processes, or Procedures in Future	14.6	9.2	12.2
Percent of Firms that Expect to Apply for Patent, Copyright, or Trademark in Future	26.0	17.9	24.9
Percent of Firms that Expect R&D Spending Will Be a Major Priority for Business	25.7	19.5	22.8

Note: Data comes from the PSED. See text for the details of the survey and details about the individual questions summarized in the table. We focus on three samples. The first sample is all PSED respondents of nascent small business owners. The second sample is the set of all nascent entrepreneurs who actually had positive revenues during 2006 (first follow up wave of the survey). The third sample is the set of all nascent entrepreneurs who actually had positive revenues during 2010 (most recent follow up wave of the survey). All data are weighted using the PSED sample weights from their respective survey wave. Sample sizes differ slightly from those in Table 7 because not all respondents provided responses to all the questions. However, the differences in sample sizes were small when they existed.

Table 9:
Importance of Non Pecuniary Reasons for Starting a Business by Nascent Entrepreneurs
PSED Data

Reason For Starting Business (Up to Two Reasons Provided)	I. Sample: All Respondents (1,214 obs.)		II. Sample: Respondents With Positive Revenues In 2006 (602 obs.)		III. Sample: Respondents With Positive Revenues In 2010 (162 obs.)	
	A. First Report	B. Any Report	A. First Report	B. Any Report	A. First Report	B. Any Report
Non Pecuniary Reasons	35.3	50.5	37.6	53.9	35.0	52.4
To Generate Income	19.5	34.1	21.4	36.6	17.6	32.4
Had A Good Business Idea/Create New Product	32.2	40.6	28.3	34.9	33.8	37.5
Lack of Other Employment Options	2.2	3.8	2.6	4.0	2.6	4.3
Other	10.8	15.7	10.2	15.5	11.0	14.7

Notes: The table uses the same data and sample construction as in Table 7. This table summarizes the responses to the questions "Why did you start this new business?" We classified the responses to the open ended question of "Why did you start this new business?" into five broad categories of response: non-pecuniary responses, income reasons, having a good business idea, lack of other employment options, and other. For a complete discussion of our classification, see appendix Table A1. Respondents were allowed to provide up to two reasons for why they started the business. In columns A, we report the fraction of respondents who provided the specific reason on their first report. In columns B, we report the fraction of respondents who provided the specific reason on either their first or second report. The numbers in column B sum to fewer than 200 percent because about one-quarter of respondents did not provide a second report and, of those that did, some provided a report that was classified in the same broad category. All data are weighted using the PSED sample weights.

Table 10a: Differences in Business Start Up Motivation and Expectations about Growth and Innovation Behavior, PSED Sample, All Respondents

Dependent Variable	(1) Coefficient Create New Product	(2) Coefficient Non-Pecuniary	(3) Diff. (2) - (1)	(4) p-value of Diff.
Firms Stated That Many Existing Firms Already Offer Same Product/Service to Expected Customer Base	-0.082 (0.035)	0.049 (0.035)	0.131	<0.01
Firm Stated That No Existing Firms Offers Same Product/Service to Expected Customers	0.037 (0.029)	-0.049 (0.028)	-0.086	0.01
Firms Already Developed Proprietary Technology, Processes, or Procedures	0.010 (0.019)	-0.041 (0.018)	-0.051	0.01
Firms Expects to Apply for Patent, Copyright, or Trademark in Future	0.104 (0.034)	0.010 (0.033)	-0.094	0.01
Percent of New Firms That Report That They Want to Be "Big"	0.036 (0.035)	-0.047 (0.033)	-0.083	0.03
Expected Number of Employees Working in Firm When it is 5 Years Old (75^{th} percentile)	4.0 (2.3)	-2.0 (2.3)	-6.0	0.03
Expected Number of Employees Working in Firm When it is 5 Years Old (90^{th} percentile)	15.0 (5.3)	-10.0 (5.1)	-25.0	0.01

Notes: The results in Tables 10a and 10b are from a regression of different dependent variables indicating the business or the expectation about the business for future growth and innovation on a dummy for whether the respondent reporting starting the business because they wanted to create a new product (row 3 from Table 9) or because of non-pecuniary reasons (row 1 of Table 9). For the regression, the dummy variable equals one if the respondent reported the given motive on either their first or second report. Columns 1 and 2 of this table show the coefficients on these dummy variables. Column 3 is the simple difference of these coefficients. Column 4 is the p-value on the difference. Robust standard errors are in parentheses.

Table 10b: Differences in Business Start Up Motivation and Expectations about Growth and Innovation Behavior, PSED Sample, Respondents who Had Positive Revenues in 2006

Dependent Variable	(1) Coefficient Create New Product	(2) Coefficient Non-Pecuniary	(3) Diff. (2) - (1)	(4) p-value of Diff.
Firms Stated That Many Existing Firms Already Offer Same Product/Service to Expected Customer Base	-0.112 (0.053)	0.020 (0.051)	0.132	0.02
Firm Stated That No Existing Firms Offers Same Product/Service to Expected Customers	0.059 (0.041)	-0.024 (0.036)	-0.083	0.05
Firms Already Developed Proprietary Technology, Processes, or Procedures	0.027 (0.029)	-0.051 (0.028)	-0.078	0.02
Firms Expects to Apply for Patent, Copyright, or Trademark in Future	0.067 (0.045)	0.054 (0.041)	-0.013	0.77
Percent of New Firms That Report That They Want to Be "Big"	0.042 (0.049)	-0.028 (0.046)	-0.070	0.17
Expected Number of Employees Working in Firm When it is 5 Years Old (75^{th} percentile)	5.0 (1.1)	0.0 (1.1)	-5.0	0.01
Expected Number of Employees Working in Firm When it is 5 Years Old (90^{th} percentile)	20.0 (8.0)	-10.0 (7.7)	-30.0	0.01

Figure 1: Share of Firms, Employment, Receipts, and Payroll Belonging to Different Firm Size Categories, 2007 SUSB

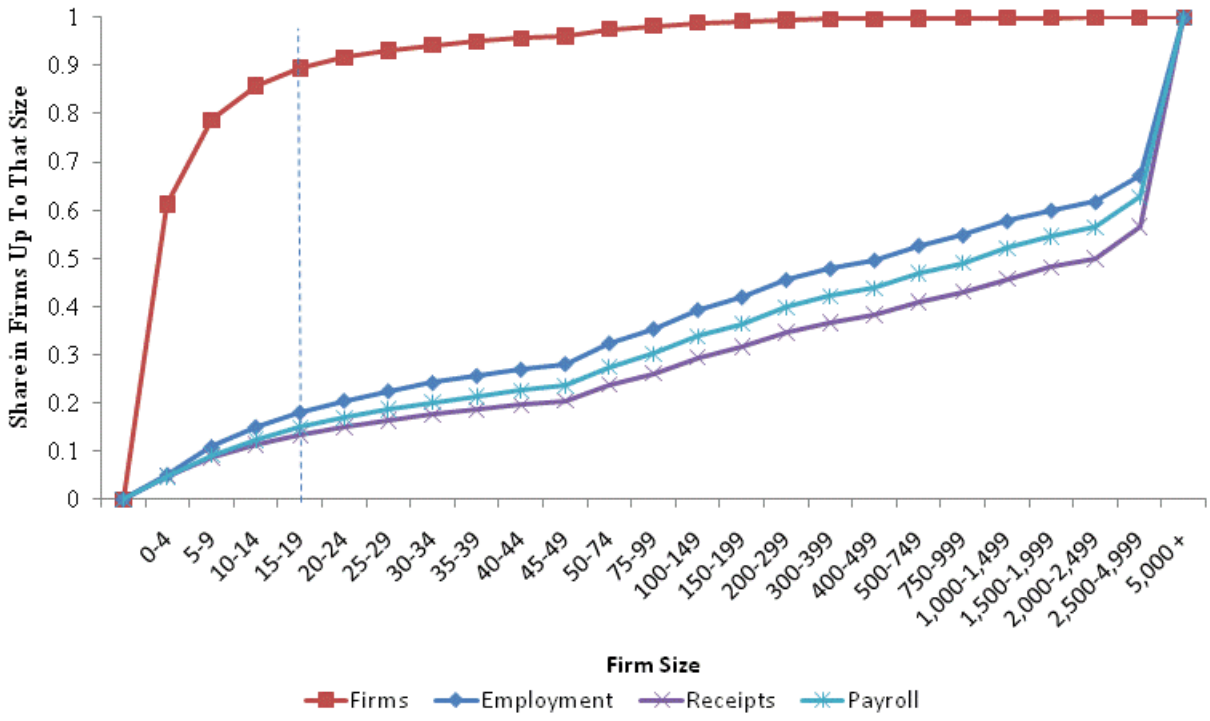
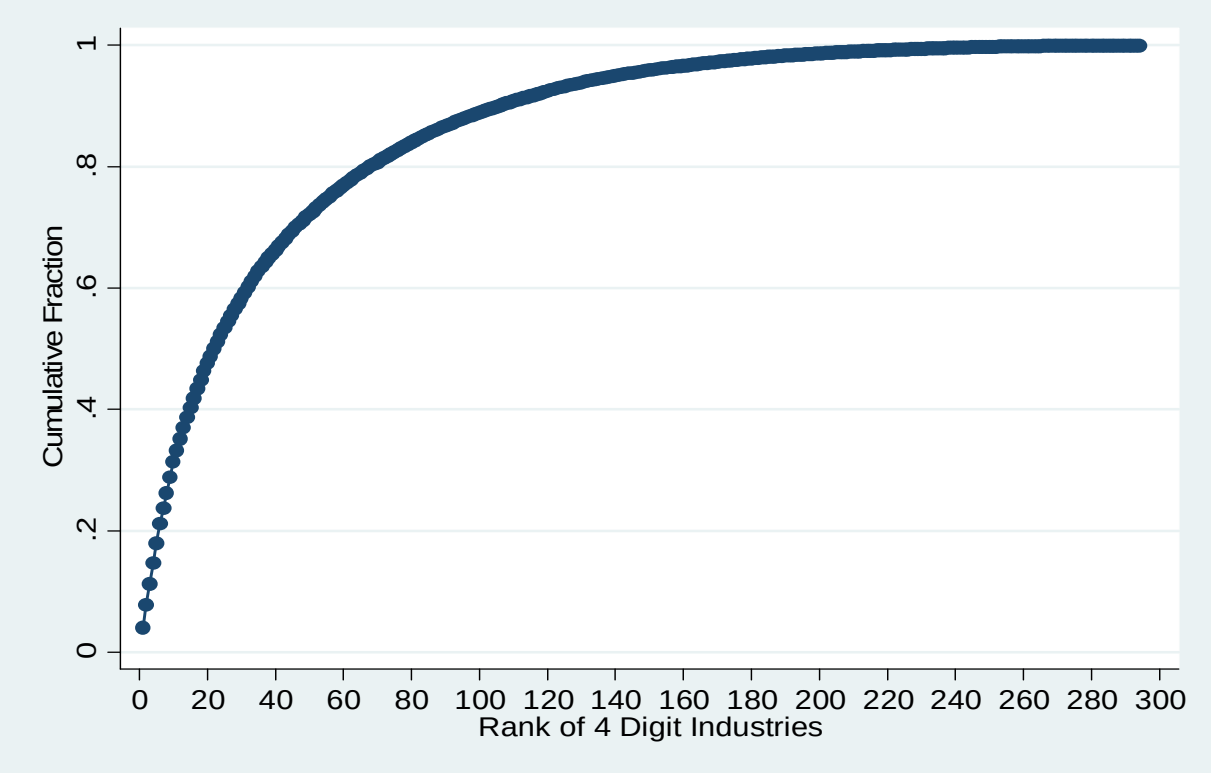
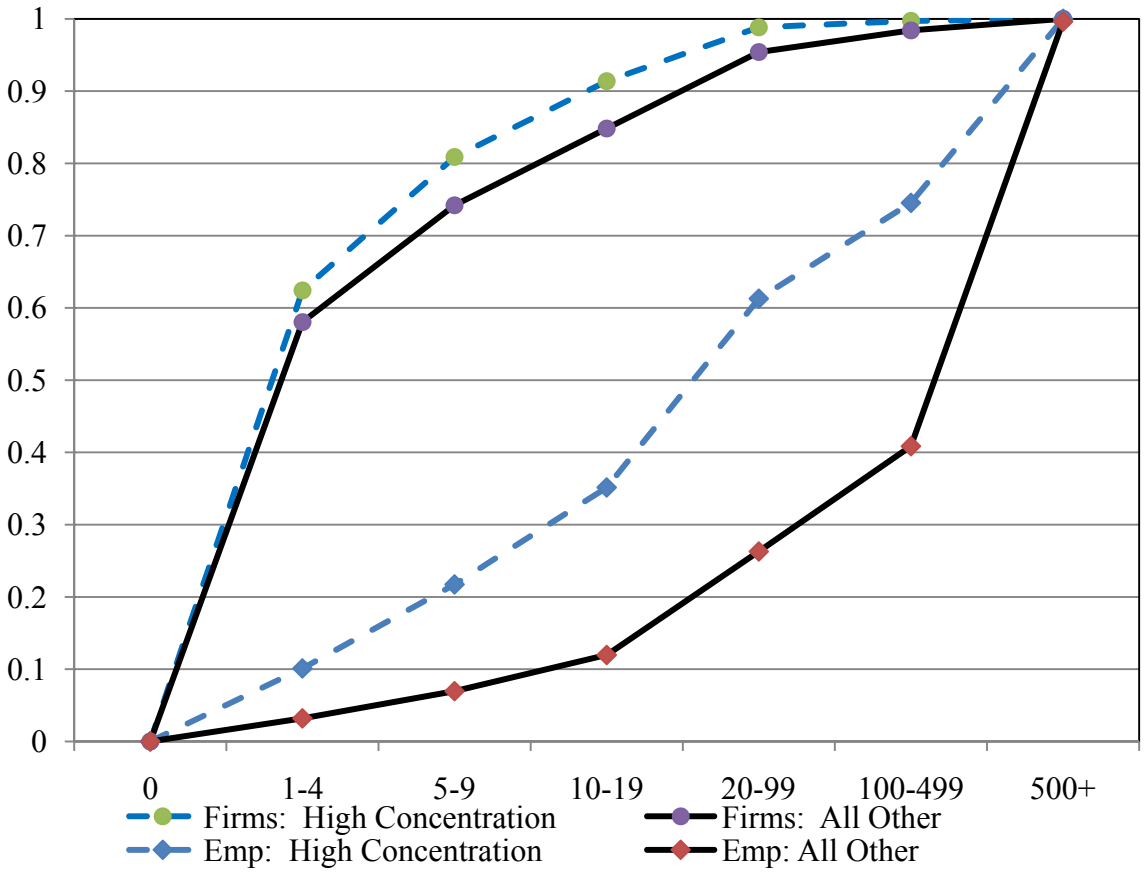


Figure 2: Breakdown of Firms With Fewer than 20 Employees By 4 Digit NAICS Industry



Note: Figure starts with the sample of all firms with fewer than 20 employees from the 2007 SUSB. These firms are then grouped by their 4 digit NAICS industry code. There are 294 such industries. Industries are then ranked by the fraction of small businesses (out of all small businesses) that are in each industry. A rank of 1 means that industry had the largest fraction of small businesses (out of all small businesses) in that industry. The rank is then plotted against the cumulative fraction of small businesses (out of all small businesses) in an industry of a given rank.

Figure 3: Cumulative Percent of Firms and Employment By the Number of Employees, Segmented by The Industries Concentration Among Small Businesses.



Notes: Figure shows the cumulative percentage of firms and employment by firm size for industries with a high concentration of small businesses and all other industries. An industry is defined as a having a high concentration of small firms if it is one of the four digit industries ranked between 1 and 22 in Table 1. These 22 4 digit industries represent the industries that contain 50 percent of all firms with fewer than 20 employees in 2007.

Appendix Table A1:
Classifications of Reasons Starting a Business Reported for Starting a Business by Nascent Entrepreneurs in the PSED

Non Pecuniary Reasons

Be own boss; tired of working for others (80) (75)
Flexibility ; more free time ; set own hours (26) (22)
Stay home with children ; work from home (33) (12)
Enjoy the work, have passion for it ; hobby (122) (96)
Job security/Financial independence (34) (14)
Try new career ; charge career ; do something new (24) (10)
Creative ; do creative work ; creative outlet (9) (5)
Better life (3) (0)
Life long ambition (24) (10)
Challenge (3) (3)
Personal Growth (2) (8)
To do more fulfilling work (2) (3)
Other lifestyle references (20) (7)
Other work desirability references (20) (7)

To Generate Income

Income; To Make Money (117) (93)
Extra Income (50) (20)
Need Supplemental Income (8) (6)
Retired – need to supplement income (8) (3)
Income for educational expenses (1) (3)
Income for retirement (11) (8)
To leave business/money to children (5) (4)
Unlimited income potential; good money (22) (19)
Potential to make more money working for self (7) (12)
Other income references (23) (22)

Had A Good Business Idea/Create New Product

Take advantage of opportunity (23) (17)
High demand for products/business; satisfy need (75) (30)
Market Opportunity; untapped market; shift in market (42) (17)
New technology/product/service (110) (3)
Good product/faith in product (13) (5)
Expansion of old/current business (23) (2)
Good Business Opportunity (1) (2)
Lots of experience at this type of work; background in field; knowledge (129) (25)
Have formal training/education in field (21) (13)
Have talent in field, area of expertise; ability to do it (23) (23)
Other business opportunity references (33) (21)

Lack of Employment Options

Cannot find employment elsewhere; lost job (18) (8)
Disabled/injured/sick and cannot work elsewhere (18) (12)
Retired (14) (8)

Other

Friend/family member had an idea and started a business (25) (9)
Inheritance (5) (1)
Believe in value of work ; think business is important (4) (1)
Help others ; help community (32) (31)
Aid in economy ; economic development (9) (1)
Other reasons (51) (20)

Note: Table shows the grouping of PSED respondent answers to the following open ended questions: "Why do you/did you want to start this new business?" Each respondent was allowed to provide up to two responses. This question was only asked in the initial wave of the PSED. The PSED staff took the responses to the open ended questions and coded them into the 44 specific responses – all of which are listed in this table. In the codebook, the 44 responses were grouped into 6 broader categories. Those categories were "income", "business opportunities", "employment", "personal reasons", "lifestyle", and "other". For our purpose, this classification was not exactly ideal. For example, the personal reason category included both "lots of experience at this type of work" and "enjoy the work, have passion for it; hobby". As a result, we reclassified the responses into the five categories above (used in Tables 1 and 6). Our classification was close to – but not identical to – the PSED classification. One can see the PSED code book for an exact comparison. Lastly, the numbers in parentheses represent the actual number of respondents who provided the reason on their first report (in the first parentheses) and on their second report (in the second parentheses). These numbers are for all PSED respondents and the sample from which they are drawn is analogous to the sample described in column 1 of Table 1. The numbers in the second parentheses sum to fewer than the full sample because roughly 500 respondents did not provide a second response.