What determines entrepreneurial outcomes in emerging markets? Role of Initial Conditions

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Abstract:
Is it the institutions or firm characteristics at birth that shape startups and their early growth in developing countries? Using comprehensive data from the Indian Annual Survey of Industries we address this question by studying early life cycle of firms across diverse institutional environments of regions within India. We find that the size and characteristics of a start-up at entry are persistent over the first 8 years of a firm's life. However, given these initial conditions at entry, institutions do not have much explanatory power in determining growth. The comparative growth rates of large and small start-ups are not significantly different across states with different local institutions or industries with differing reliance on external finance or need for fixed capital. But institutions, particularly the availability of credit, do have an impact on the initial entry process. Access to external finance is associated with greater overall entry, and also smaller sized entry. Our results do not appear to be driven by endogeneity of access to credit or sample selection. Our results show that the channel through which institutions affect the relative outcomes of young firms is through the initial distribution of firm characteristics at entry rather than their effect on the performance of the firms post entry.

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I. Introduction

What determines firm performance in its initial years? Do successful firms possess certain characteristics that distinguish them at birth or do they owe their success mostly to the institutional and regulatory environment that enables their productivity and growth? There is a large literature that establishes firms, particularly small firms, are likely to be more productive and grow faster in developed institutional environments with easier access to finance, stronger legal protections, and lack of corruption (e.g. Beck, Demirguc-Kunt, and Maksimovic (2005), Demirguc-Kunt and Maksimovic (1998) and Rajan and Zingales (1998)). More recently another strand of the literature has emphasized the importance of factors intrinsic to the firm – such as managerial vision and practices - in influencing firm growth and productivity across countries (Bloom and Van Reenen (2007, 2010), Bruhn, Karlan and Schoar (2010) and Bloom et al. (2013)). However, very little is known about the corporation as an entity during its founding years and how institutions and initial firm characteristics influence entrepreneurial outcomes in these crucial early years.

In this paper, we investigate whether founding conditions of a firm predict success over its first eight years in different financing and institutional environments and for different industries. Specifically, we first examine which of the following initial conditions – size at birth (number of employees), productivity at birth, and legal form (public limited or private limited company) – predict an entrant's growth trajectory relative to other entrants. Next, we examine whether there is heterogeneity in the relations between these founding conditions and growth across different industry technologies, financing needs, and different local financial and labor market institutions. Finally, we investigate the role of institutions in influencing the characteristics of startups in different industries.

We use data from the Annual Survey of Industries (ASI) which is the primary source of data on manufacturing firms in the formal sector in India for the period 2001-2010.[1] We follow firms through eight years of their early life-cycle and all the initial conditions are defined when the firm is one year old. The novel component of this empirical design is that since we are observing firms right from their entry, we can consider the initial conditions to be truly exogenous with respect to subsequent outcomes.

India offers an ideal laboratory for testing the role of institutions on firm lifecycle given the large persistent differences in institutions, business environment, and income across different regions in India (Ahluwalia, 2002).[2] There is substantial and well researched heterogeneity in financial and labor institutions across the different states in India. At the same time, comprehensive Census data at the firm-level is available to researchers, thereby sidestepping many of the concerns arising from data comparability in cross-country studies.

Here are our main findings. First, we find that initial size at birth trumps initial productivity and whether the firm is organized as a public or private limited company,[3] in explaining the variation in average size over early lifecycle. Thus we find the relative size at birth to be remarkably persistent over early lifecycle: firms born large (small) remain relatively large (small).

Second, this persistence implies that there is no significant difference in the growth rates of small and large entrants over the first eight years.

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[1] Similar to census data from other countries such as the Annual Survey of Manufacturers in the U.S., the ASI sampling frame consists of a Census Sample where the largest plants are surveyed each year and the remaining plants are sampled randomly in the Survey Sample.

[2] For an interesting comparison of Indian states to developing countries, see "Comparing Indian states and territories with countries," *The Economist Magazine, June 21, 2011.*

[3] While both public and private limited companies are incorporated and registered, private limited companies are not allowed to issue share capital whereas public limited companies have an unrestricted right to issue share capital so only public limited companies are eligible to be listed on a stock exchange.

Third, the size differential and the similarity in growth rates across firm sizes are remarkably stable and robust to institutional differences. They are unaffected by the level of credit provided by each state's banking system, the strictness of labor regulations, the quality of local business regulations and by a general indicator often used for the quality of business conditions, income per capita. The size differential and the similarity in growth rates are also unaffected by industry dependence on external finance as defined by Rajan and Zingales (1998), industry production structure (labor versus capital intensive) and industry growth rates. Moreover, there is no evidence that the growth rates of more productive small entrants relative to those of less productive small entrants differ across states with the development of the local financing system. Thus, relative size ranking is not affected by industries or institutions - Entry size serves as the blueprint for the typical firm's size and during its early lifecycle.

We also find that entrants differ along other characteristics. While large entrants have more complex production structures, entrants with high initial productivity have higher future productivity and profits.

When we examine the entry process in more detail, we find that average entry size is strongly affected by the quality of the financial system and labor regulations. In Indian states with stronger credit availability, there is more entry and the average entrant is also smaller.[4] By contrast, average initial productivity of entrants is not affected by the availability of credit, but by business and labor regulations. Taken together, these results suggest that firms that are able to enter the formal sector when institutions are poorly developed are on average larger and have higher productivity, presumably to be able to overcome financing and regulatory obstacles and still be viable.

[4] Below we investigate the extensive margin and find that this is the result of greater entry overall, with a larger increase in the entry rate by smaller entrants.

We don't find our results to be driven by the selection of the largest firms. Following the quantile methodology in Combes, Duranton, Gobillon, Puga, and Roux (2012), we compare the size distribution of firms in our sample at the beginning and at the end of early lifecycle and find that while the size distribution of older firms is dilated and shifted to the right, there is no evidence of selection, that would have produced a left truncation of the distribution. Overall, we are confident that our results on initial size are not being driven by our inability to track small firms over time, either due to their inability to survive as they get older or attrition from the census count.

Finally, our results are robust to alternate definitions of large versus small though we do not find any threshold effects in entry size where firms above (or below) a certain threshold grow faster (or slower).[5]

Overall, our results show that the initial rate of entry and entry size are sensitive to local institutions. Upon entry, however, the initial conditions of the entrants are remarkably persistent. Small and large firms grow at the same rate across different industries and institutions. There is little evidence of more productive small firms entering small and increasing their relative size over time, as would be expected if they were relying on retained earnings to make up for failures of the banking system to finance expansion.

Our paper contributes to several streams of literature. First, a large literature has established that institutions, particularly development of financial institutions, influence firm performance and growth. Examples of papers that use cross-country firm level data include Demirguc-Kunt and Maksimovic (1998), Beck et al.(2005), Aterido, Hallward-Driemeier, and

[5] The importance of entry size does not appear to be restricted to India alone. Ayyagari, Demirguc-Kunt, and Maksimovic (2015) show similar evidence on the relation between firm size at birth and success over early life-cycle in the formal sector across 120 developing countries. They find that across differences in institutions in different countries, small entrants on average are not able to make up the difference in sizes relative to large entrants.

Pages (2011), Forbes (2007)) among others. Using industry level data, Rajan and Zingales (1998) show that industries dependent on external finance have faster growth rates in countries with better developed financial institutions. Individual country case studies investigating the impact of structural banking reforms in the US, France and other countries also find that a more efficient banking sector is associated with survival and better performance of more efficient firms ((Black and Strahan (2002), Cetorelli and Strahan (2006), Bertrand, Schoar and Thesmar (2007), Kerr and Nanda (2009)). Furthermore, studying U.S. bank deregulation, Cetorelli and Strahan (2006), and Cetorelli (2004) find that greater bank competition after reform is associated with a smaller average firm size. Similarly Kerr and Nanda (2009, 2010) find that US banking reform leads to increased entry of small firms and reduces average entry size, though they do not find a significant decrease in entry size following deregulation relative to the reform year.

The focus of our paper is different, though complementary to this literature. We limit our analysis to firm entry and to the early years of a firm's life cycle and show that institutions matter more for the selection of firms rather than subsequent growth over the initial years. The finding that factors intrinsic to the firm may be more important for entrepreneurial outcomes in the initial years of the firm is not inconsistent with institutions playing a more important role as the firm continues to mature, but it is an important qualification. Our findings also add to the earlier US-based findings that financial development increases number of entrants and makes it possible for smaller firms to enter, reducing average entry size.

Second, there has been an increasing interest in the study of firm lifecycle to help understand productivity differences between rich and poor countries and potential resource misallocation due to underdeveloped institutions. Hsieh and Klenow (2012) show that plant lifecycles in developing countries such as India are flat and declining, compared to those in

developed countries such as the U.S. where firms grow as they age. Ayyagari, Demirguc-Kunt, and Maksimovic (2014) show that this is true only in the informal sector whereas in the formal sector in developing countries, plants indeed grow as they age and there is significant heterogeneity across countries in this growth rate. While those papers look at firm life-cycle over 40+ years, this paper focuses on the early stages of firm lifecycle and the importance of initial conditions in determining entrepreneurial outcomes in different institutional settings. Our results show that the "usual" institutional culprits do not explain differences in the initial growth path of young firms; but have an impact on the entry rates and entry characteristics.

Our findings also contribute to recent corporate finance research showing that legal organizational form is an important determinant of corporate behavior. A large number of studies have shown that public and private firms invest differently in response to demand shocks (Brav, 2009; Sheen, 2009; Asker, Farre-Mena, and Ljunqvist, 2010), have different cash policies (e.g. Gao, Harford, and Li, 2012; Farre-Mensa, 2012), smooth dividends differently (Michaely and Roberts, 2012) and listed firms take much more advantage of financial booms to grow by acquisition (Maksimovic, Phillips, and Yang, 2013) while private acquirers pay significantly less for targets than public acquirers (Bargeron, Schlingemann, Stulz, and Zutter, 2008). Missing from this literature though is an estimate of the role of initial legal form once we control for size. Indeed, our paper suggests that at least over the first eight years, initial size has a larger explanatory power than legal form in determining how large a firm grows to be.

Finally, an emerging but influential literature has emphasized the importance of managerial capital (or its lack thereof) in developing countries (Bloom and Van Reenen (2007, 2010), Bruhn, Karlan, and Schoar (2010)) and in particular in India (Bloom et. al. (2013)). These papers show the persistence of dysfunctional managerial styles in firms and posit that the

variations in management practices have broader implications for firm growth and productivity differences across countries. Our results suggest that indeed over early firm lifecycle, initial conditions or factors intrinsic to the firm such as managerial capital may be more important in explaining growth patterns rather than institutions across different countries and industries. We also find that firms with larger entry size are also those with more complex production processes suggesting that initial size may be capturing the managerial capacity of the entrepreneur.

The remainder of our paper is structured as follows. In section II, we present our empirical framework, data and summary statistics. In section III, we discuss the determinants of entry and entry size. In section IV, we present robustness results. In section V we reconcile our paper with existing literature. Section VI concludes.

II. Empirical Approach and Data

To fix ideas**,** consider a simple framework where firms of differing ability start production in different locations (for example, different states in India). At the beginning of period *t*, firm *i* enters in state *s* where it faces institutions and institutional obstacles. Without loss of generality we represent the institutions and market imperfections by a *K* dimensional vector $O_{sk,}\ k=1,...K$.

The entrepreneur has no financing and has to obtain it from local financiers (who may be local investors or loan officers working for large financial intermediaries) in order to be able to employ workers and to produce. Since the researcher is likely to observe the firm's employment more accurately than its depreciated capital stock, we follow the literature in measuring firm size by the number of employees.

Firms are characterized by their ability $A_{i|s}$where $A_{i|s}$is a random variable that measures the entrepreneur's ability and may depend on the entrepreneur's social capital. $A_{i|s}$is unobserved by the researchers but is observed by the local financial and institutions. If financed, the value of each firm's production is $A_{i|s}L_{it}^{\gamma}\varepsilon_{it}$, where L_{it} is number of employees (firm size) and ε_{it} is noise for firm i at time t. Consistent with the theoretical models on entrepreneurial ability such as Lucas (1978) and Rauch (1991), entrepreneurs of higher ability set up larger firms when faced with constant cost of each unit of labor.

In each state, local financiers observe the entrepreneur's ability and provide financing whose amount is given by an institutional size selection function that determines the size of the start-up, $L_{i0t} = S(A_{i|s}, O_s, \upsilon_{it})$ where L_{i0t} is firm i's size at age 0 and time t, υ_{it} is noise. For current purposes we do not need to parameterize the selection function in detail.

We first examine empirically whether growth rates of firms are directly affected by institutions O_{sk} or by firms' initial condition L_{i0t}. Thus, we run variations of the specification:

$$y_{iat} = \alpha_t + \sum_{a=2}^{T} \delta_a + \beta O_{sk} + \gamma L_{i0} + \sum_{a=2}^{T} \mu_a (O_{sk} \times L_{i0}) + \upsilon_{it} \quad (1)$$

for different O_{sk} of interest, where the dependent variable y_{iat} is a relevant characteristic of firm i aged a years at time $t > 0$ and δ_a and μ_a are dummy variables that take on the value 1 when the firm is a years old and zero otherwise. In most of our tests, we focus on firm size, L_{iat}, or the growth rate of firm i, so that $y_{iat} = \frac{L_{iat}}{L_{iat-1}}$ but we also consider other relevant characteristics such as the firm's total factor productivity, TFP_{iat}. The variables, δ_a, where a=2,..8, allows us to track the mean development of the growth rate y_{iat} over its early life-cycle and μ_a allows us to examine the differential effect of institutions on firm's with different initial starting conditions also over the firm's early life cycle.

Thus we are treating initial conditions to be exogenous to future outcomes and using a difference-in-difference approach to compare the outcomes of large and small entrants across different types of institutional environments. If we find no differences, we would conclude that whatever the advantages and disadvantages of certain types of institutions, firms' outcomes unaffected post birth. This is consistent with the Lucas (1978) and Rauch (1991) framework where entrants' relative size in each state is determined by the relative ability of entrepreneurs presenting to investors in each state, but the growth rate is not affected.

Although our results hold for specification (1) with a continuous measure of initial conditions, such as size L_{i0}, to simplify the graphical presentation of our results we divide our sample into small and large start-ups, thus dichotomizing the initial conditions. We then show the average growth rates and other variables of interest for small and large startups as a function of firm age, institutional variables O_{sk} and their interactions graphically.

Next, we examine whether the variables L_{i0t} and TFP_{i0t} are affected by financial and regulatory obstacles that have been identified as affecting firm growth in developing countries.

In our regressions below we take advantage of multiple years of observations and of changes in credit availability and labor regulations across time and states to provide a causal interpretation. We run the following regression:

$$y_{.0t|s} = \alpha_t + \sum_{k=1}^{K} \beta_k O_{skt} + \upsilon_t \qquad (2)$$

where $y_{.0t|s}$ is a the mean start-up characteristic, either L_{i0} or TFP_{i0} at time t in state s. The parameter β_k allows us to test how firm initial characteristics vary with state-level measures of credit availability and institutional development variables O_{kst}, $k=1,...K$.

The primary focus of interest is the persistence of the effect of initial conditions and their interaction with potential institutional obstacles. While we focus on the local banking system and

labor regulations, we also use a similar approach to examine differential effects across different types of industries, in particular financially (in)dependent industries and capital intensive and labor intensive industries, and the interaction between industry characteristics and institutions and initial conditions on outcomes.

A. Indian Manufacturing Census

We use panel data for the period 2001-2010[6] on formal manufacturing plants in India from the Annual Survey of Industries (ASI), which is conducted by the Indian Ministry of Statistics and Program Implementation. [7] The ASI sampling frame consists of all registered factories employing 10 or more workers using power or 20 or more workers without using power.[8] The sampling frame consists of the "Census" sector which are surveyed every year (typically plants having 100 or more workers) and the "Sample" sector where plants are sampled randomly and unit multipliers are provided to take into account sampling probabilities.[9]

The specific ASI variables we use are described below: **Firm Age** is defined as the year of the census - year of initial production reported by the firms. **Firm Size** is the total number of

[6] We drop the first two years of panel data – 1998/99 and 1999/00 because the number of Census establishments in these two years (around 7600 each year) seemed to be half that of the Census sample in other years (ranging from 15,813 in 2000/01 to 20,328 in 2010/11).

[7] The ASI also contains some establishments outside of manufacturing. Thus, while the primary unit of enumeration in the survey is a factory in the case of manufacturing industries, it could also be a workshop (for repair services), an undertaking or a licensee (electricity, gas & water supply undertakings) or an establishment (bidi & cigar industries). According to the Ministry of Statistics, "the owner of two or more establishments located in the same State and pertaining to the same industry group and belonging to census scheme is, however, permitted to furnish a single consolidated return. Such consolidated returns are common feature mostly in the case of bidi and cigar establishments, electricity and certain public sector undertakings"

[8] As seen in the summary statistics, we have a number of firms that report fewer than 10 employees - these are firms that do not need to be registered but are nevertheless registered. Several papers such as Bedi and Banerjee (2007), Hasan and Jandoc (2010), Harrison, Martin, and Nataraj (2012), and Chatterjee and Kanbur (2013) have noted this phenomenon and proposed several explanations that do not affect the interpretation of our results. Our results are robust to excluding these firms.

[9] While the definitions of the Census and Sample sectors have changed over the years, for our entire sample period, the Census sector covered all units having 100 or more workers.

workers which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. We define initial conditions by the characteristics of entrants i.e. when the firm is 1 year old. There is no standard definition in the literature on identifying new firms. For instance, Klapper, Laeven, and Rajan (2006) define new firms as all firms below the age of 2; Acs, Desai, and Klapper (2008) look at newly registered firms less than 1 year. Ghani, Kerr, and O'Connell (2014) define entrepreneurs as all firms less than three years old. Our results are robust to defining initial conditions at age 0, or age 2 or an average size over ages 0, 1, and 2.

Initial Size is the total number of workers when the firm is one year old. We define **Small Entrant** as all those firms in the bottom two quintiles of the size distribution of all entrants (i.e. aged 1) over the sample period and **Large Entrant** as all those firms in the top 3 quintiles of the size distribution of all firms aged 1 over the sample period. The number of employees at age 1 ranges from 2 to 16 employees for Small Entrants and 17-848 employees for Large Entrants. Our results are robust to alternate definitions of Small vs. Large entrants including using median as the cut-off point, looking at the tails of the distributions (i.e. defining Small as the bottom two deciles and Large as the top two deciles), and defining Small vs. Large entrants depending on the distribution each year . We also find similar results using a continuous measure of size at age 1.

Initial Productivity is the total factor productivity (TFP) when the firm is one year old. We measure TFP as Log (Revenue Productivity) which is defined as in Hsieh and Klenow (2009) as the product of physical productivity and a firm's output price. We define **Low Initial TFP** as all those firms in the bottom two quintiles of the productivity distribution of all entrants

over the sample period and **High Initial TFP** as all those firms in the top three quintiles of the productivity distribution of all entrants over the sample period.

Initial Legal Form is the business organizational form of the company when it is one year old. **Public Limited Company** takes the value 1 if the initial legal form is a public limited company and 0 if the company is organized as a private limited company or proprietorship.[10] The most important distinction between public limited companies and private limited companies relates to their ability to raise funds from the public. Public limited companies have an unrestricted right to offer shares to the public and are thus eligible to be listed on a stock exchange whereas private companies are not allowed to issue share capital. A similar distinction exists in many countries including the United Kingdom, as discussed by Brav (2009).

We look at the following performance metrics. **Employment Growth** is the annual growth in total number of workers. **Profits** are defined as the ratio of Profits to Total Assets. **Cash Flow Volatility** is defined as the standard deviation of Operating Cash flow to Total Assets. We also examine whether entrants differ in their production structures. Specifically, we look at whether large vs. small entrants and high vs. low initial TFP entrants engage in more value-creating combinations of inputs by defining **Complexity of Production** as the ratio of Excise Taxes paid/Sales following Siegel and Choudhury (2012). Excise Tax is an indirect tax levied on the act of production or manufacture of goods paid by the manufacturer. Thus a lower tax (scaled by size) would imply that the value added from the manufacturing process is lower.

We follow the firms during the first eight years of their lifecycle. Our results are robust to following firms up to 10 years, the maximum number of years we can follow a firm from its

[10] The private limited company/proprietorship category consists of wholly privately owned firms organized as individual proprietorships, joint Hindu family business, partnerships, private limited companies, co-operative society, a corporation established by special Act of Parliament or State Legislature, and others including trusts, etc.

entry since we have data from 2001-2010. The confidence intervals are much wider due to lower sample sizes beyond eight years and hence we are more comfortable with restricting our early lifecycle analysis to the first eight years. To deal with outliers, within each age bin we winsorize the bottom and top 0.5% of all plant-level variables. We further winsorize top and bottom 0.5% of the ratios of variables. We winsorize within each age bin so as to not introduce systematic bias in our estimations such as that which would be created by winsorizing only the values for old firms. We also drop firms that stated initial year of production to be before 1800 and clear data errors where the year of initial production is given to be after the year of the survey.[11]

The data also provides National Industry Classification (NIC) codes that map onto different revisions of the International Standard Industry Classification (ISIC) codes. Using this we construct three digit NIC industry dummies that are consistent across all census-years and restrict the data to only the manufacturing sector. [12]

For confidentiality purposes, the ASI data does not provide firm identifiers. However the firms also report the total number of units the company has, which allows us to restrict all our analysis to factories that report that the company is not a multi-establishment firm (we take

[11] The panel data was provided to us as individual annual files with establishment identifiers. There were some inconsistencies and missing values in the year of initial production reported from one year to next for the same establishment. We replaced the missing (19% of sample) and zero values (3% of sample) with the non-zero value reported in the subsequent year. To deal with the inconsistencies for each firm, we replaced all values of year of initial production with the mode, provided that there are only less than half of the observations different from the mode. If there are at least half of the observations that are different from the mode, we replace all observations with the value reported in the first year. Our results are robust to restricting the sample to years for which we have no inconsistency in the year of initial production. Several papers including Bollard, Klenow, and Sharma (2013); Dougherty, Frisancho Robles and Krishna (2011), and Harrison, Martin, and Nataraj (2012) have identified the presence of significant outliers in the Indian panel data and use algorithms similar to ours to ensure consistency across years.

[12] The 2001/02 census uses NIC-98 which maps onto ISIC-Revision 3 at the 3-digit level; the 2002/03 and 2003/04 censuses use NIC-98 which maps onto ISIC-Revision 3.1 at the 3-digit level; the 2004/05, 2005/06 and 2007/08 censuses use NIC-04 which maps onto ISIC-Revision 3.1 at the 3-digit level; and the 2008/09, 2009/10 and 2010/11 censuses use NIC-08 which maps onto ISIC-Revision 4 at the 3-digit level. We drop recycling from the manufacturing sector since it is not included under manufacturing in the ISIC classification

values 0 and 1 to be single establishment firms). Around 86% of the observations in our sample were single-establishment firms.

B. Industry Variables

We wish to explore if there are consistent differences firm lifecycles across different types of industries. In particular, we look at whether growth and productivity over early lifecycle is a function of external financing needs, industry growth opportunities, and the type of production structure (capital intensive vs. labor intensive).

As an estimate of the external financing needs of the firm, we use US industries' dependence on external financing from Rajan and Zingales (1998) (RZ index). The RZ index is based on the assumption that since U.S. financial markets are developed, sophisticated, have fewer market imperfections and relatively open they should allow US firms to achieve their desired financial structure. Thus assuming that there are technological reasons why some industries depend more on eternal finance than others, the RZ index offers an exogenous way to identify the extent of external dependence of an industry anywhere in the world. The methodology does not require that the US markets are perfect but rather that market imperfections in the US do not distort the ranking of industries in terms of the technological dependence on external financing.

The RZ index is at the 3-digit ISIC level that maps onto the Indian NIC classification. We construct **EFD,** a dummy variable that takes the value 1 if industry's dependence on external finance is ≥ median value of dependence on external finance across industries and 0 if it was < the median across industries.

Second, we create **Growing Industries** which is a dummy variable that takes the value 1 if the industry's growth in employment over the period 2001-2010 was greater than (or equal to) the median industry growth over this period and 0 if the industry's growth in employment over this period was less than the median. Third, we follow Hasan and Jandoc (2012) in constructing **Labor Intensive Industries** which is a dummy variable that takes the value 1 for labor intensive industries and 0 for capital intensive industries.[13]

C. Local Institutions

To take into account institutional differences that may affect firm life-cycle, we focus on the income level, level of financial development and the stringency of labor regulations across different states of India. Each of the measures is described below.

For each year of the sample, depending on the value of state GDP/capita, we classify states into **Rich States** (≥ median) and **Poor States** (< median)**.**

India has a rich and mature banking history with the first banks being established by the British East India Company towards the end of the 18th century. Following India's independence, in 1949, the Banking Regulation Act vested the Reserve Bank of India (RBI), India's Central Bank, with extensive powers for supervision of banking in India. In two waves of nationalization in 1969 and 1980, the Indian government nationalized the major private banks running them as profit-making public sector undertakings that were allowed to compete and operate as commercial banks.[14] In response to a fiscal and balance of payments crisis in 1991,

[13] Hasan and Jandoc (2012) classify the following industries in India to be capital intensive industries: Machinery, Electrical Machinery, Transport, Metals and Alloys, Rubber/Plastic/Petroleum/Coal and Paper/Paper Products. The labor-intensive industries are: Beverages and Tobacco, Textile Products, Wood/Wood Products, Leather/Leather Products and Non-Metallic Products. The remaining industries are not as clearly distinguishable and include: Food Products, Textiles, Basic Chemicals, Metal Products and Other Manufacturing.

[14] In 1969, 14 banks with deposits over Rs 50 crores were nationalized. In 1980, 6 private sector banks were nationalized. A few of the private sector banks were not nationalized because of their small size and regional focus.

India went through a large-scale financial liberalization that allowed for the entry of new private sector banks (including foreign banks) in 1993. Despite the massive growth of private sector banks, India's banking system is still largely state dominated. As of 2012, India's state owned banks have 73% of market share of assets and 83% of branches.[15]

Even within this government dominated banking sector, there is a large variation across India's states in level of financial development. Bajpai and Sachs (1999) note that there has been a wide variation in the adoption of economic reforms with states like Maharashtra being very reform oriented while others, especially the poorest BIMARU states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) being slower to adopt. Aghion et al. (2008) also note the reforms in the 1990s to be associated with increasing cross-state inequality in industrial performance.

Our measure of financial development is the ratio of total Commercial Bank Credit outstanding to the Net State Domestic Product (SDP) in each census year and gauges the depth of financial development. The data is sourced from Burgess and Pande (2005) with updates from the Reserve Bank of India (http://dbie.rbi.org.in). We only have data on financial development across 15 Indian states but these are the major states of India with the highest SDP, accounting for 95% of India's population and 90% of India's GDP in 2004/05. Based on Credit/SDP, we construct a dummy variable, **FD**, which takes the value 1 for a particular state in a particular year if that state is at the median or above the median value of financial development in that year across states and 0 for states that are below the median value of financial development. As robustness we also construct FD based on an initial value of financial development in 1995 (before our sample period).

[15] Speech by Dr Duvvuri Subbarao, Governor of the Reserve Bank of India, at the FICCI–IBA (Federation of Indian Chambers of Commerce & Industry – Indian Banks' Association) Annual Banking Conference, Mumbai, 13 August 2013. http://www.bis.org/review/r130813b.pdf?frames=0.

Several papers suggest that India's labor regulations are responsible for the stagnant share of manufacturing outputs in India's GDP because of the impediments placed on hiring and firing workers (Dougherty (2009), Hasan, Mitra, and Ramaswamy(2007)). Under the Indian Constitution, both central and state governments have joint jurisdiction over labor market regulation. One of the most important set of labor regulations governing Indian industry is the centrally legislated Industrial Disputes Act of 1947 which lays out the arbitration and adjudication procedures in industrial disputes, and which has been extensively amended by state governments.

A large literature has evolved quantifying labor market regulations across different states of India, the most well-known being Besley and Burgess (2004), that code the legislative state-level amendments to IDA to classify states as pro-worker (score of +1) or pro-employer (-1) or neutral (0) over the period 1958 to 1992. Given the limited time-series variation within states, several papers build on the Besley-Burgess dataset to create a time-invariant index of the general direction in labor regulations, classifying states with anti-employee amendments as those with flexible labor markets and the others as inflexible labor markets (see Hasan, Mitra, and Ramaswamy, 2007; Dougherty (2009), Gupta et al. (2008)).[16], and classify five states to have flexible labor regulations, (Andhra Pradesh, Karnataka, Rajasthan, Tamil Nadu, and Uttar

[16] Hasan et al. (2007) argue that the scores on cumulative amendments between 1980 and 1997 do not vary much over time within states, with eight of the states showing no amendment activity since 1980. Dougherty (2009) further reports that only 8 amendments (in 3 states) have been recorded since 1990, and only one amendment passed in 2004 appears to be of material importance to labor market outcomes. Gupta et al. (2008) build a composite index based on a simple majority rule across the indicators proposed in Besley and Burgess (2004), Bhattacharjea (2006), and Dougherty (2009).

Pradesh), three states to have inflexible labor market regulations (Maharashtra, Orissa, and West Bengal) and the remaining seven to be neutral. [17]

Following Gupta et al. (2008)'s composite classification, we create a **Flexible State** dummy that takes the value 1 for states with flexible labor regulation (Andhra Pradesh, Karnataka, Rajasthan, Tamil Nadu, and Uttar Pradesh) and 0 for states with rigid (Maharashtra, Orissa, and West Bengal) or neutral labor regulations (Assam, Bihar, Gujarat, Haryana, Kerala, Madhya Pradesh, and Punjab). We make one change to the Gupta et al. classification of using the pre-2000 state boundaries in classifying states. So our flexible states classification includes Uttaranchal (which split from Uttar Pradesh in 2000) and inflexible states classification includes Jharkhand and Chattisgarh that were formerly part of Bihar and Madhya Pradesh respectively).

As a measure of the overall business environment in different states, we use the World Bank's Doing Business Indicators for 2009 that ranks 17 Indian cities (in 17 states) by the quality of doing business. The ease of doing business index, **DB Rank**, averages each city's percentile ranking along seven dimensions – Starting a Business, Dealing with Construction Permits, Registering Property, Paying Taxes, Trading across Borders, Enforcing Contracts, and Resolving Insolvency, and ranges from 1 (for Punjab) to 17 (for West Bengal) with higher values corresponding to states with worse doing business environments. We construct **Good Doing Business**, a dummy variable that takes the value 1 for states with good doing business environments (DB Rank $\leq$9) and 0 for states with poor doing business (DB Rank >9). We also control for human capital using **Literacy Rate** which is the proportion of persons who can both read and write with understanding in any language among population aged 7 years and above.

[17] The labor market regulation index is not available for the following states and union territories: Jammu & Kashmir, Chandigarh, Nagaland, Manipur, Tripura, Meghalaya, Daman & Diu, Dadra & Nagar Haveli, Pondicherry, Lakshadweep, and Andaman & Nicobar Islands.

D. Summary Statistics

Panel A of Table 1 presents summary statistics on our main variables of interest. The mean size in our sample is 104 employees though it ranges from 1[18] to 1285 employees (winsorized values). Average employment growth is 49.3%.[19] 67.6% of the firms in our sample at age 1 are classified as Large entrants and 61.7% of the firms in our sample at age 1 are classified as High Initial TFP. In terms of industries, 29.6% of the observations are firms in labor intensive industries, 45.8% are in growing industries and 33.9% are in industries that are dependent on external finance. 66.9% of our observations are from rich states, 64.2% from financially developed states, and 52.2% of the observations are from states with flexible labor regulations. The mean doing business rank is 9.32 and if we were to use a dummy variable for states with good doing business (rank>=9) we find that 41.8% of the observations are from states with good doing business rank,

Panel B of Table 1 presents pairwise correlations of our main variables. Firm Size and Age are positively correlated suggesting that older firms are larger. We also find that firms in labor intensive industries and rich states and financially developed states are larger whereas firms in growing industries, industries dependent on external finance and states with good doing business rank and states with flexible labor regulations are smaller. Employment Growth is positively correlated with establishment size but not significantly correlated with much else. Large entrants and High Initial TFP entrants appear to be positively correlated to each other. None of the correlation coefficients are very high to suggest multi-collinearity.

[18] 3.8% of our sample has <5 employees.
[19] There are 351 firm-year observations where the growth rate exceeds 500%. All our results are robust to restricting the sample to the growth rates below 500%.

III. Initial Conditions and Early Firm Lifecycle in India

A. Initial Conditions and Size and Growth over lifecycle

In this section we first investigate which of the following conditions at birth – size, TFP, and legal form – have the largest explanatory power in determining average size and growth over the first eight years of a firm's lifecycle. In particular, we want to compare the explanatory power of initial conditions to that of state dummies to understand what role initial conditions play in determining size and growth over early life cycle. To do this, we estimate a variant of equation (1):

$$y_{ijst} = \mu + \beta_1 Initial\ Condition_{ijs0} + \beta_2 TFP_{ijs0} + \beta_3 F_{ijs0} + \delta_j + \pi_s + \upsilon_{ijst}$$

where the dependent variable y_{ijst} is size or growth of firm i in industry j, in state s, and year t, μ is the average response across all firms, δ_j are industry effects, π_s are state effects and the υ_{ijst} are random disturbances. We look at three initial conditions - L_{i0} (dummy for Large Entrant), TFP_{i0} (dummy for High Initial TFP entrant) and F_{i0} (dummy for initial legal form). The regression is estimated using ordinary least squares with sampling weights taken into consideration.

Using the full panel of firms, we present a variance decomposition analysis in Table 2 to compare the relative importance of different initial conditions in explaining firm size and growth. We begin with a benchmark specification in which we use state dummies to model institutional variation at the state level. The specification with state dummies provides us with the upper

bound for the variation that can be explained at the state level. In subsequent specifications, we calculate the increment to adjusted R-square with industry effects followed by one of the initial conditions.

Col. 1 of panel A of Table 2 shows that the adjusted R-square when we regress Establishment size on state dummies is 3%. This also means that any state-level institutional variable that we might want to substitute the state effects with can explain a maximum of 3% in the variation in establishment size. When we add Industry Dummies we explain an additional 4% and when we add Large Entrant dummy to this regression, we explain an additional 7.9%. Thus initial size has a larger explanatory power than institutions or industry effects in determining average size over the first eight years. By comparison, Panels B and C of Col. 1 show that High Initial TFP dummy and Public Limited Company do not add as much explanatory power to the baseline specifications with state and industry dummies as Large Entrant dummy. In Col. 2 we keep the sample size constant across the three panels and again find that Large Entrant dummy has the highest explanatory power in explaining average size over early life-cycle.

Cols 3 and 4 of Table 2 show that none of the initial condition variables have any explanatory power in explaining the variation in average firm growth over early life-cycle. We also don't find state and industry dummies to explain any variation in firm growth rates over early life-cycle.

Overall, Table 2 shows that size at birth has the highest explanatory power in predicting size over the first eight years of a firm's lifecycle. While initial TFP has no explanatory power in determining size, legal organization of the firm, that is, whether a firm is organized as a public limited company or as a private limited company or proprietorship/partnership, explains 3.4% of

the variation in size, which is about half that explained by initial size. Since initial legal form explains much less than initial size, and both are likely to be correlated, in the rest of the paper, we focus mostly on the role of initial size.

Next we examine how the effect of initial size varies over the early lifecycle of the firm. In Table 3, we regress Size and Employment Growth on age dummies, Large Entrant dummy, and their interactions. Since we follow firms right from age 1, we can consider the Large Entrant dummy to be exogenous to the system. In all regressions we use weighted regressions with sampling weights. We also control for unobserved heterogeneity at the state, industry, and year level using dummies as well as the initial TFP of the firm.

Col. 1 of Table 3 regresses size on age dummies, Large Entrant dummy and High Initial TFP dummy without any interaction terms. All the age coefficients are positive and significant suggesting that firms on average are larger as they age, and firms that are born large are on average larger than firms that are born small. We also see that controlling for initial size, firms with high initial TFP are on average smaller than firms with low initial TFP. Thus, to the extent that firms' initial size is constrained by market imperfections, there is little evidence that high initial TFP allows firms to relax those constraints. In col.2, we interact Large Entrant with age dummies and find the interaction term to be positive and significant showing that firms that are born large are larger at all points during the lifecycle.[20] In unreported regressions, we estimate both sets of interaction terms – interaction of Large Entrant dummy and age dummies and interaction of High Initial TFP dummy and age dummies. Figure 2 plots the predictive margins

[20] In unreported estimations, High Initial TFP is not significant when we don't control for initial size in Col. 1. Furthermore, even after controlling for initial size, the interactions of High initial TFP and age dummies are not significant in Col.2. We do not report these estimations since Table 2 shows that High Initial TFP has very little explanatory power in determining size.

of these interaction effects and shows that initial size dominates initial productivity in predicting size over early life-cycle.

In cols. 3-4 we repeat the specifications in cols. 1-2 but using annual Employment growth as the dependent variable. In col. 3 when we don't include any interaction terms, we find that neither the Large Entrant dummy nor the High Initial TFP dummy is significant. In col. 4, the interactions of Large Entrant dummy and age dummies are insignificant suggesting that there is no evidence that large entrants grow differently than small entrants during early life-cycle. With the presence of interaction terms, the negative and significant coefficient on Large Entrant dummy only suggests that the growth rates of small entrants is higher than that of large entrants at age 2 (omitted age category). To better interpret the interaction terms, in Figure 1 we plot the predictive margins of the interaction effects from col. 2 and col. 4. Panel A of Figure 1 clearly shows the persistence of initial size over early lifecycle and Panel B of Figure 1 confirms that the growth rates of large versus small entrants are not significantly different.

Overall, Table 3 shows that the relative size at entry matters for how large a firm is going to be over its early life-cycle and the difference in growth rates between large and small entrants is not economically significant.

We subject our results to a battery of robustness tests. First, we obtain very similar results if we were to replace Large Entrant dummy with a continuous measure of initial size. Second, our results on persistence are robust to the following alternate definitions of Large vs. Small entrants - using the median entry size as a cut-off for Large (>=median) and Small (<median); focusing on the tails of the distribution and classifying the first two deciles of the entry size distribution as Small Entrants and the top two deciles of the entry size distribution as Large

Entrants; defining Large vs. Small entrants looking at the size distribution each year; and defining Small and Large entrants using total assets rather than total number of employees. In all instances, we see that the average size of large entrants is always larger than that of small entrants during the early life-cycle. As in cols. 3 and 4, large entrants do not seem to have differential growth rates from small entrants when we look at alternate definitions of Large vs. Small entrants. Appendix Figures A1 and A2 provide the predictive margins for the size and growth regressions using these alternate definitions.

Second, we examine if it is initial leverage (High Debt dummy) that accounts for the persistence in size. High Debt dummy takes the value 1 if the value of Total Loans to Assets at age 2 was in the top 3 quintiles and takes the value 0 if the value of Total Loans to Assets at age 2 was in the bottom 2 quintiles of the leverage distribution. Total Loans includes both outstanding loans and overdraft facilities. We estimate a regression of Size on Large Entrant dummy, Age, High Debt dummy and a triple interaction of Large Entrant dummy, Age dummies, and High Debt dummy including pair-wise interaction terms. Panel A of Figure 3 plots the predictive margins of the triple interaction effects from both regressions and shows that it is initial size rather than initial leverage which has significant effects on size over the early life-cycle – Large entrants are always larger than small entrants at all ages irrespective of their initial debt ratios. In unreported tests, we find no difference in the growth rates of large versus small entrants irrespective of initial debt ratios.

Third, we estimate a regression of Size on Large Entrant dummy, Age, Public Limited Company and a triple interaction of Large Entrant dummy, Age dummies, and Public Limited Company including the pair-wise interaction terms. Panel B of Figure 3 plots the predictive margins of the triple interaction effects and shows that large entrants that are public limited

companies are the largest in size at all ages followed by large entrants that are either private limited companies or proprietorships/partnerships. There is no difference in size between the small entrants that are public limited companies and small entrants that are private limited companies/proprietorships/partnerships.

Overall this section shows that size at birth is remarkably persistent over early life-cycle and the growth rates of large and small entrants are not significantly different from each other over the first eight years.

B. Initial Conditions and Institutions

In Table 4, we look at the early life cycle effects in size and growth across different institutional environments. In all regressions we control for industry and year fixed effects.

In panel A of Table 4, we focus on the Establishment size regressions looking at the interaction of Large Entrant dummy with each institutional variable. For the sake of brevity and ease of interpretation we only present results with the double interaction of Large Entrant dummy and the institutional variable but discuss the results of the triple interaction of Large Entrant x Institutional variable x Age dummies in the text below. Cols. 1 to 4 of Panel A show the main effects without any interaction terms in the regression and cols. 5 to 8 show the regressions with the interaction term.

Cols. 1 to 4 show that firms are on average larger in richer states and states with rigid labor regulations. Interestingly, the coefficient on Financially Developed dummy and the Good Doing Business dummy are not significant. Cols. 5 to 8 show that the interaction of Large Entrant dummy and the institutional variables are significant. The interaction terms suggest that large entrants are on average larger in rich states, financially under-developed states, states with

poor doing business environments and states with rigid labor regulations. In Figure 4 we present the predictive margins from the unreported triple interaction terms. The four panels show that initial size dominates the effect of institutions on average size over early lifecycle. Large entrants are always larger than small entrants in states with good and bad institutions. As suggested by the double interactions in cols. 5 to 8 in Table 4 there is some evidence from the figures that large entrants in rich states and states with rigid labor regulations are larger than large entrants in poor states and states with flexible labor regulations respectively. In unreported specifications, we obtain very similar results if we were to replace Large Entrant dummy with a continuous measure of initial size.

In Panel B of Table 4, we repeat the specifications of Panel A but with Employment Growth as the dependent variables. Cols. 1 to 4 show that none of the institutional variables are shown to predict growth and neither is Large Entrant dummy. The interaction terms of Large Entrant x Institutional Variable in cols. 5 to 8 are also mostly insignificant suggesting that there is no difference in annual employment growth rates of small versus large entrants across different types of institutions including financial development, income, labor regulations, and ease of doing business. Appendix Figure A3 presents the predictive margins of the unreported triple interaction effects – Large Entrant x Institutional Variable x Age Dummies in the employment growth regressions and confirms the absence of differences in growth rates of different types of entrants across institutions.

As robustness, in Figure 5, we examine if the productive small entrants are able to grow faster relative to other entrants in states with more developed local financial systems. We estimate a regression of Growth Rates on a triple interaction term – Large Entrant dummy x High Initial TFP dummy x Age Dummies – and the corresponding main effects and double

interactions while controlling for industry and year dummies. We do not report the regression table for the sake of brevity but Figure 5 presents the predictive margins of interaction effects. Figure 5 shows that there is no evidence that productive small entrants grow fast and increase their relative size over time in states with good financial institutions.

One of the concerns with treating initial conditions as being exogenous for future outcomes may be the endogeneity of firm location. That is, selection of firms into states may differ by both firm size and growth potential. For example, growth oriented firms may also choose to locate in a state with less stringent labor regulations, even if such a move were costly. If so, we would expect to see that in states with flexible labor regulations small firms grow relatively faster than large firms in such states, and also relatively faster than small firms in states with less flexible labor regulations. However we find no evidence that institutions affect the performance of subsets of firms post entry. Thus our results are robust to the possibility of pre-entry movements of entrepreneurs across states.

Overall, Table 4 and the associated figures show that institutions do not play a major role in influencing the growth rates of large versus small entrants in India over early life-cycle. This finding differs from the existing literature on institutional change (e.g. Bertand, Schoar and Thesmar (2007), Cetorelli and Strahan (2006), Cetorelli (2014), and Kerr and Nanda (2009)) from which it is natural to assume that different institutions would have a differential impact on the growth rates of entrants with differing initial conditions. However, these papers examine changes in firm growth following a change in institutions. By contrast, we examine relative firms' growth of firms across a range of institutions during the first eight years of a firm's early life-cycle. In contrast to the prior literature which examines firms' adjustments to changes in institutions, the firms we examine are adapted to their institutional environment. In the following

sections, we examine if we observe differences across industries and if institutions perhaps have a more significant role in the selection of firms that are entering.

C. Initial Conditions and Industry Classifications

In this section we study the life cycle effects across different industry classifications. We examine whether industry differences matter for the persistence of initial conditions established in Tables 3 and 4. We look at three different classifications of industries – labor intensive vs. capital intensive, industries with high dependence on external finance vs. industries with low dependence on external finance and high growth industries vs. declining industries.

In Panel A of Table 5 we focus on initial size and average size over the first eight years and in panel B we focus on initial size and employment growth over the first eight years. In both panels, in cols. 1-3 we don't look at any interaction effects and focus on the industry main effects and effect of initial size. In cols. 4-6 we study the interaction of Initial Size x Industry. In all regressions we control for state and year fixed effects.

Cols. 1 to 3 of Panel A show that large entrants and firms in labor intensive industries are on average larger. However there is no evidence that the external finance dependence of an industry or industry growth is related to average size over early life-cycle. In cols. 4 to 6, we see that the only interaction term that is significant is Labor Intensive x Large Entrant suggesting that on average, large entrants in labor intensive industries are larger than large entrants in capital intensive industries. To look at life-cycle effects, Figure 6 presents the predictive margins from a

triple interaction effect of Large Entrant x Industry Characteristic x Age Dummies. Each of the panels shows that across different industry specifications, large entrants are always larger than small entrants suggesting that initial size dominates the effect of industry classification in explaining size over early life-cycle.

In panel B of Table 5, we repeat the same specifications as in cols. 1-6 of panel A. None of the industry main effects are significant in cols 1-3 and neither are the Large Entrant x Industry interaction effects in cols. 4-6. Thus there is no evidence that industry classification has a differential effect on the growth rate of large versus small entrants. In unreported tests we find consistent results when we use triple interactions of Large Entrant Dummy x Age Dummies x Industry Characteristic. Appendix Figure A4 plots the predictive margins of these triple interaction terms and shows that there is no difference in growth rates of large versus small entrants across different industry classifications.

In unreported robustness, we examine if perhaps certain combinations of industries and institutions matter for growth rates. So we examine if firms in industries that are dependent on external finance grow faster in states with better developed financial institutions. Appendix Figure A5 presents the predictive margins of these interaction effects and shows that there is no evidence that entrants in financially developed states in industries that are highly dependent on external finance grow faster than entrants in financially under-developed states in industries that are not highly dependent on external finance.

Overall, Table 5 show that initial firm characteristics, specifically size at birth is a key determinant of size over early firm life cycle and this is robust to different industry

classifications. We do not find any differences in growth rates of large and small entrants in the overall sample or across different industry classifications.

D. Initial Conditions and Other Performance Metrics over lifecycle

In this section, we explore whether entrants differ in other performance metrics over early life cycle. We look at three different performance metrics. In cols. 1-3 of Table 6 we look at productivity, in cols. 4-6 we examine if certain types of entrants engage in more value-added manufacturing than other entrants, and in cols. 7-9 we look at profitability ratios over the first eight years. In addition to looking at large vs. small entrants we also look at entrants with high vs. low initial TFP.[21]

Col. 1 of Table 6 shows that on average large entrants and entrants with high initial TFP have higher productivity over early life-cycle. In col. 2 we look at interactions of Large Entrant dummy and age dummies and in col. 3 we look at interactions of High Initial TFP dummy and age dummies. None of the interaction terms are significant in col. 2 whereas the interaction of High Initial TFP and age dummies are negative and significant. Figure 7 plots the predictive margins of the interaction effects in cols. 2 and 3. Figure 7 shows that there are no significant differences in the productivity of large and small entrants over the early life-cycle. However, entrants with high initial productivity continue to have high initial productivity over the first

[21] We don't focus on initial form here since initial form and initial size are likely to be highly correlated and their effects are not easily distinguishable.

eight years and firms with low initial productivity continue to have low initial productivity over the first eight years. Thus productivity is also persistent over early life cycle but the figure also shows that there is a mean convergence effect with the productivity of low initial TFP entrants increasing with age and that of high initial TFP entrants declining with age. In unreported regressions, we look at a triple interaction term – Large Entrant Dummy x High Initial TFP x Age dummies and the predictive margins of the interaction effects show that initial productivity dominates initial size in predicting TFP over early life-cycle.

In cols. 4-6 of Table 6, we examine whether certain entrants engage in more value-creating combinations of inputs as proxied by the ratio of Excise Taxes paid/Sales following Siegel and Choudhury (2012). Excise Tax is an indirect tax levied on the act of production or manufacture of goods paid by the manufacturer. Thus a lower tax (scaled by size) would imply that the value added from the manufacturing process is lower. The estimation in Col. 4 of Table has no interaction effects and shows that on average large entrants have more complex production structures and there is no association of high initial TFP with complex production structures. The interaction effects of Large Entrant x Age dummies are mostly positive and significant in col. 5 whereas the interaction effects of High Initial TFP x Age dummies are mostly insignificant. Figure 8 presents the predictive margins of the interaction effects from cols. 2 and 3 and shows that large entrants have more complex production structures i.e. engage in more value-added manufacturing, than small entrants whereas entrants with high and low initial TFP do not look very different in the extent of value added manufacturing they undertake.

In cols. 7-9 of Table 6 we look at profitability ratios. The Large Entrant dummy is insignificant in the profits regression in col. 7 whereas the High Initial TFP dummy is positive and significant. Col. 8 presents interactions of Large Entrant dummy with Age dummies and col.

9 presents interactions of High Initial TFP dummy with Age dummies. The interaction effects of High Initial TFP dummy and age dummies are consistently negative and significant in col. 9. Figure 9 plots the predictive margins of the interaction effects from cols. 8 and 9 and shows that while large and small entrants do not look very different in terms of their profit ratios, entrants with high initial TFP have higher profits ratios than entrants with low initial TFP. We also see that entrants with low initial productivity ramp up their profit ratios as they get older. In unreported tests we also find that entrants with high initial TFP have higher operating cash flow volatility.

Overall this section shows that large and small entrants are fundamentally different from each other in the extent of value added manufacturing they undertake. While we do not have direct evidence of managerial skill in these firms, this finding suggests that large entrants have potentially higher skilled workers to perform the value added manufacturing. We also see that the higher efficiency of the high initial TFP entrants is persistent and translates into higher profit/asset ratios over the early lifecycle.

E. Robustness

E.1. Role of Sample Selection

One of the concerns in investigating size over early lifecycle is the role of selection. In particular, an alternative explanation to our finding that older firms are larger might be that small firms exit the market at a large rate than large firms. Thus the increase in average size with age could result from a stronger Darwinian selection of firms rather than a monotonic growth pattern over early life-cycle. To explicitly examine the role of selection, we compare the size distribution of firms in our sample at age 2 (initial) and age 8 (end) and estimate the shift, dilation, and

truncation in the distribution. We choose age 2 to reduce any noise in the data at age 1 although we get similar results comparing the size distribution of firms at age 1 and age 8.

We first present firm size distributions of firms in our sample. Figure 10 plots the Log(size) distribution of firms at age 2 (solid line) and age 8 (dashed line). The null hypothesis of equality of the firm size distributions is strongly rejected (see the Kolmogorov-Smirnov tests reported in the figure).The two distributions may differ for several reasons. First, firms may grow on average over the six year period between ages 2 and 8. Such growth causes a positive shift in the distribution of eight year old firms relative to the distribution of two year old firms. Second, firms performance may diverge, as firms that started at similar sizes grow differentially. This process will cause the distribution of eight year old firms to be a dilated transformation of the distribution of two year old firms. Third, the distribution of eight year old firms may be a truncated version of the distribution of two year old firms. The most likely cause of this would be a firm selection process whereby the smallest two-year old firms drop out of the sample by age 8. Such selection may be caused by under-sampling of small firms or by a higher rate of exit of firms that are small at age one.

Comparing the two distributions in Figure 10, the size distribution at age 8 seems to have a lower peak than the size distribution at age 2, but it is difficult to identify truncation, shift or dilation by visual comparisons of the two distributions. Hence we follow the empirical approach of Combes et al. (2012). The method relies on comparing the quantiles of the two distributions under very mild distributional assumptions.

Table 10 presents the values of the shift parameter A, dilation parameter D, and truncation parameter S from this empirical estimation together with bootstrapped standard errors. Parameter A measures how much stronger is the right shift at age 8 relative to age 2 i.e. the

average increase in size of older firms relative to younger firms absent any selection. If A were to be <0, it would imply less right shift for older firms. Parameter D measures the ratio of dilation at age 8 relative to age 2. When A>0, D>1 implies that larger firms benefit more from being older. Parameter S measures how much stronger is the left truncation at age 8 relative to age 2. A positive value of S corresponds to a greater truncation of firm size distribution for older firms. Thus it corresponds to the difference between older and younger firms in the share of entrants eliminated by selection relative to the share of surviving entrants at age 8.

Insert Table 10 here

In panel A, when we estimate all three parameters, we find that the value of A is positive but not significant showing that there is no significant right shift of the distribution at age 8. The estimate of D is above 1 and statistically significant suggesting that size distributions of older firms are more dilated than that of younger firms. The value of S is positive but not significant. Taken together, these estimates of A, D, and S provide strong evidence that there are no differences between younger and older firms in the truncation of distribution of firm sizes. The pseudo-R^2 measures how much of the mean-squared quantile difference between the size distribution of younger and older firms is explained by the three parameters and is above 0.9 suggesting that the fit is very good. In panels B-E, we compare the baseline results in A with constrained specifications to explore how important it is to estimate all three parameters. In Panel B when we impose the restriction of no selection, we find that A is positive and significant and D >1 and significant and the fit is equally good. In panel C when we assume only shift and truncation and no dilation, we find A<0 and S to be positive and significant but the fit to be much poorer (R^2=0.627). These estimates are biased as they attempt to approximate a dilation and we tend to overestimate truncation and underestimate shift. Similarly in panels D and E

when we only assume shift and truncation respectively the shift is very poor. Together, panels A to E suggest that the best fit is achieved when we assume no selection.

Overall, Table 10 suggests that selection does not play a major role in explaining the size distribution of older firms vis-à-vis younger firms in our sample. Instead there is evidence that size distribution at age 8 is right-shifted and dilated relative to the distribution at age 2.

E.2.Dealing with Panel Attrition

While panel data such as what we use in this paper is critical for examining lifecycle dynamics, one of the drawbacks with longitudinal data is panel attrition. While attrition reduces the sample size, a more serious concern is attrition bias where firms that drop out of the panel differ systematically from those who remain in the panel. The specific concern is that our results may be driven by small firms dropping out of the panel because of the sampling scheme.

To address this, following Wooldridge (2002) we estimate an attrition probability function based on initial size and obtain predicted attrition probabilities for each observation. That is, we create a dummy variable that takes the value 1 if the firm is in the panel at age 2 and 0 if the firm is not in the panel at age 2 and estimate a probit attrition model by regressing this variable on firm size at entry. The predicted probabilities from this regression provide the attrition probabilities at age 2. We repeat the process eight times to estimate the attrition probabilities at each age. We then adjust the sampling weights by the inverse of these attrition probabilities to obtain an overall weight. We then re-estimate our tables using this new weight instead of the sampling weight. Overall we find no material difference to our results when we account for panel attrition. Appendix Figures A6 shows that even after accounting for panel

attrition, initial size is persistent over early life-cycle and the growth rates are not different. That is, small and large firms grow at the same rate over early lifecycle.

IV. *Role of Institutions on Initial Entry*

Given the importance of initial conditions – initial size for size and complexity of production and initial TFP for productivity and profit ratios over early lifecycle - established in the previous sections, we now explore if institutions have an impact on the selection of firms at entry.

We begin by first presenting present summary statistics on the entry process in the population of firms in Table 7. When we look across time in panel A, we see that the percentage of entrants increases from 2003 to 2007 and thereafter drops, potentially due to repercussions from the global financial crisis. We then examine the size distribution of the entrants in each year by looking at the following size bins – 1-5 employees, 6-20 employees, 21-50 employees, 51-100 employees, and 100+ employees. Each year we see that the largest share of entry is in the 6-20 employees category followed by the 21-50 employees category. The average entry size shows an increasing trend over the years ranging from 42.70 employees in 2001 to 47.13 in 2010.

In panel B of Table 7, we explore differences in the number of entrants and size of entrant across different types of institutions. Panel B shows that there is greater overall entry in financially under-developed states, poor states, states with poor doing business environments, and states with flexible labor regulations. The average size of entrants is higher in financially under-developed states, high income states, states with rigid labor regulation, and states with poor doing business environments.

In Table 8 we examine the impact of institutions on initial conditions in a multivariate setting by estimating equation (2). That is, we regress the Initial Size at entry and Initial TFP at entry on Credit/SDP controlling for the following: income level of the state (Rich State dummy), strength of labor regulation (Flexible state dummy), overall doing business environment (DB Rank), literacy rate, industry and year dummies. The Flexible State dummy and DB Rank are time invariant so we do not include state fixed effects in our regressions. Cols. 1-3 of Table 8 show that the average size at entry is lower in states with better developed financial institutions and states with flexible labor regulations. We also find entry size to be larger in richer states. Literacy rate seems to be positively associated with larger entry size but this is significant only when we do not control for state income.

Cols. 4-6 of Table 8 show that financial development does not seem to be associated with initial TFP at entry. However, we find initial TFP at entry to be larger in states with worse doing business environments and states with rigid labor regulations.

Overall, Table 8 shows that the firms that enter are on average larger and have higher initial productivity when institutions are poor, presumably to be able to overcome financing and regulatory obstacles. The findings on smaller-sized entry with financial development show that financial development affects firm entry in a developing economy analogously to banking deregulation in the U.S. as described by Kerr and Nanda (2010).

In Table 9, we perform robustness tests of our results in Table 8 by estimating regressions at the state-year level. In addition to examining the association between financial development and average size of entrants and the average productivity of entrants in each state-year,

aggregating up to the state-year level allows us to examine the extensive margin effects (percentage of entrants) of financial development.

In cols. 1-3 of Table 9 we present OLS regressions. In cols. 4-6, we attempt to address the endogeneity of financial development by instrumenting Credit/SDP with the monetary policy set by the Reserve Bank of India. Specifically, following Bas et. al. (2012), we use the time-varying interest rate and the cash reserve requirements for banks set by the RBI, both interacted with the initial credit ratio of the state (in 1997) to predict the current credit ratio in each region. The interest rate is the monetary policy rate set by the Reserve Bank of India and the Cash Reserve Ratio is the liquid cash that banks have to maintain in the Reserve Bank of India as a certain percentage of their demand and time liabilities. While these policy variables are designed at the country-level and independent from banking institutions in a particular state, the changes in the policy variables can have different effects according to the depth of the banking sector in each state. Therefore states with initially better developed financial institutions should have a higher capacity to transmit monetary policy shocks.

Col. 1 shows that there is greater percentage entry in financially developed states, poorer states, and states with flexible labor regulations. High literacy rate is associated with smaller number of entrants. Col. 2 shows that average entry size is smaller in financial developed states. Col. 3 shows no relation between financial development and average productivity of entrants. In Col. 4-5, when we instrument for Credit/SDP, we see that financial development has a positive impact on the percentage of entrants in a particular state-year and a negative impact on the average entrant size. The first-stage F-statistic is high suggesting that we are using good instruments and the Hansen's over-identification test is not significant suggesting that our

instruments are valid. Instrumenting for credit/SDP in col.6 shows that financial development has no impact on average productivity of the entrant.

Overall Table 9 shows a significant impact of financial institutions on both the extensive margin (rate of entry) and intensive margins (size at entry). Greater access to external finance is associated with greater entry but also smaller size entry. This is consistent with studies like Kerr and Nanda (2010) who show that in the US, banking deregulations brought in exceptional entry but the greatest increase in entry was among the very small start-ups.

The results on the effect of institutions on entry size in Table 9 are also consistent with the findings in Table 4 that institutions predict the average size of firms in the first eight years of their life cycle but not their comparative growth rates. Taken together, our results show that the channel through which institutions affect the relative outcomes of young firms is through the initial distribution of firm characteristics at entry rather than their effect on the relative performance of the firms post entry.

V. How our results relate to prior studies

The findings in our paper on the importance of initial conditions for growth and productivity in developing countries relate to the literature establishing that initial conditions matter and that there is long-run persistence over the firm's life cycle in capital structure and firm acquisition behavior. Lemmon, Roberts, and Zender (2008) show that leverage ratios in the US are stable over time so that firms with relatively high (low) leverage maintain relatively high (low) leverage for over 20 years. Using census data on US manufacturing firms, Maksimovic, Phillips, and Yang (2013) find that size and productivity at birth explains a significant portion of variation in future listing status and subsequent acquisition behavior. None of these papers focus

on the role of institutions and how initial size at the time of founding interacts with industry characteristics and financial institutions to predict outcomes over early life cycle.

We also find that initial conditions dominate institutions and industry classifications in explaining growth and productivity over early life-cycle. This may seem at odds with the large literature on institutional change. For instance, Bertand, Schoar and Thesmar (2007) find more entry in bank-dependent industries in France following bank deregulation. Other papers have examined how changes in US banking regulations have affected the rate of entry and exit by entrants, and their initial size. Cetorelli and Strahan (2006) show that banking sector reforms in local U.S. markets are associated with greater number of establishments and a smaller average establishment size. Cetorelli (2014) argues that firms founded in the US during periods prior to banking deregulation when external finance was relatively difficult to obtain had superior business models (or greater entrepreneurial ability) than firms founded after periods of deregulation when credit was more freely available. Kerr and Nanda (2009, 2010) find that U.S. bank branching de-regulations increased entry but that this was not accompanied by substantial changes in the size of the entrants.

The focus of these papers is on the role of increased competition in banking services and changes in the technology for evaluating loans on the composition and growth of local firms. By contrast, we ask how different categories of entrants fare given a specific institutional environment. Thus, for example, we investigate whether in environments with weak access to external finance a disproportionate number of entrepreneurs start small, but grow relatively faster than larger entrants to reach optimal size once they accumulate cash from operations, and if this pattern does not exist in well developed markets for external capital.

Other papers have focused on the role of institutions on the entry process. Guiso, Sapienza, and Zingales (2001) and Michelacci and Silva (2007) investigate the impact of local financial development on entry rates. Klapper, Laeven, and Rajan (2006) show that entry regulations not only inhibit entry rates but also force new entrants to be larger and incumbent firms in naturally high-entry industries to grow more slowly. Other researchers have focused on other aspects of the business environment that matter for entry. For instance, Ghani, Kerr, and O'Connell (2014) find that the two most consistent factors predicting overall entrepreneurship for a district in India are education and the quality of local physical infrastructure. None of these papers are focused on life-cycle dynamics across a broad range of institutional factors as in our paper. Furthermore, our paper suggests that institutions matter but only in the selection of firms. Importantly, we show that at least over the first eight years of firm lifecycle, initial starting conditions dominate the effect of institutions in influencing the growth trajectory.

There is also a literature on the obstacles to growth faced by firms in developing countries. For instance, Beck, Demirguc-Kunt, and Maksimovic (2005) and Ayyagari, Demirguc-Kunt, and Maksimovic (2008) show that small firms are particularly constrained in accessing external finance and in the cross-section firms facing greater obstacles to financing grow relatively more slowly. These studies are focused on established firms rather than entrants. Our paper together with these studies suggests that while institutions matter in the long run and in the cross-section for growth, the effect of institutions is internalized by firms at the time of entry and thus do not impact the growth of incumbents over the early life cycle.

There has been an increasing interest in the study of firm lifecycle to help understand productivity differences between rich and poor countries. Recent work by Hsieh and Klenow (2012) shows that plant lifecycles in developing countries such as India are flat and declining,

varying greatly from those in developed countries such as the U.S. Ayyagari, Demirguc-Kunt, and Maksimovic (2014)[22] show that this is true only in the informal sector whereas in the formal sector in developing countries, plants grow as they age. While those papers look at firm life-cycle over 40+ years, this paper focuses on the early stages of firm lifecycle and the importance of initial conditions. We also show that the "usual" institutional culprits explain differences in entry but not the growth path.

Finally, an influential and emerging literature has emphasized the importance of managerial ability in the world (Bloom and Van Reenen (2007, 2010) and in particular in India (Bloom et. al. (2013)). These papers show the persistence of dysfunctional managerial styles in firms and posit that the variations in management practices could explain the persistent differences in productivity at the firm and the national level. The findings in our paper complement this literature by suggesting that initial conditions or intrinsic firm factors are more important than industry classifications or institutions in explaining size over firm lifecycle.

VI: Conclusion

In this paper, we ask how firm characteristics vis-à-vis the institutional environment predict firm success over its early life-cycle. Using data on the formal manufacturing sector in India we find that firm size is remarkably persistent. Small and large entrants have similar growth rates, so that small firms tend to stay relatively small throughout the first 8 years of their life-cycle period. The size differential and growth rate similarity across firm sizes also appear to be unaffected by industry production structure (labor versus capital intensive), industry growth rates, and industry dependence on external finance. We find that large entrants engage in more complex production than small entrants.

[22] Ayyagari et al. (2014) focus on the largely state-owned banking system in India and find that financial institutions over the period 1983-2005 do not seem to matter for growth over a firm lifecycle of 40+ years.

Conditional on initial size, we find that institutional differences do not make a large difference to firm growth. We do find however, that local institutions make a great deal of difference both to the level and composition of entry. There is more entry in regions with more access to external finance, and more entry by smaller firms. However, there is little evidence that these smaller entrants subsequently grow relatively faster than larger entrants.

Our findings point to the importance of institutions in selecting the composition of firms in the economy primarily through their effect on the level of entry and initial conditions. Our results suggest that policies facilitating entry may have high payoffs. But our results also show that firm specific factors dominate which firms grow over early life-cycle. The impact of better access to finance on the subsequent growth of entrants seems to be weak, suggesting that creating the right environment for entrepreneurship may be more important than trying to support the average small entrant or young firm directly.

Our results should not be interpreted as suggesting that improvements in institutions do not promote the growth of incumbent firms. Rather, for a given set of institutions there is an equilibrium level of entry of firms of different sizes and characteristics. Different firms will be affected differentially by specific institutional failures and entry will occur until the net present value of entry for marginal firms is driven to zero. For those entrants we find that on balance the place of firms in the size distribution is persistent and there are minor productivity differences. However, subsequent changes in institutions that remove regulatory obstacles to growth or increases access to capital may increase the value and growth of some or all incumbent firms that were subject to those constraints. Thus, for example, U.S. and French banking deregulation likely had that effect. Given the previous findings on the obstacles faced by firms in developing countries it is likely that there is high value from such changes.

Overall, our paper's findings highlight the importance of initial size as forming the blueprint for firms' relative size positions over the first decade of its existence. Furthermore, it highlights the effect of access to external finance on the intensive margin at initial entry, which serves as the firm's destiny for future size evolution because the firm is unable to affect its relative rank or grow differentially faster thereafter irrespective of the institutions.

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Figure 1: Size and Growth over Early Lifecycle: Large Vs. Small Entrants

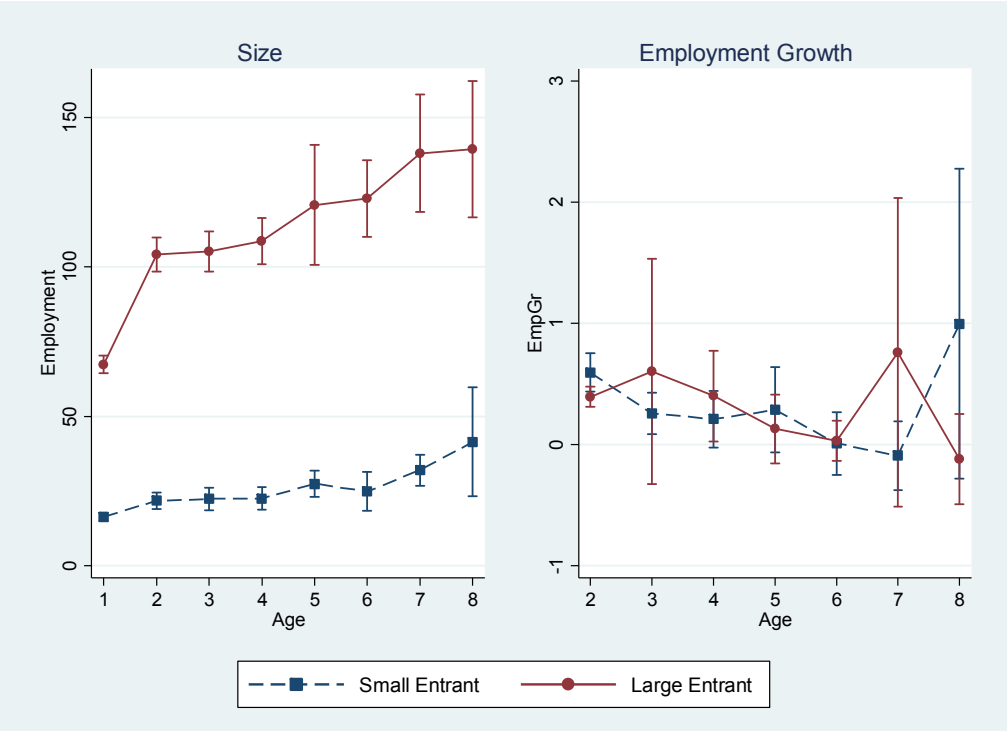


Figure 2: Persistence in Size – Initial Size vs. Initial TFP

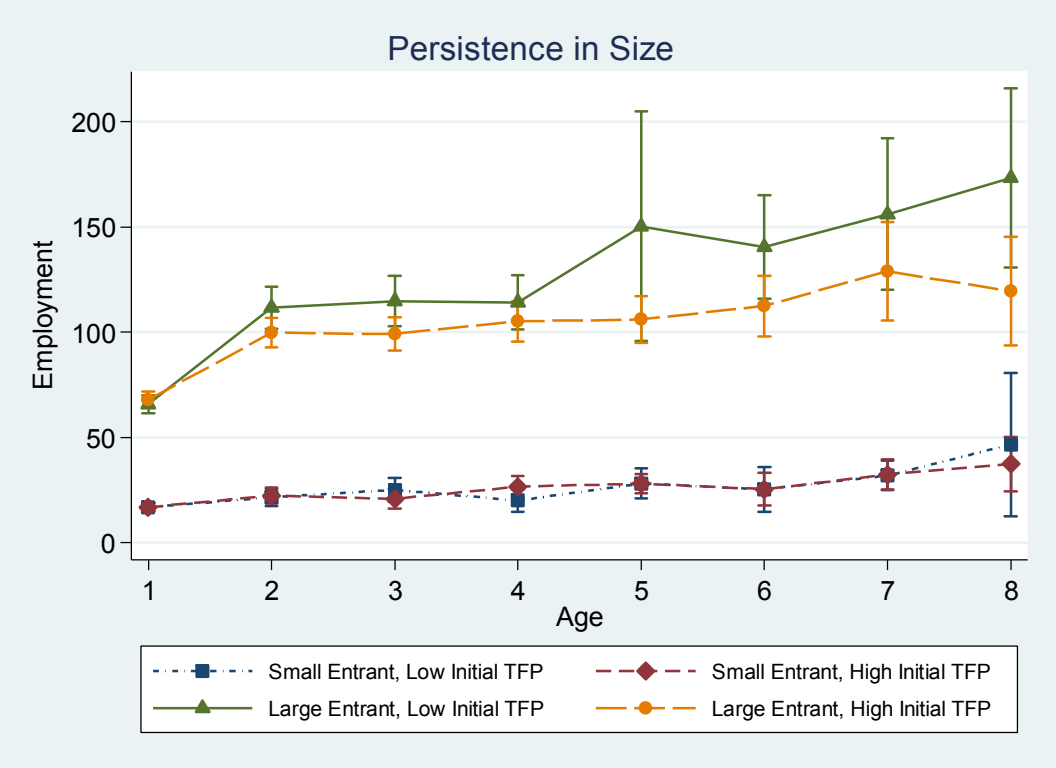


Figure 3: Persistence in Size – Initial Size vs. Initial Leverage or Legal Form

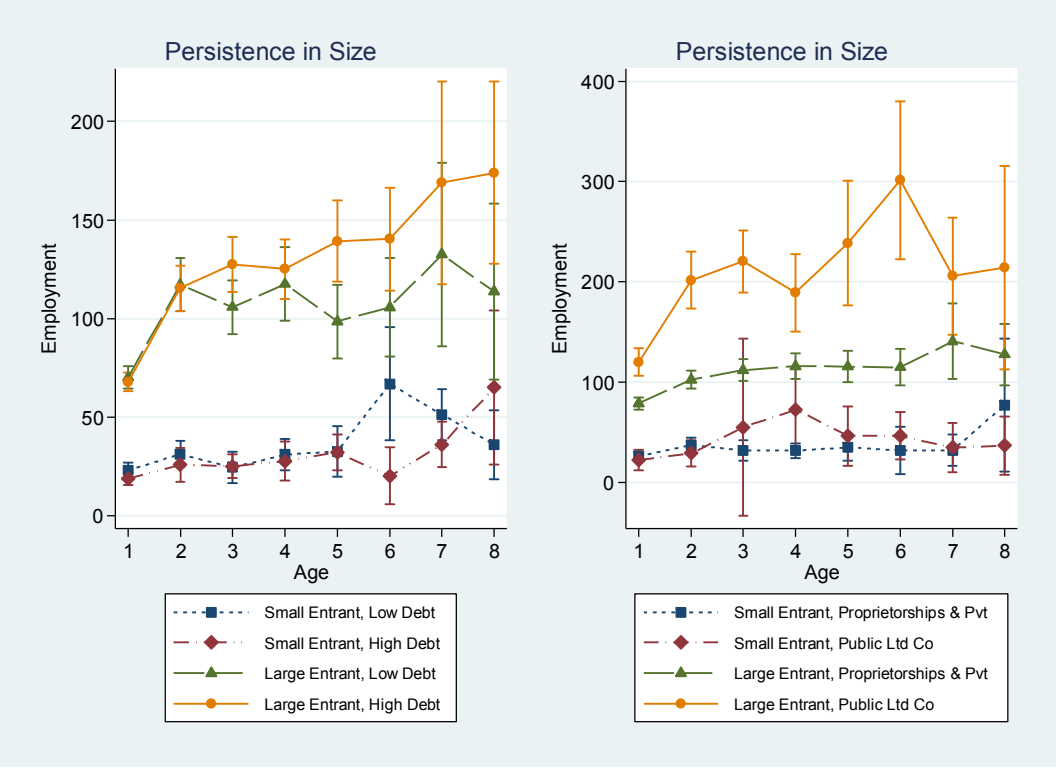
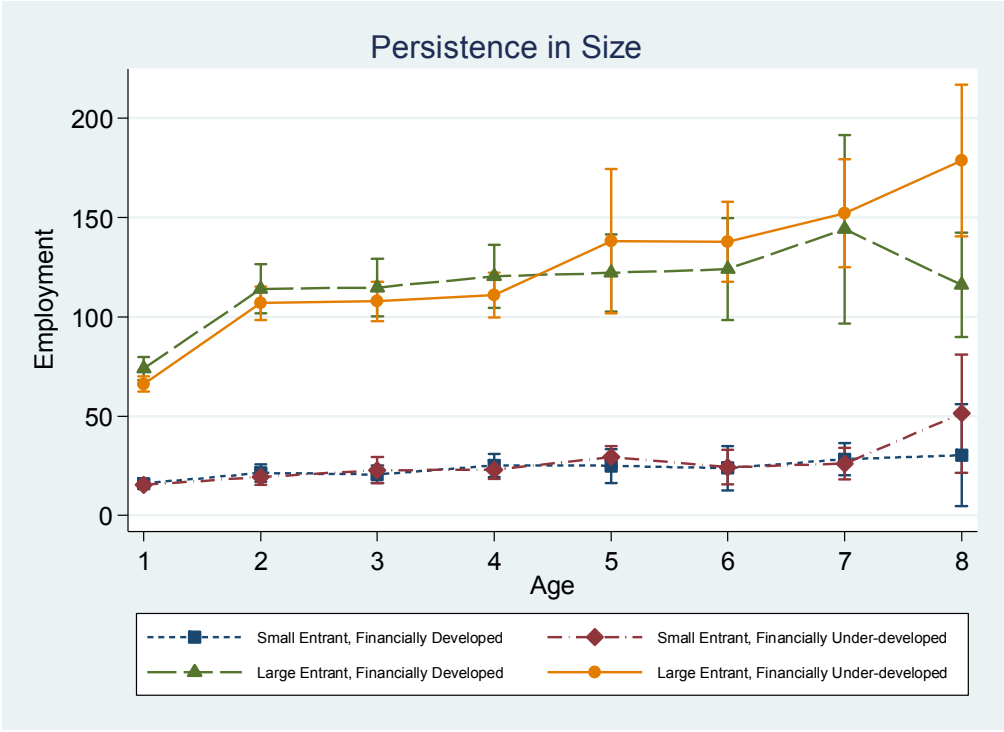
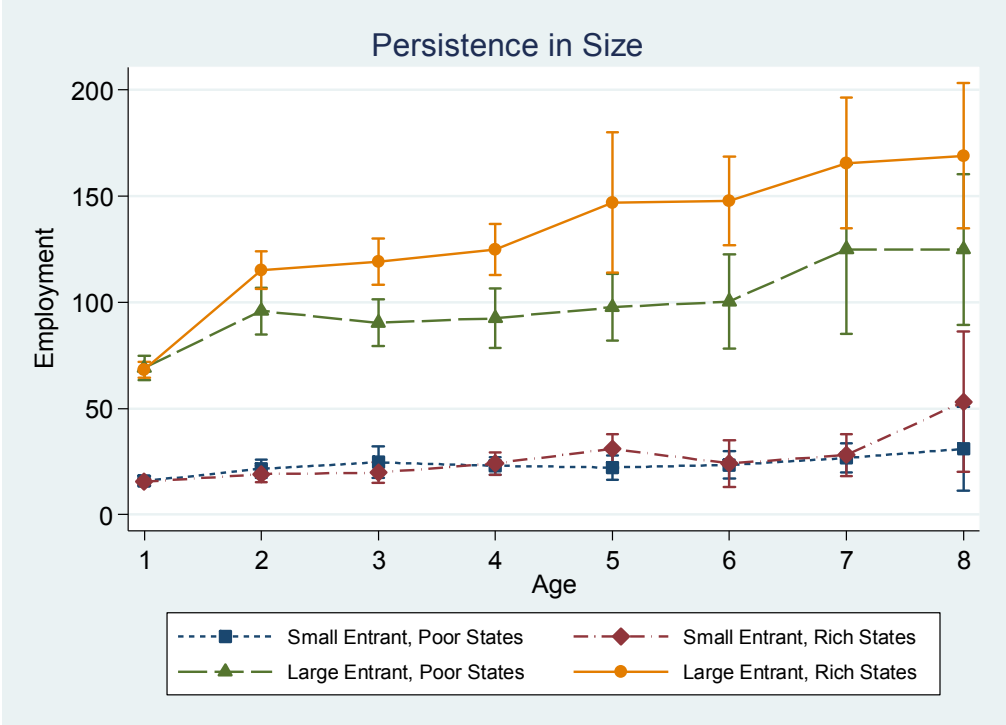
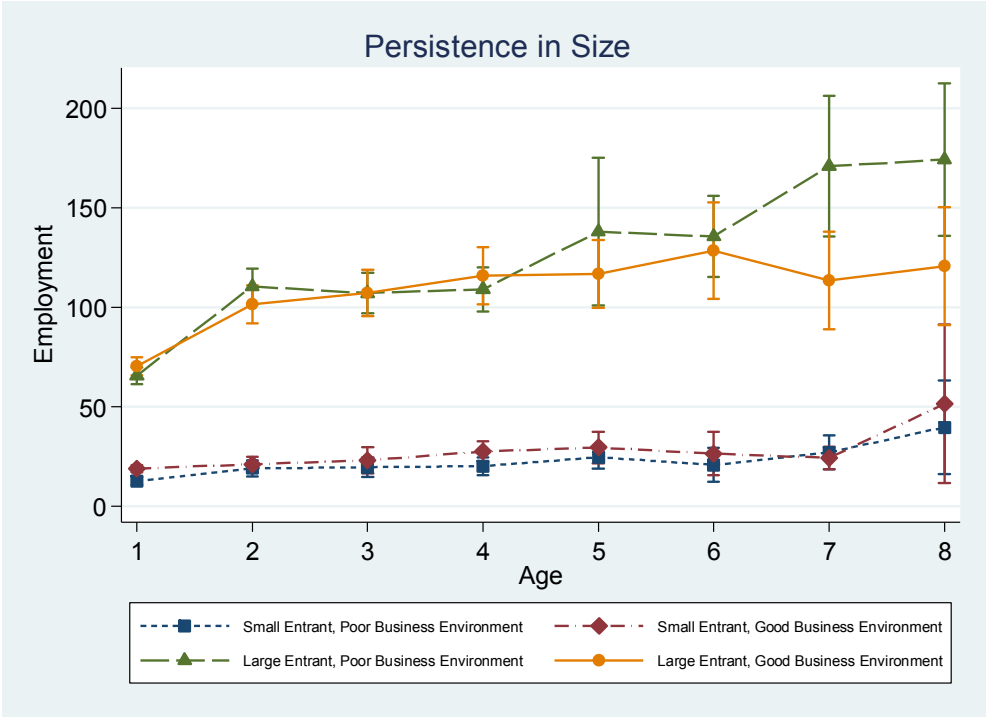


Figure 4: Size over Early Lifecycle – Large Entrant x Institutions






Persistence in Size
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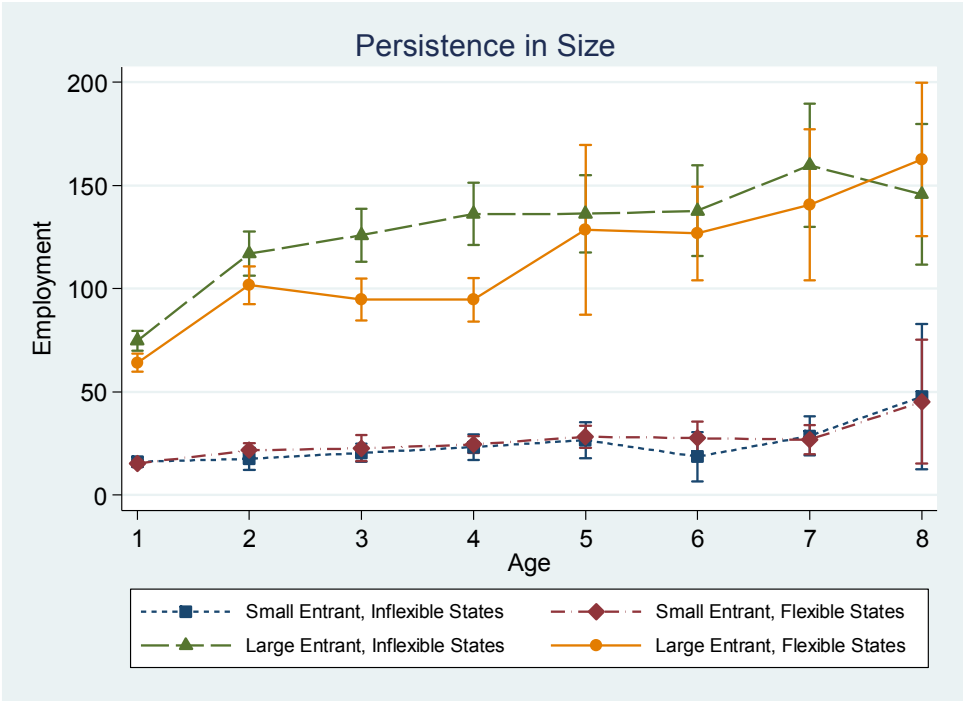
Small Entrant, Poor Business Environment
Small Entrant, Good Business Environment
Large Entrant, Poor Business Environment
Large Entrant, Good Business Environment


Persistence in Size
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Age
Small Entrant, Inflexible States
Small Entrant, Flexible States
Large Entrant, Inflexible States
Large Entrant, Flexible States

Figure 5: Do Productive Small Entrants catch up in states with good access to external finance?

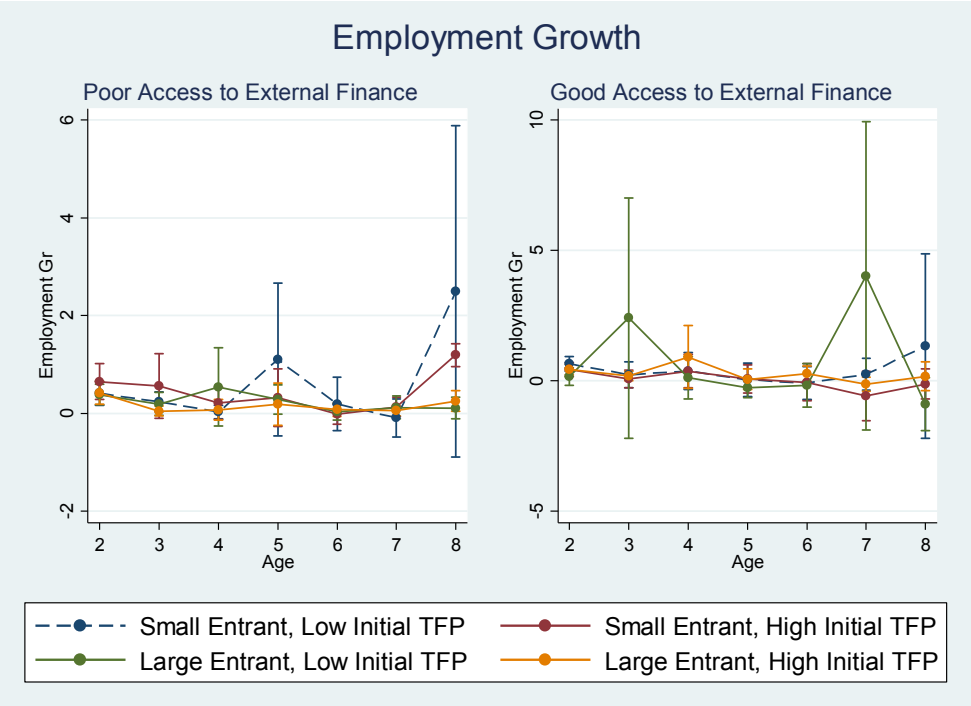
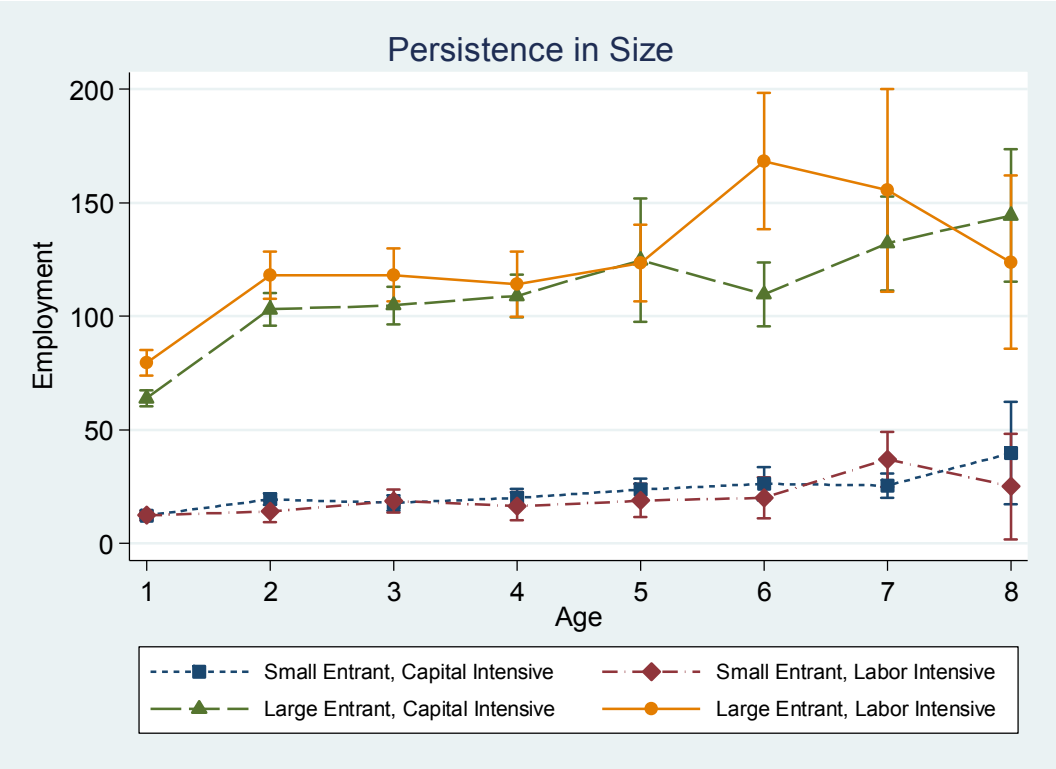
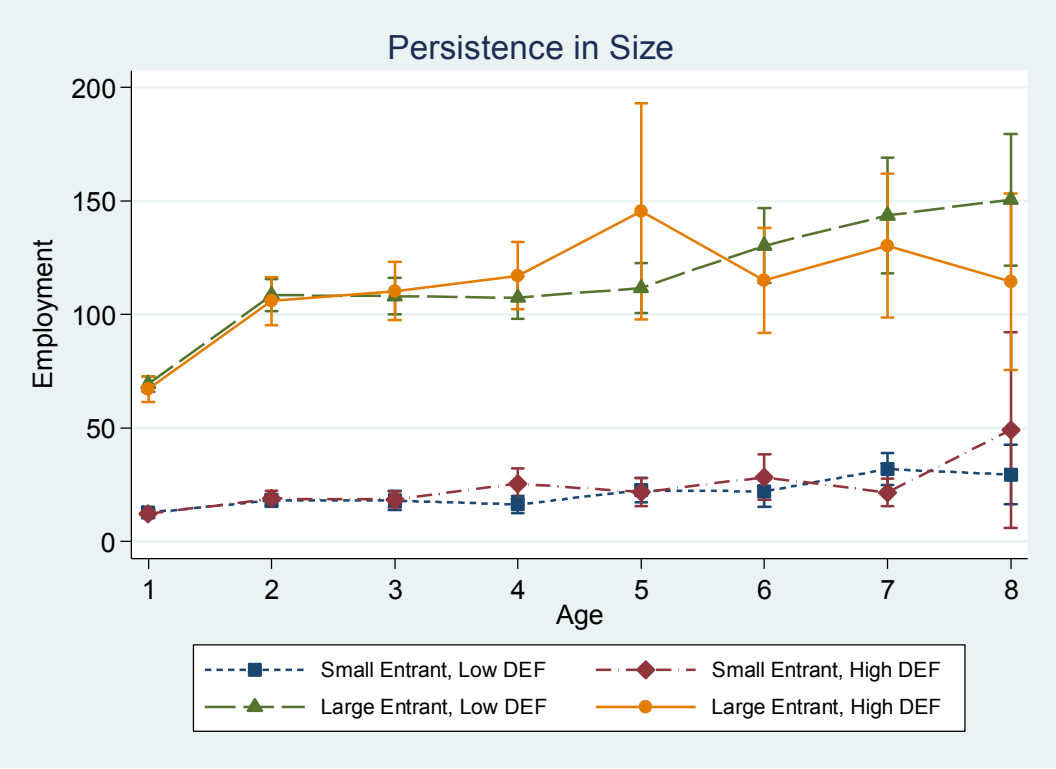


Figure 6: Persistence in Size – Large Entrant x Industry Characteristic





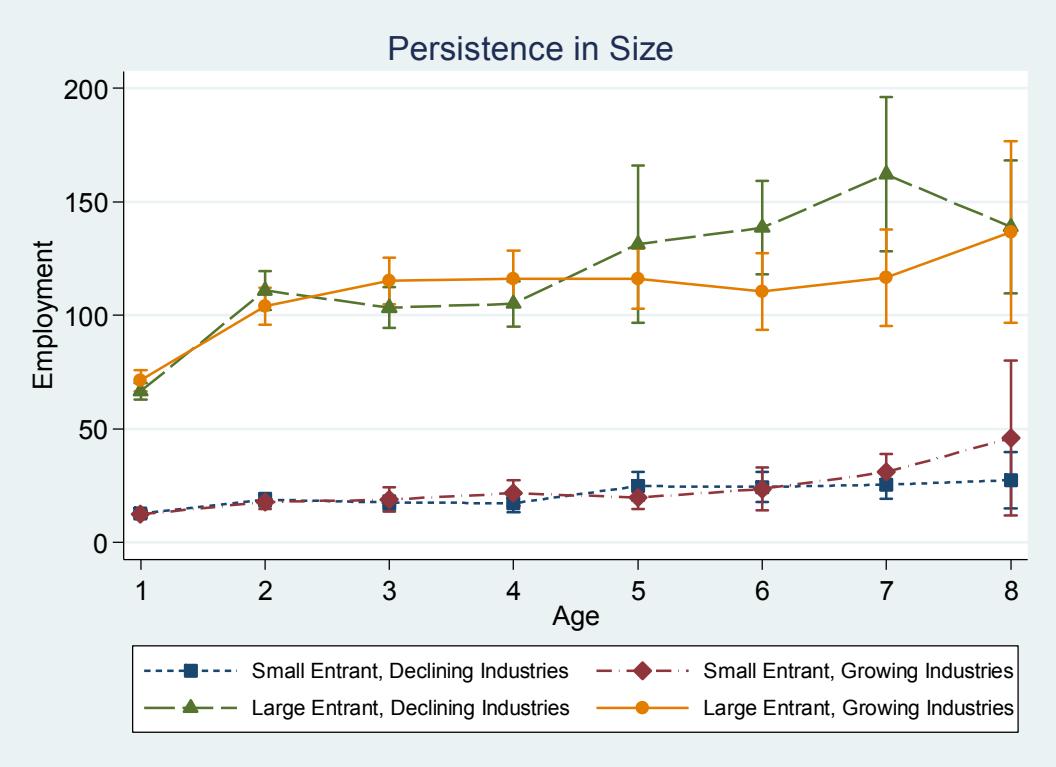


Figure 7: Initial Conditions and TFP

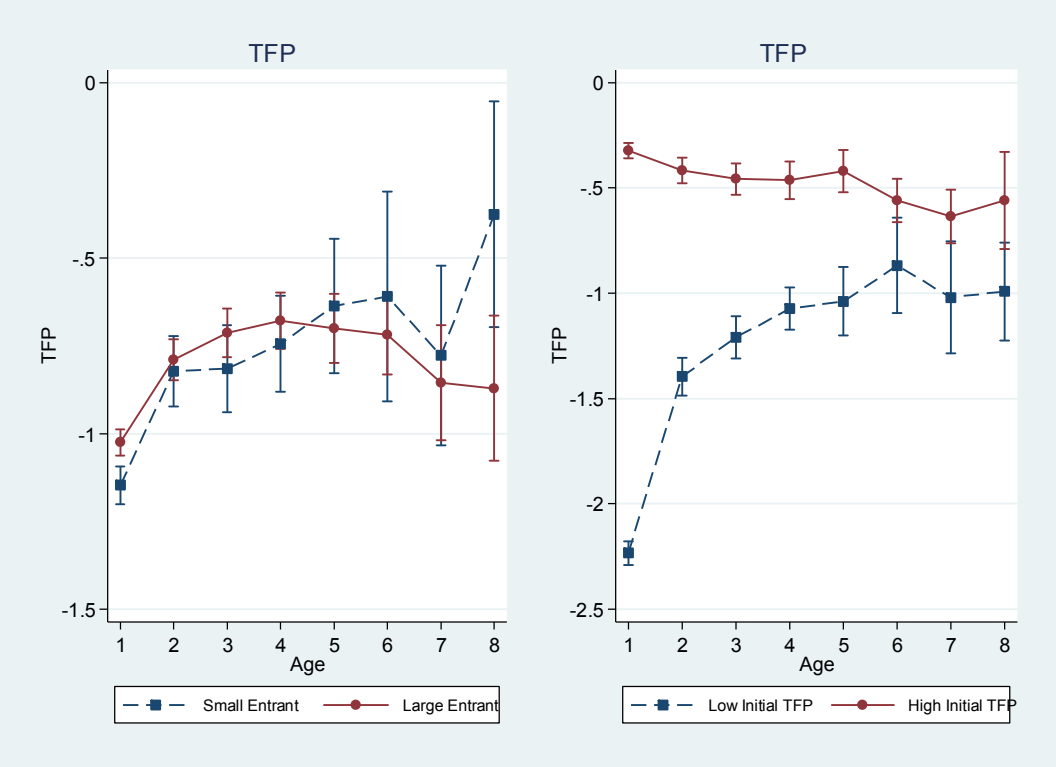


Figure 8: Initial Conditions and Complexity of Production Structure

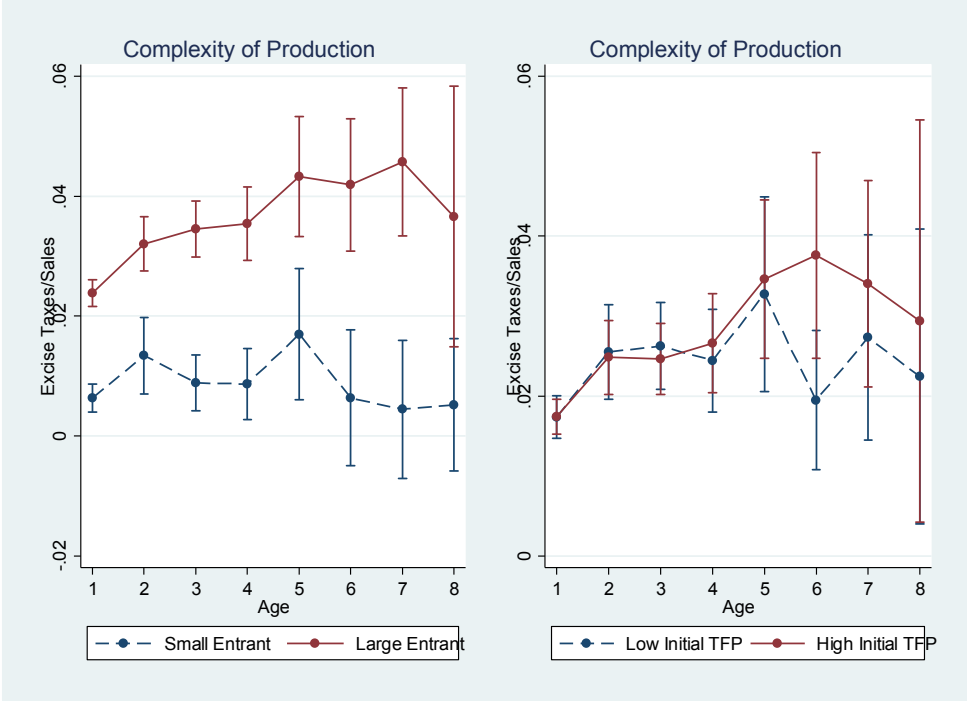


Figure 9: Initial Conditions and Profits

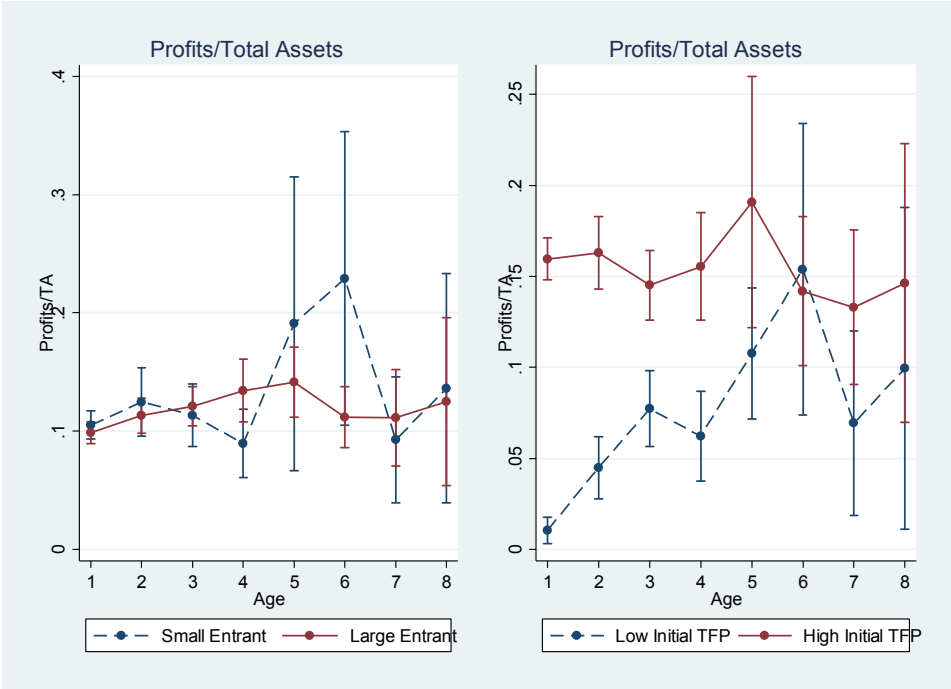


Figure 10: Firm Size Distribution at Age 2 and Age 8

Table 1: Summary Statistics and Correlations

The variables are defined as follows: Establishment Size is the total number of workers which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. Employment Growth is the annual growth rate in the total number of workers. Age is defined as the year of the census - year of initial production reported by the firms. Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. DEF is based on the Rajan and Zingales (1998) index and is a dummy variable that takes the value 1 if industry's dependence on external finance is ≥ median value of dependence on external finance across industries and 0 if it is < the median across industries. Growing Industry Dummy is a dummy variable that takes the value 1 if the industry's growth in employment over the period 2001-2010 was ≥ the median industry growth over this period and 0 if the industry's growth in employment over this period was < than the median. Labor Intensity Dummy is a dummy variable that takes the value 1 for labor intensive industries and 0 for capital intensive industries following Hasan and Jandoc (2012). Rich state is a dummy variable that takes the value 1 for a particular state in a particular year if that state's GDP/capita is ≥ median value of state GDP/capita in that year across states and 0 for states that are < median value of state GDP/capita in that year. Financially Developed is a dummy variable that takes the value 1 for a particular state in a particular year if that state is ≥ the median value of financial development in that year across states and 0 for states that are < the median value of financial development. DB Rank is the easy of doing business rank for states and ranges from 1 (good) to 17 (poor) with higher values corresponding to states with worse overall doing business environments. Flexible State is a dummy variable that takes the value 1 for states with flexible labor regulation and 0 for states with rigid or neutral labor regulations following Gupta et. al. (2008). Definitions and sources of all variables are provided in the Appendix.

Panel A: Summary Statistics

	N	Mean	SD	Min	Max
Establishment Size	22476	104.05	165.50	1	1285
Employment Growth	10079	0.493	11.32	-0.996	1056
Large Entrant	9965	0.676	0.468	0	1
High Initial TFP	8064	0.617	0.486	0	1
Age	22854	2.477	1.798	1	8
Labor Intensity dummy	22854	0.296	0.457	0	1
Growing Industry dummy	22853	0.458	0.498	0	1
DEF	22800	0.339	0.473	0	1
Rich State	17295	0.669	0.470	0	1
Financially Developed	17295	0.642	0.480	0	1
DB Rank	18332	9.325	4.605	1	17
Flexible State	17295	0.522	0.499	0	1

Panel B: Correlations

	Establishment Size	Employment Growth	Large Entrant	High Initial TFP	Age	Labor Intensity dummy	Growing Industry dummy	DEF	Rich State	Financially Developed	DB Rank
Employment Growth	0.051***										
Large Entrant	0.331***	-0.003									
High Initial TFP	0.002	-0.018*	0.075***								
Age	0.230***	-0.007	0.079***	0.008							
Labor Intensity dummy	0.047***	-0.006	0.068***	0.093***	0.018***						
Growing Industry dummy	-0.026***	-0.008	0.019***	0.115***	-0.008	0.177***					
DEF	-0.019***	-0.011	-0.048***	0.143***	-0.023***	-0.199***	-0.008				
Rich State	0.122***	0.010	0.108***	0.005	-0.021**	-0.025***	-0.03***	0.028***			
Financially Developed	0.037***	0.014	0.070***	-0.053***	-0.010	-0.062***	-0.021***	-0.009	0.689***		
DB Rank	0.043***	0.022*	0.058***	0.031***	0.034***	0.020**	-0.061***	0.004	-0.117***	0.104***	
Flexible State	-0.061***	-0.014	-0.073***	0.013	-0.054***	0.119***	-0.014**	-0.032**	-0.064***	0.129***	0.099***

*, **, and *** represent significance at 10%, 5%, and 1% levels respectively.

Table 2: Role of Initial Conditions – contribution to adjusted R-square

The table documents how initial conditions contribute to the adjusted R-square of the following regression models when they are entered one at a time: Establishment Size/Employment Growth = $\alpha + \beta_1$ Initial Condition + β_2State Dummies + β_3Industry Dummies + e. Establishment Size is the total number of workers which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. Employment Growth is the annual growth rate in the total number of workers. Initial Condition is one of three variables - Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. Public Limited Co. takes the value 1 if the firm is organized as a public limited company at age 1 or as a private limited company or proprietorship at age 1. All regressions are estimated using sampling weights. The numbers in each row present the incremental contribution to adjusted R-square. Definitions and sources of all variables are provided in the Appendix.

	1	2	3	4
	Establishment Size	**Establishment Size**	**Employment Growth**	**Employment Growth**
Panel A: Initial Condition = Size at Birth				
State Dummies	0.030	0.034	0	-0.001
Industry Dummies	0.040	0.044	-0.002	-0.002
Large Entrant Dummy	0.079	0.076	0	0
Total	*0.149*	*0.154*	*-0.002*	*-0.003*
N	22476	18030	10079	8092
Panel B: Initial Condition = TFP at Birth				
State Dummies	0.033	0.034	0	-0.001
Industry Dummies	0.042	0.044	-0.003	-0.002
High Initial TFP	0	0	0	0
Total	*0.075*	*0.078*	*-0.003*	*-0.003*
N	18273	18030	8239	8092
Panel C: Legal Form at Birth				
State Dummies	0.031	0.034	0	-0.001
Industry Dummies	0.044	0.044	-0.002	-0.002
Public Limited Co.	0.034	0.034	0	0
Total	*0.109*	*0.112*	*-0.002*	*-0.003*
N	22239	18030	9923	8092

Table 3: Size, Growth, and TFP over Early Firm Lifecycle

This table shows results from the following regression: Establishment Size/Employment Growth = $\alpha + \beta_1$ Age Dummies + β_2 Large Entrant + β_3 High Initial TFP + β_4 Large Entrant x Age Dummies + β_5 High Initial TFP x Age Dummies + β_6 State Dummies + β_7 Year Dummies + β_8 Industry Dummies + e. Establishment Size is the total number of workers which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. Employment Growth is the annual growth rate in the total number of workers. Age Dummies are based on establishment age which is defined as the year of the census - year of initial production reported by the firms. Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. Robust standard errors are reported in the parentheses. All regressions are estimated using sampling weights. Definitions and sources of all variables are provided in the Appendix.

	(1)	(2)	(3)	(4)
	Size	Size	Employment Growth	Employment Growth
2 years	25.391***	5.409***		
	(2.309)	(1.487)		
3 years	26.197***	5.979***	0.060	-0.337***
	(2.631)	(1.947)	(0.328)	(0.106)
4 years	28.347***	6.126***	-0.096	-0.385***
	(2.923)	(2.096)	(0.141)	(0.101)
5 years	38.811***	11.064***	-0.291**	-0.308*
	(7.168)	(2.318)	(0.128)	(0.176)
6 years	40.217***	8.453**	-0.421***	-0.585***
	(4.910)	(3.461)	(0.113)	(0.165)
7 years	52.115***	15.625***	0.135	-0.686***
	(6.913)	(2.773)	(0.515)	(0.182)
8 years	56.093***	25.008***	-0.346	0.403
	(8.447)	(9.354)	(0.242)	(0.660)
Large Entrant	68.543***	50.877***	-0.011	-0.201***
	(1.489)	(1.514)	(0.080)	(0.075)
High Initial TFP	-6.038**	-6.237**	-0.182	-0.181
	(2.500)	(2.512)	(0.163)	(0.162)
2 years x Large Entrant		31.434***		
		(3.527)		
3 years x Large Entrant		31.908***		0.545
		(4.148)		(0.502)
4 years x Large Entrant		35.244***		0.392
		(4.573)		(0.241)
5 years x Large Entrant		42.380***		0.044
		(10.689)		(0.231)
6 years x Large Entrant		47.105***		0.224
		(7.452)		(0.151)
7 years x Large Entrant		55.102***		1.054
		(10.468)		(0.674)
8 years x Large Entrant		47.142***		-0.914
		(14.890)		(0.668)
Constant	-62.051***	-42.754***	0.669***	0.359**
	(7.227)	(7.309)	(0.192)	(0.141)
Fixed Effects	| ---------- Industry, State, Year ---------- |			
N	18273	18273	8239	8239
Adj. R-sq	0.173	0.178	-0.005	-0.005

*, **, and *** represent significance at 10%, 5%, and 1% levels respectively.

Table 4: Size and Growth over Early Firm Lifecycle – Initial Conditions vs. Local Institutions

This table shows results from the following regression: Size/Employment Growth = $\alpha + \beta_1$ Age Dummies + β_2 Large Entrant + β_3 High Initial TFP + β_4 Institution + β_5 Large Entrant x Institution + β_6 Industry Dummies + β_7Year Dummies + e. Employment Growth is the annual growth rate in the total number of workers. Age Dummies are based on establishment age which is defined as the year of the census - year of initial production reported by the firms. Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. Institution is one of the following four variables - Rich state dummy takes the value 1 for a particular state in a particular year if that state's GDP/capita is ≥ median value of state GDP/capita in that year across states and 0 for states that are < median value of state GDP/capita; Financially Developed dummy takes the value 1 for a particular state in a particular year if that state is ≥ the median value of financial development in that year across states and 0 for states that are < the median value of financial development; DB Rank is the easy of doing business rank for states and ranges from 1 (good) to 17 (poor) with higher values corresponding to states with worse overall doing business environments; Flexible State dummy that takes the value 1 for states with flexible labor regulation and 0 for states with rigid or neutral labor regulations following Gupta et. al. (2008). Robust standard errors are reported in the parentheses. All regressions are estimated using sampling weights. Definitions and sources of all variables are provided in the Appendix.

Panel A: Establishment Size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size
2 years	27.627***	28.524***	26.443***	26.994***	27.725***	28.291***	26.509***	26.469***
	(2.757)	(2.780)	(2.620)	(2.757)	(2.761)	(2.786)	(2.617)	(2.751)
3 years	28.432***	29.478***	26.971***	27.730***	28.565***	29.310***	27.104***	27.417***
	(3.153)	(3.178)	(2.982)	(3.138)	(3.159)	(3.179)	(2.980)	(3.130)
4 years	31.592***	32.893***	30.541***	30.828***	31.649***	32.627***	30.630***	30.938***
	(3.347)	(3.371)	(3.199)	(3.330)	(3.346)	(3.371)	(3.200)	(3.321)
5 years	45.770***	46.830***	44.160***	45.302***	45.715***	46.527***	44.232***	45.115***
	(8.496)	(8.452)	(8.067)	(8.517)	(8.512)	(8.423)	(8.064)	(8.555)
6 years	46.375***	47.713***	46.658***	44.879***	46.328***	47.342***	46.800***	44.264***
	(5.936)	(5.938)	(5.795)	(5.936)	(5.938)	(5.930)	(5.794)	(5.928)
7 years	58.095***	60.851***	56.209***	57.897***	58.350***	60.319***	56.263***	57.491***
	(8.467)	(8.516)	(8.012)	(8.462)	(8.470)	(8.546)	(8.008)	(8.461)
8 years	67.723***	68.855***	65.338***	67.257***	67.561***	68.753***	65.447***	66.806***
	(9.785)	(9.747)	(9.555)	(9.827)	(9.791)	(9.758)	(9.540)	(9.862)
Large Entrant	72.596***	71.948***	71.400***	71.838***	77.021***	63.714***	75.169***	83.484***
	(1.720)	(1.717)	(1.655)	(1.778)	(2.571)	(2.470)	(2.381)	(2.344)
High Initial TFP	-5.802*	-5.630*	-6.635**	-6.209**	-5.903**	-5.480*	-6.602**	-6.420**
	(2.967)	(2.977)	(2.887)	(2.966)	(2.956)	(2.969)	(2.880)	(2.959)
Financially Developed	-1.435				2.723**			
	(2.077)				(1.254)			
Rich State		11.901***				4.417***		
		(1.889)				(1.347)		
Good Doing Business			0.230				5.661***	
			(1.874)				(1.223)	
Flexible Labor State				-11.142***				1.265
				(2.022)				(1.342)
Large Entrant x Financially Developed					-6.660*			
					(3.445)			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size
Large Entrant x Rich State						12.217***		
						(3.252)		
Large Entrant x Good Doing Business							-8.587***	
							(3.055)	
Large Entrant x Flexible Labor State								-19.243***
								(3.297)
Constant	2.016	-7.646*	1.961	8.657**	-0.641	-2.742	-0.918	0.382
	(4.073)	(3.962)	(3.695)	(4.129)	(3.832)	(3.816)	(3.724)	(3.817)
Fixed Effects	| ----------Industry, Year Fixed Effects----------|							
N	13656	13656	14476	13656	13656	13656	14476	13656
adj. R-sq	0.166	0.167	0.163	0.167	0.166	0.168	0.164	0.169

Panel B: Growth

	(1)	(2)	(3)	(4)	(6)	(7)	(8)	(9)
	Employment Growth							
3 years	0.242	0.241	0.199	0.230	0.240	0.240	0.196	0.230
	(0.488)	(0.489)	(0.453)	(0.478)	(0.487)	(0.487)	(0.452)	(0.477)
4 years	0.021	0.019	-0.016	-0.001	0.022	0.018	-0.013	0.002
	(0.182)	(0.182)	(0.164)	(0.174)	(0.183)	(0.181)	(0.165)	(0.175)
5 years	-0.331***	-0.333***	-0.320***	-0.342***	-0.332***	-0.339***	-0.332***	-0.341***
	(0.107)	(0.106)	(0.102)	(0.105)	(0.106)	(0.105)	(0.102)	(0.105)
6 years	-0.347***	-0.348***	-0.367***	-0.374***	-0.342***	-0.357***	-0.368***	-0.376***
	(0.106)	(0.105)	(0.114)	(0.124)	(0.104)	(0.113)	(0.114)	(0.125)
7 years	0.469	0.474	0.453	0.435	0.462	0.469	0.453	0.437
	(0.672)	(0.669)	(0.663)	(0.675)	(0.672)	(0.670)	(0.663)	(0.674)
8 years	-0.320	-0.314	-0.304	-0.322	-0.319	-0.314	-0.306	-0.324
	(0.305)	(0.299)	(0.297)	(0.309)	(0.306)	(0.300)	(0.296)	(0.309)
Large Entrant	0.047	0.046	0.055	0.027	-0.096	-0.055	0.188	0.252
	(0.142)	(0.139)	(0.148)	(0.131)	(0.107)	(0.124)	(0.204)	(0.287)
High Initial TFP	-0.192	-0.196	-0.200	-0.214	-0.189	-0.196	-0.200	-0.219
	(0.182)	(0.186)	(0.179)	(0.195)	(0.181)	(0.186)	(0.179)	(0.198)
Financially Developed	0.111				-0.068			
	(0.131)				(0.101)			
Rich State		0.083				-0.039		
		(0.146)				(0.104)		
Good Doing Business			-0.165				0.047	
			(0.172)				(0.120)	

	(1)	(2)	(3)	(4)	(6)	(7)	(8)	(9)
					Employment Growth			
Flexible Labor State				-0.262				0.026
				(0.217)				(0.097)
Large Entrant x Financially Developed					0.249			
					(0.203)			
Large Entrant x Rich State						0.174		
						(0.262)		
Large Entrant x Good Doing Business							-0.291*	
							(0.171)	
Large Entrant x Flexible Labor State								-0.391
								(0.311)
Constant	1.256***	1.282***	1.398***	1.493**	1.349***	1.349***	1.289***	1.306***
	(0.400)	(0.405)	(0.520)	(0.590)	(0.458)	(0.478)	(0.474)	(0.471)
Fixed Effects					Industry, Year			
N	5835	5835	6207	5835	5835	5835	6207	5835
adj. R-sq	-0.006	-0.006	-0.005	-0.005	-0.006	-0.006	-0.005	-0.006

Table 5: Size and Growth over Early Firm Lifecycle – Industry Heterogeneity

This table shows results from the following regression: Employment Growth/TFP = $\alpha + \beta_1$ Age Dummies + β_2 Large Entrant + β_3 High Initial TFP + β_4 Large Entrant x Age Dummies + β_5 High Initial TFP x Age Dummies + β_6 State Dummies + β_7Year Dummies + e. Employment Growth is the annual growth rate in the total number of workers. TFP is the logarithm of revenue productivity defined as the product of physical productivity and a firm's output price following Hsieh and Klenow (2009). Age Dummies are based on establishment age which is defined as the year of the census - year of initial production reported by the firms. Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. DEF is based on the Rajan and Zingales (1998) index and is a dummy variable that takes the value 1 if industry's dependence on external finance is ≥ median value of dependence on external finance across industries and 0 if it was < the median across industries. Growing Industry dummy is a dummy variable that takes the value 1 if the industry's growth in employment over the period 2001-2010 was ≥ the median industry growth over this period and 0 if the industry's growth in employment over this period was < than the median. Labor Intensity dummy is a dummy variable that takes the value 1 for labor intensive industries and 0 for capital intensive industries following Hasan and Jandoc (2012). Robust standard errors are reported in the parentheses. All regressions are estimated using sampling weights. Definitions and sources of all variables are provided in the Appendix.

Panel A: Establishment Size

	(1)	(2)	(3)	(4)	(5)	(6)
	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size
2 years	26.987***	26.884***	26.882***	26.902***	26.884***	26.882***
	(2.352)	(2.354)	(2.354)	(2.348)	(2.354)	(2.354)
3 years	27.609***	27.483***	27.467***	27.524***	27.482***	27.468***
	(2.624)	(2.627)	(2.625)	(2.624)	(2.627)	(2.625)
4 years	28.988***	28.730***	28.726***	28.840***	28.730***	28.727***
	(2.956)	(2.956)	(2.955)	(2.958)	(2.956)	(2.955)
5 years	39.589***	39.582***	39.554***	39.657***	39.584***	39.559***
	(7.070)	(7.023)	(7.047)	(7.068)	(7.004)	(7.038)
6 years	42.028***	41.953***	41.940***	42.363***	41.953***	41.946***
	(5.074)	(5.101)	(5.097)	(5.052)	(5.101)	(5.095)
7 years	52.280***	52.031***	52.039***	51.916***	52.028***	52.035***
	(7.149)	(7.164)	(7.150)	(7.146)	(7.163)	(7.155)
8 years	54.677***	54.038***	54.057***	54.517***	54.038***	54.075***
	(8.768)	(8.758)	(8.757)	(8.748)	(8.758)	(8.755)
Large Entrant	74.197***	74.569***	74.559***	70.192***	74.624***	74.383***
	(1.418)	(1.421)	(1.395)	(1.678)	(1.533)	(1.970)
High Initial TFP	-5.269***	-4.866**	-4.786**	-5.588***	-4.868**	-4.792**
	(2.006)	(2.133)	(1.972)	(2.003)	(2.125)	(1.963)
Labor Intensive	9.039***			-0.864		
	(2.024)			(1.343)		
High Dependence on External Finance		0.681			0.779	
		(2.173)			(1.205)	

	(1)	(2)	(3)	(4)	(5)	(6)
	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size	Establishment Size
Growing Industry			-0.075			-0.322
			(1.735)			(1.046)
Labor Intensive x Large Entrant				15.071***		
				(2.960)		
High Dependence on External Finance x Large Entrant					-0.157	
					(3.175)	
Growing Industry x Large Entrant						0.390
						(2.766)
Constant	-17.807***	-19.857***	-19.141***	-13.613***	-19.852***	-19.104***
	(4.155)	(4.493)	(4.529)	(4.227)	(4.531)	(4.435)
Fixed Effects	|---------- State, Year ----------|					
N	18273	18266	18273	18273	18266	18273
adj. R-sq	0.149	0.148	0.148	0.150	0.148	0.148

Panel B: Employment Growth

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment Growth	Employment Growth	Employment Growth	Employment Growth	Employment Growth	Employment Growth
3 years	0.063	0.063	0.062	0.062	0.063	0.061
	(0.327)	(0.328)	(0.326)	(0.327)	(0.328)	(0.326)
4 years	-0.095	-0.095	-0.096	-0.095	-0.095	-0.096
	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)
5 years	-0.274**	-0.273**	-0.272**	-0.272**	-0.273**	-0.272**
	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)
6 years	-0.418***	-0.417***	-0.419***	-0.419***	-0.417***	-0.419***
	(0.110)	(0.112)	(0.113)	(0.110)	(0.112)	(0.113)
7 years	0.143	0.143	0.141	0.143	0.144	0.139
	(0.508)	(0.511)	(0.510)	(0.509)	(0.511)	(0.512)

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment Growth	Employment Growth	Employment Growth	Employment Growth	Employment Growth	Employment Growth
8 years	-0.323	-0.323	-0.327	-0.324	-0.323	-0.328
	(0.233)	(0.232)	(0.234)	(0.232)	(0.232)	(0.235)
Large Entrant	0.019	0.021	0.020	-0.012	0.016	0.050
	(0.085)	(0.082)	(0.082)	(0.076)	(0.104)	(0.103)
High Initial TFP	-0.204	-0.203	-0.199	-0.206	-0.203	-0.198
	(0.165)	(0.168)	(0.165)	(0.165)	(0.168)	(0.164)
Labor Intensive	0.023			-0.074		
	(0.076)			(0.140)		
High Dependence on External Finance		0.004			-0.006	
		(0.058)			(0.084)	
Growing Industry			-0.032			0.014
			(0.068)			(0.082)
Labor Intensive x Large Entrant				0.129		
				(0.132)		
High Dependence on External Finance x Large Entrant					0.014	
					(0.115)	
Growing Industry x Large Entrant						-0.064
						(0.110)
Constant	0.463***	0.466***	0.476***	0.494***	0.469***	0.456***
	(0.154)	(0.151)	(0.151)	(0.152)	(0.163)	(0.156)
Fixed Effects	| ---------- State, Year ----------|					
N	8239	8233	8239	8239	8233	8239
Adj. R-sq	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002

Table 6: How are large vs. small entrants, high vs. low initial TFP entrants different?

This table shows results from the following regression: Complexity of Production Structure/Profits/TFP $= \alpha + \beta_1$ Age Dummies + β_2 Large Entrant + β_3 Large Entrant x Age Dummies + β_4 State Dummies + β_5 Year Dummies + β_6 Industry Dummies + e. Complexity of Production Structure is defined as the ratio of Excise Taxes paid/Sales following Siegel and Choudhury (2012). Profits is defined as the ratio of Profits to Total Assets; TFP is the logarithm of revenue productivity defined as the product of physical productivity and a firm's output price following Hsieh and Klenow (2009); Age Dummies are based on establishment age which is defined as the year of the census - year of initial production reported by the firms. Large Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the size distribution of all entrants (i.e. firms aged 1) over the sample period. High Initial TFP Entrant is a dummy variable that takes value 1 if the establishment is in the top 3 quintiles of the TFP distribution of all entrants (i.e. firms aged 1) over the sample period and 0 if it is in the bottom two quintiles of the TFP distribution of all entrants over the sample period. Robust standard errors are reported in the parentheses. All regressions are estimated using sampling weights. Definitions and sources of all variables are provided in the Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	TFP	TFP	TFP	Complexity of Production Structure	Complexity of Production Structure	Complexity of Production Structure	Profits	Profits	Profits
2 years	0.268***	0.325***	0.838***	0.008***	0.007**	0.008**	0.016**	0.019	0.034***
	(0.031)	(0.058)	(0.055)	(0.002)	(0.004)	(0.003)	(0.008)	(0.016)	(0.009)
3 years	0.322***	0.332***	1.024***	0.008***	0.002	0.009***	0.018**	0.008	0.067***
	(0.036)	(0.069)	(0.059)	(0.002)	(0.003)	(0.003)	(0.008)	(0.015)	(0.011)
4 years	0.369***	0.403***	1.160***	0.008***	0.002	0.007**	0.018	-0.016	0.052***
	(0.040)	(0.075)	(0.059)	(0.003)	(0.003)	(0.004)	(0.011)	(0.016)	(0.013)
5 years	0.387***	0.511***	1.195***	0.016***	0.011*	0.015**	0.056**	0.086	0.097***
	(0.050)	(0.101)	(0.089)	(0.004)	(0.006)	(0.006)	(0.024)	(0.063)	(0.019)
6 years	0.379***	0.538***	1.364***	0.013***	-0.000	0.002	0.045**	0.124*	0.143***
	(0.064)	(0.155)	(0.119)	(0.005)	(0.006)	(0.005)	(0.021)	(0.064)	(0.041)
7 years	0.237***	0.370***	1.213***	0.014***	-0.002	0.010	0.005	-0.012	0.059**
	(0.074)	(0.133)	(0.139)	(0.005)	(0.006)	(0.007)	(0.017)	(0.028)	(0.026)
8 years	0.356***	0.772***	1.242***	0.009	-0.001	0.005	0.028	0.031	0.089**
	(0.095)	(0.167)	(0.121)	(0.008)	(0.006)	(0.009)	(0.030)	(0.050)	(0.045)
Large Entrant	0.070***	0.122***	0.070***	0.020***	0.017***	0.020***	-0.007	-0.007	-0.007
	(0.025)	(0.033)	(0.024)	(0.001)	(0.002)	(0.001)	(0.008)	(0.008)	(0.008)
High Initial TFP	1.314***	1.316***	1.912***	0.001	0.001	0.000	0.114***	0.114***	0.149***
	(0.028)	(0.028)	(0.036)	(0.001)	(0.001)	(0.002)	(0.006)	(0.006)	(0.007)
2 years x Large Entrant		-0.089			0.001			-0.005	
		(0.067)			(0.004)			(0.018)	
3 years x Large Entrant		-0.020			0.008**			0.014	
		(0.079)			(0.004)			(0.018)	
4 years x Large Entrant		-0.057			0.009**			0.051**	
		(0.086)			(0.005)			(0.021)	
5 years x Large Entrant		-0.186			0.009			-0.043	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	TFP	TFP	TFP	Complexity of Production Structure	Complexity of Production Structure	Complexity of Production Structure	Profits	Profits	Profits
		(0.113)			(0.008)			(0.064)	
6 years x Large Entrant		-0.232			0.018**			-0.111*	
		(0.165)			(0.008)			(0.065)	
7 years x Large Entrant		-0.200			0.024***			0.025	
		(0.157)			(0.009)			(0.035)	
8 years x Large Entrant		-0.618***			0.014			-0.005	
			-0.934***		(0.012)			(0.062)	
2 years x High Initial TFP			(0.064)			-0.001			-0.031**
			-1.160***			(0.004)			(0.015)
3 years x High Initial TFP			(0.071)			-0.002			-0.081***
			-1.302***			(0.004)			(0.016)
4 years x High Initial TFP			(0.075)			0.002			-0.056***
			-1.293***			(0.005)			(0.020)
5 years x High Initial TFP			(0.102)			0.002			-0.066*
			-1.601***			(0.008)			(0.040)
6 years x High Initial TFP			(0.130)			0.018**			-0.161***
			-1.527***			(0.008)			(0.046)
7 years x High Initial TFP			(0.153)			0.007			-0.085**
			-1.480***			(0.009)			(0.034)
8 years x High Initial TFP			(0.169)			0.007			-0.102*
						(0.016)			(0.060)
Constant	-1.570***	-1.625***	-2.201***	-0.006	-0.003	-0.005	-0.113***	-0.113***	-0.151***
	(0.103)	(0.104)	(0.099)	(0.005)	(0.005)	(0.005)	(0.026)	(0.026)	(0.026)
Fixed Effects	| ---------- Industry, Year ---------- |								
N	17652	17652	17652	11434	11434	11434	18188	18188	18188
Adj. R-sq	0.511	0.512	0.554	0.177	0.178	0.177	0.144	0.146	0.149

Table 7: Summary Statistics on Entry

The variables are defined as follows: An entrant is a firm at age 1. Average Size of Entrant is the establishment size at age 1 where establishment size is defined as the total number of workers which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. DEF is based on the Rajan and Zingales (1998) index and is a dummy variable that takes the value 1 if industry's dependence on external finance is ≥ median value of dependence on external finance across industries and 0 if it was < the median across industries. Growing Industry dummy is a dummy variable that takes the value 1 if the industry's growth in employment over the period 2001-2010 was ≥ the median industry growth over this period and 0 if the industry's growth in employment over this period was < than the median. Labor Intensity Dummy is a dummy variable that takes the value 1 for labor intensive industries and 0 for capital intensive industries following Hasan and Jandoc (2012). Rich state is a dummy variable that takes the value 1 for a particular state in a particular year if that state's GDP/capita is ≥ median value of state GDP/capita in that year across states and 0 for states that are < median value of state GDP/capita in that year. Financially Developed is a dummy variable that takes the value 1 for a particular state in a particular year if that state is ≥ the median value of financial development in that year across states and 0 for states that are < the median value of financial development. DB Rank is the easy of doing business rank for states and ranges from 1 (good) to 17 (poor) with higher values corresponding to states with worse overall doing business environments. Flexible State is a dummy variable that takes the value 1 for states with flexible labor regulation and 0 for states with rigid or neutral labor regulations following Gupta et. al. (2008). Definitions and sources of all variables are provided in the Appendix.

Panel A: Across Time

year	# of Entrants	% of Entrants	Size Distribution of Entrants (%)					Average Size of Entrant
		Full Sample	1-5 employees	6-20 employees	21-50 employees	51-100 employees	100+ employees	
2001	2422	3.77	4.60	43.91	30.50	11.88	9.10	42.70
2002	1674	2.96	5.14	46.12	27.46	14.66	6.62	37.78
2003	2004	3.50	9.03	48.76	22.12	10.79	9.30	37.99
2004	1889	3.35	7.03	50.04	25.20	10.06	7.67	38.09
2005	2948	4.99	4.78	49.24	26.51	12.31	7.16	39.12
2006	3529	5.79	4.59	45.87	27.56	11.87	10.12	46.64
2007	3343	5.32	4.21	44.10	29.24	12.69	9.76	45.32
2008	3025	4.90	4.91	45.67	26.86	12.82	9.73	49.60
2009	3113	4.76	5.49	44.72	25.17	12.85	11.78	52.62
2010	2365	3.64	9.32	40.65	27.46	11.67	10.90	47.13

Panel B: Across States

	# of Entrants	% of Entrants	Size Distribution of Entrants (%)					Average Size of Entrant
			1-5 employees	6-20 employees	21-50 employees	51-100 employees	100+ employees	
Not Financially Developed	6255	4.19	3.94	50.08	24.86	10.89	10.22	46.53
Financially Developed	16082	4.04	6.28	44.58	27.30	12.42	9.43	44.48
Poor State	5894	4.51	4.43	50.18	24.81	11.57	9.02	42.32
Rich State	16423	3.95	6.05	44.67	27.26	12.14	9.88	46.04
Poor Doing Business	13463	4.40	4.99	44.51	26.84	13.10	10.57	47.06
Good Doing Business	9714	3.8	6.65	47.92	26.82	10.69	7.93	41.39
Flexible State = 0 (Rigid Labor Regulations)	8587	3.27	5.31	44.12	27.17	12.34	11.07	48.30
Flexible State = 1 (Flexible Labor Regulations)	13730	4.83	5.82	47.37	26.27	11.77	8.76	43.03

Table 8: Initial Conditions and Role of Institutions

The regression estimated is: Initial Size/Initial TFP = $\alpha + \beta_1$ Credit/SDP + β_2 Rich State + β_3 DB Rank + β_4Literacy Rate+ β_5 Flexible State + e. The variables are defined as follows: Initial Size is the total number of workers at age 1 which includes workers employed directly, workers employed through contractors, supervisory and managerial staff, other employees, working proprietors, unpaid family workers, and unpaid working members if cooperative factory. Initial TFP is the logarithm of revenue productivity at age 1, defined as the product of physical productivity and a firm's output price following Hsieh and Klenow (2009). Credit/SDP is the ratio of total Commercial Bank Credit outstanding to the Net State Domestic Product (SDP) in each census year and gauges the depth of financial development. DB Rank is the easy of doing business rank for states and ranges from 1 (good) to 17 (poor) with higher values corresponding to states with worse overall doing business environments. Flexible State dummy that takes the value 1 for states with flexible labor regulation and 0 for states with rigid or neutral labor regulations following Gupta et. al. (2008). Literacy Rate is the proportion of persons who can both read and write with understanding in any language among population aged 7 years and above. Robust standard errors are reported in the parentheses. All regressions are estimated using sampling weights.

	(1)	(2)	(3)	(4)	(5)	(6)
	Initial Size	Initial Size	Initial Size	Initial TFP	Initial TFP	Initial TFP
Rich State Dummy	0.664		7.307**	-0.025		-0.083
	(3.278)		(3.661)	(0.068)		(0.076)
Credit/SDP		-15.645***	-19.001***		0.134	0.173
		(3.725)	(4.127)		(0.097)	(0.108)
DB Rank	0.164	-0.022	0.406	0.014**	0.016***	0.012*
	(0.305)	(0.217)	(0.313)	(0.006)	(0.005)	(0.006)
Flexible State Dummy	-5.918**	-4.796**	-7.886***	-0.178***	-0.197***	-0.163***
	(2.626)	(2.198)	(2.724)	(0.054)	(0.052)	(0.053)
Literacy Rate	-0.022	0.504**	0.116	-0.003	-0.009*	-0.004
	(0.289)	(0.210)	(0.292)	(0.006)	(0.005)	(0.006)
Constant	36.957**	24.711*	48.179**	-1.796***	-1.362***	-1.628***
	(17.039)	(14.225)	(18.772)	(0.358)	(0.360)	(0.389)
Fixed Effects		Industry, Year			Industry, Year	
N	7250	7250	7250	5819	5819	5819
Adj. R-sq	0.054	0.056	0.057	0.329	0.330	0.330

*, **, and *** represent significance at 10%, 5%, and 1% levels respectively.

Table 9: Initial Conditions and Role of Institutions - Robustness

In cols. 1-3 we estimate the following regressions at the aggregated state-year level: Percentage Entry/Average Entrant Size /Average Entrant TFP = $\alpha + \beta_1$ Credit/SDP + β_2 Rich State + β_3 DB Rank + β_4Literacy Rate+ β_5 Flexible State + e. In cols. 1-4 we use instrumental variable regressions where we instrument for the value of Credit/SDP using monetary policy shocks (time-varying interest rate and the cash reserve requirements for banks set by the Reserve Bank of India, both interacted with the initial credit ratio of the state (in 1997). The first stage regression is: Credit/SDP = $\alpha + \beta_1$ (Interest Rate x Initial Credit/SDP in 1997) + β_1 (Cash Reserve Ratio x Initial Credit/SDP in 1997) +β_2 SDP/Capita + β_3 DB Rank + β_5Literacy Rate+ β_3 Flexible State + e. The variables are defined as follows: Percentage of Entrants is the total number of firms aged 1 as a percentage of total number of firms in each state in each year. Average Entrant size is the average size of firms aged 1 in each state in each year and Average Entrant TFP is the average TFP of firms aged 1 in each state in each year. Credit/SDP is the ratio of total Commercial Bank Credit outstanding to the Net State Domestic Product (SDP) in each census year and gauges the depth of financial development. DB Rank is the easy of doing business rank for states and ranges from 1 (good) to 17 (poor) with higher values corresponding to states with worse overall doing business environments. Flexible State dummy that takes the value 1 for states with flexible labor regulation and 0 for states with rigid or neutral labor regulations following Gupta et. al. (2008). Literacy Rate is the proportion of persons who can both read and write with understanding in any language among population aged 7 years and above. Cash Reserve Ratio is the liquid cash that banks have to maintain in the Reserve Bank of India as a certain percentage of their demand and time liabilities. Interest rate is the monetary policy rate set by the Reserve Bank of India. Definitions and sources of all variables are provided in the Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
	Percentage of Entrants	Average Entrant Size	Average Entrant TFP	Percentage of Entrants	Average Entrant Size	Average Entrant TFP
	OLS	OLS	OLS	IV	IV	IV
Rich State dummy	-0.022***	17.048	0.016	-0.021***	21.010*	0.035
	(0.008)	(10.332)	(0.073)	(0.008)	(10.993)	(0.072)
Credit/SDP	0.018***	-27.262***	0.126	0.015**	-41.430***	0.060
	(0.006)	(9.940)	(0.087)	(0.007)	(14.274)	(0.105)
DB Rank	-0.001	-0.555	-0.005	-0.001	-0.428	-0.004
	(0.001)	(0.641)	(0.005)	(0.001)	(0.629)	(0.005)
Flexible State dummy	0.012**	-5.837	0.037	0.012**	-5.042	0.041
	(0.006)	(4.703)	(0.045)	(0.005)	(4.379)	(0.043)
Literacy Rate	0.000	0.329	0.002	0.000	0.382	0.002
	(0.001)	(0.472)	(0.005)	(0.001)	(0.447)	(0.005)
Constant	0.018***	-27.262***	0.126	0.015**	-41.430***	0.060
	(0.006)	(9.940)	(0.087)	(0.007)	(14.274)	(0.105)
N	150	150	150	150	150	150
Adj. R-sq	0.105	0.086	0.023			
First Stage F-stat				82.18	82.18	82.18
				(0.000)	(0.000)	(0.000)
Over-identification Test (p-value)				0.1230	0.4891	0.6737

*, **, and *** represent significance at 10%, 5%, and 1% levels respectively

Table 10: Comparison of size distribution at age 2 versus age 8

This table presents estimates from the comparison of the size distribution of firms at age 2 with that at age 8 following the quantile methodology in Combes et al. (2012). Bootstrapped Standard errors for the shift, dilation and truncation parameters are reported in parentheses.

Right-shift Parameter, A	Dilation Parameter, D	Left-Truncation (or Selection) Parameter, S	R^2	Obs.
Panel A: All three parameters estimated				
10.897	1.256	0.054	0.96	4627
(16.104)	(0.206)	(0.167)		
Panel B: Only Shift and Dilation Estimated				
15.267	1.277	-	0.96	4627
(6.656)	(0.158)			
Panel C: Only Shift and Truncation Estimated				
-20.05		0.392	0.63	4627
(8.930)	-	(0.108)		
Panel D: Only Shift Estimated				
15.221	-	-	0.24	4627
(13.538)				
Panel E: Only Truncation Estimated				
-	-	0.253	0.55	4627
		(0.063)		

Figure A1: Size - Alternate Definitions of Large and Small Entrants

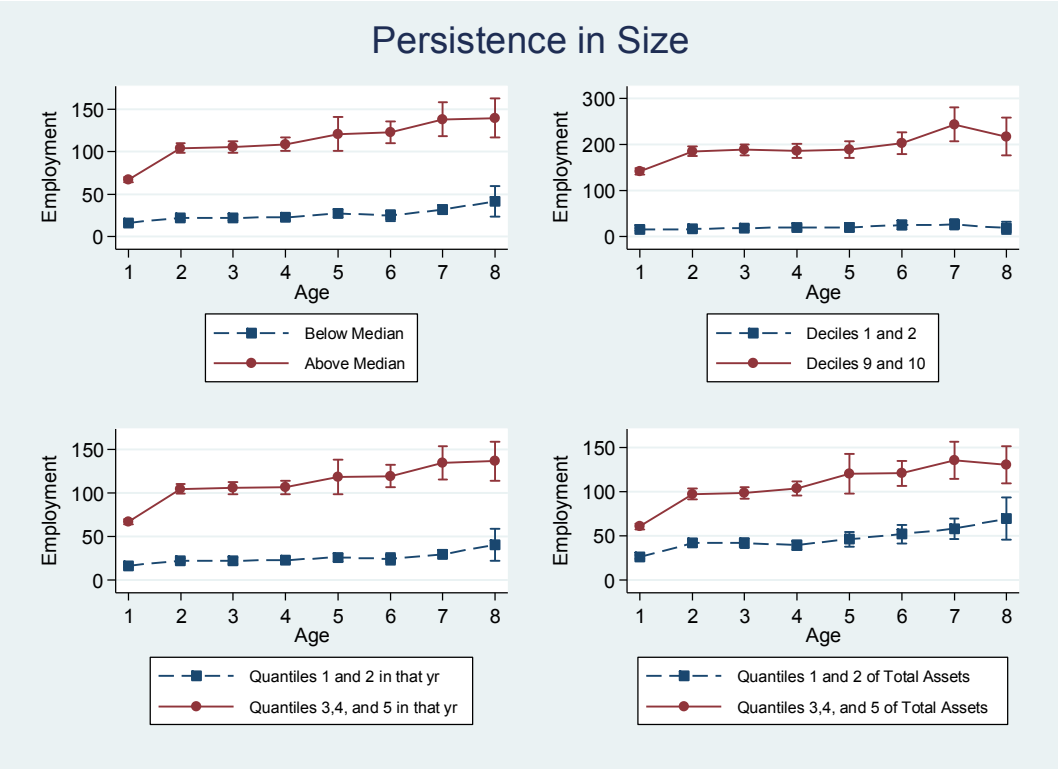


Figure A2: Employment Growth - Alternate Definitions of Large and Small Entrants

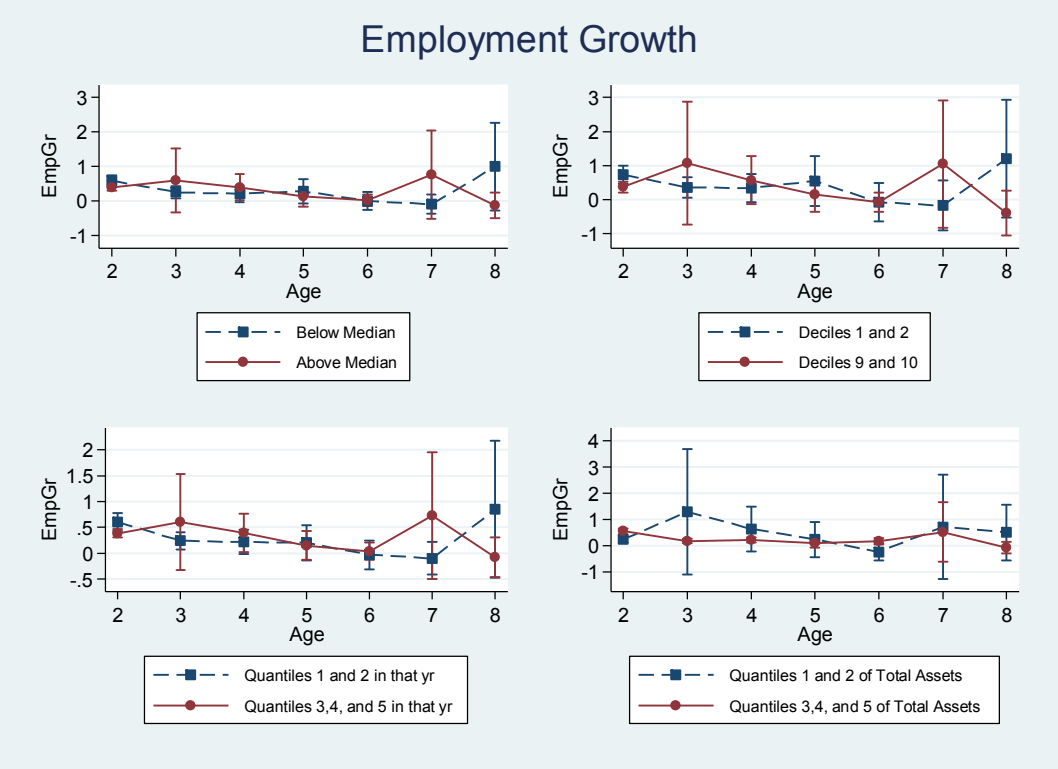
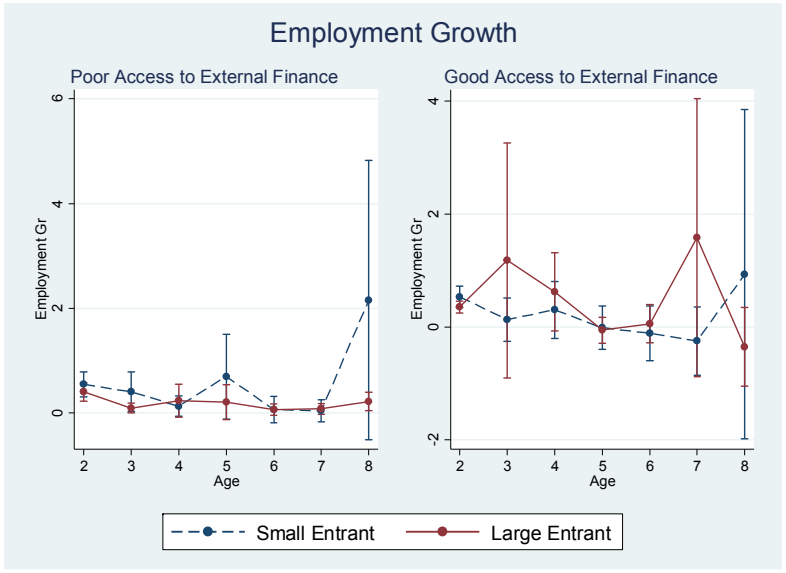
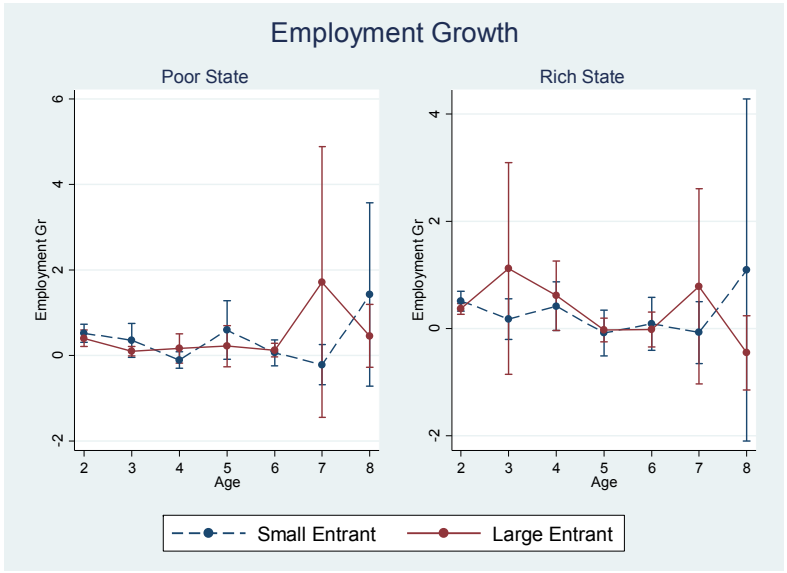
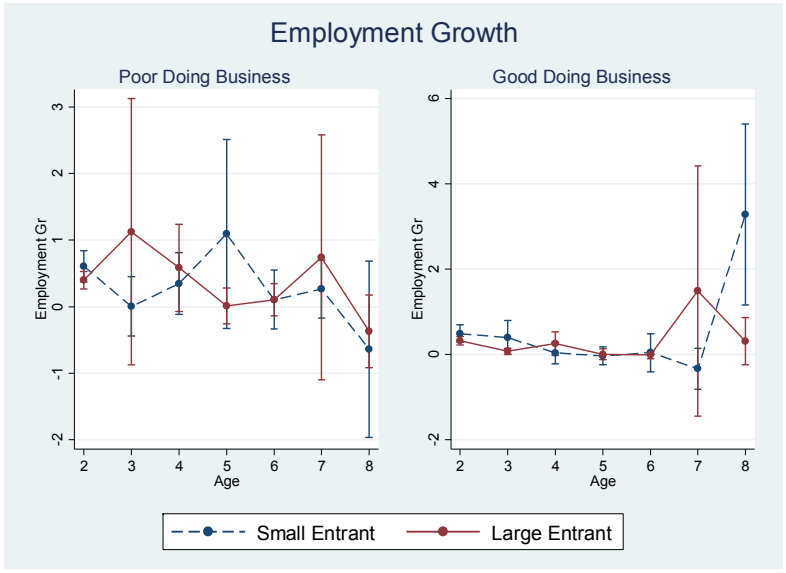


Figure A3: Employment Growth over Early Lifecycle – Across Institutions







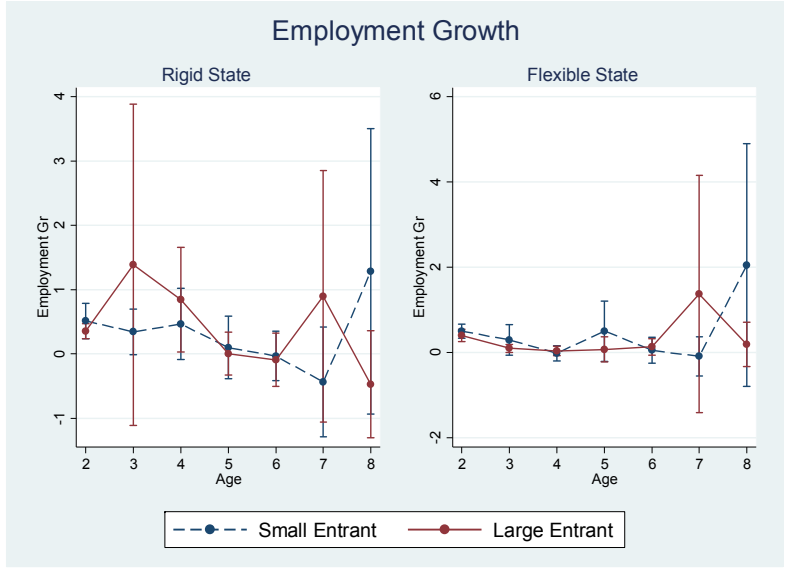
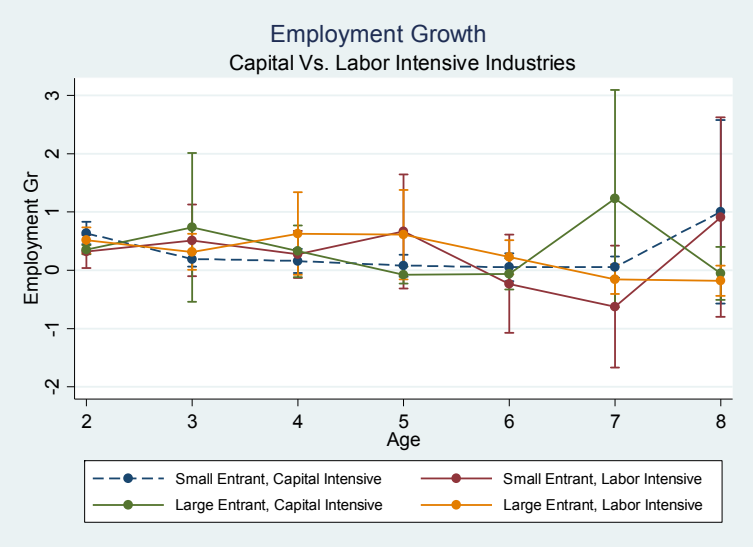
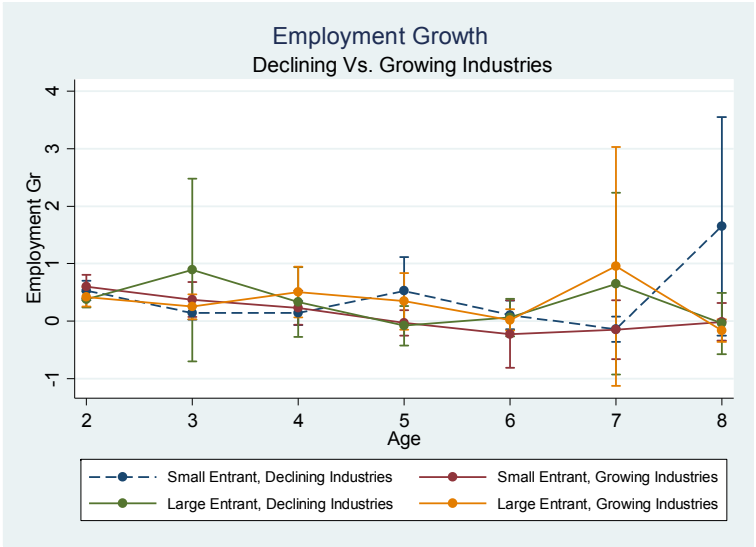


Figure A4: Employment Growth over Early Lifecycle – across Industry Classifications





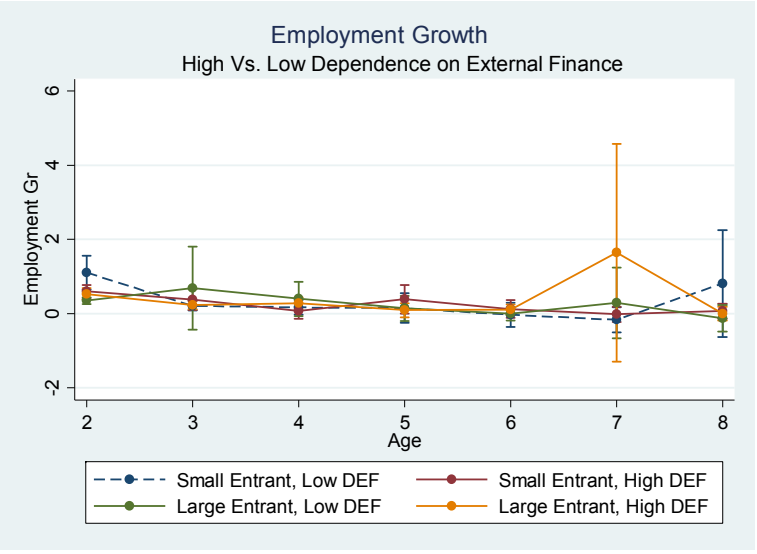


Figure A5: Is there a difference in growth rates across entrants in industries dependent on external finance (High DEF) in states with good financial institutions?

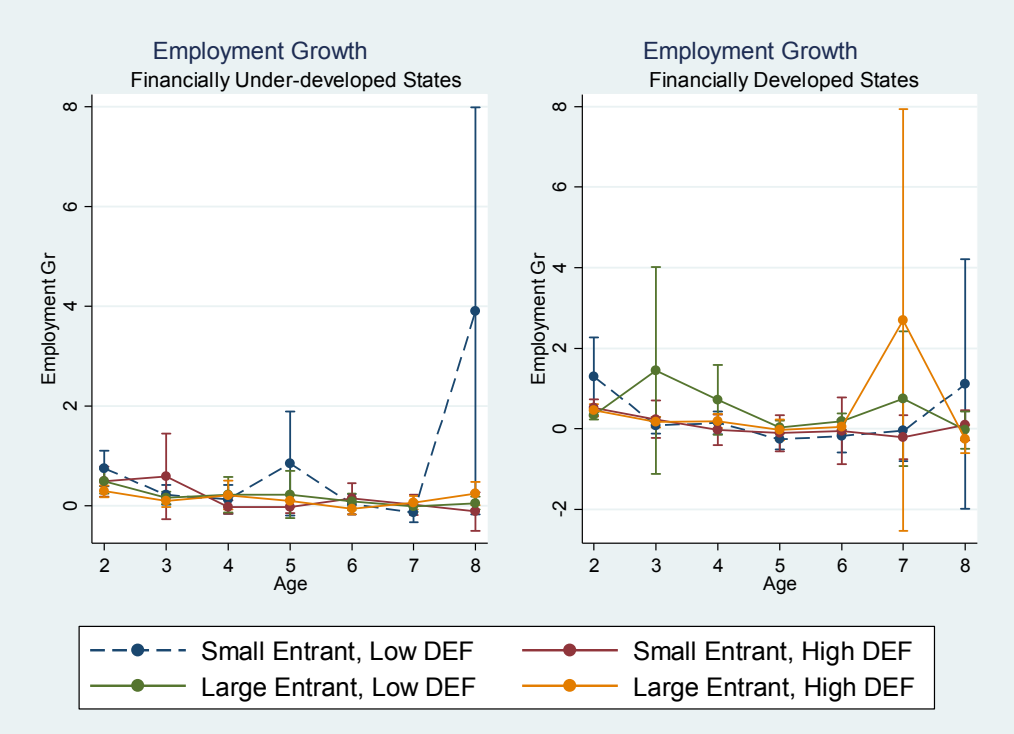


Figure A6: Size and Growth over Early Lifecycle: Large Vs. Small Entrants – Reweighting to take into account panel attrition