NBER WORKING PAPER SERIES

IN WITH THE BIG, OUT WITH THE SMALL: REMOVING SMALL-SCALE RESERVATIONS IN INDIA

Leslie Martin
Shanthi Nataraj
Ann Harrison

Working Paper 19942
http://www.nber.org/papers/w19942

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2014

This material is based upon work supported by the National Science Foundation under Grant No. SES-0922332. We thank Mr. M.L. Philip, Mr. P.C. Nirala, Dr. Praveen Shukla, and Mr. M.M. Hasija at the Ministry of Statistics and Programme Implementation for their assistance in obtaining and interpreting the ASI data; David Nelson and Steve Otto for assisting in matching the product reservation codes with the ASICC codes; and Jeff Wenger, as well as seminar participants at RAND, for their valuable comments. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation or the National Bureau of Economic Research.

In with the Big, Out with the Small: Removing Small-Scale Reservations in India
Leslie Martin, Shanthi Nataraj, and Ann Harrison
NBER Working Paper No. 19942
February 2014
JEL No. O12,O25,O38

ABSTRACT

For the past 60 years, India has promoted small-scale industries (SSI). Industrial promotion took the form of reserving certain products for manufacture by small and medium firms. The stated goal of Indian policy makers was to promote employment growth and income redistribution. In this paper, we use a new version of the Annual Survey of Industries (ASI) that allows us to follow plants over time and examine whether small factories in India exhibit faster employment growth than larger factories. We find that, as in the United States, larger, younger factories grow more quickly and create more jobs than smaller, older factories. We then exploit the fact that India eliminated SSI reservations for more than half of all reserved products between 1997 and 2007 to identify the consequences of removing these policies. We find that districts more exposed to the de-reservation experienced higher employment and wage growth than those that were less exposed. These effects are driven by the growth of factories that moved into the de-reserved product space, whose expansion more than compensated for the shrinking of smaller, incumbent firms.

Leslie Martin
Department of Economics
University of Melbourne
3010 Victoria, Australia
leslie.martin@unimelb.edu.au

Shanthi Nataraj
RAND Corporation
1776 Main Street
Santa Monica, CA 90407
snataraj@rand.org

Ann Harrison
Management Department
The Wharton School
University of Pennsylvania
2016 Steinberg Hall-Dietrich Hall
3620 Locust Walk
Philadelphia, PA 19104-6370
and NBER
annh@wharton.upenn.edu

1. Introduction

For the past 60 years, India has attempted to boost employment growth by shielding small manufacturing firms from competition. Promotion measures have included subsidized credit, technical assistance, excise tax exemptions, preference in government procurement, and subsidies for power and capital. Until recently, the "premier instrument" for protecting small firms was a policy of reserving a number of products for exclusive production by small-scale industry. Proponents of small firm promotion have argued that these policies encourage labor-intensive growth, mitigate capital market imperfections, and shift income towards lower wage earners (Hussain, 1997).[2]

But policies intended to help small firms may have discouraged their growth and slowed the overall expansion of the manufacturing sector. Mohan (2002) documents that following a major expansion of the number of products reserved for small firms in 1978, manufacturing employment growth slowed down. He argues that small firms making reserved products have been prevented from growing or upgrading their technology, because they would have had to stop making those products if their investment grew above the allowed limits for small-scale industry (SSI). In a similar vein, Panagariya (2008) argues that the policy of reserving many labor-intensive products for SSIs has limited Indian exports of these products.

In this paper, we address two questions. First, to what extent have small firms driven employment growth in India's manufacturing sector? Second, is there evidence that the SSI reservation policy either promoted job creation or constrained growth? India's progressive dismantling of this policy between 1997 and 2007 allows us to identify the impact of de-reservation (the removal of SSI reservations) on the growth of employment, output, investment,

2 Exceptions are made for firms active in the product space before the initial year of reservation and firms that produce primarily for the export market.

and worker wages. We use a newly available panel dataset provided by the Annual Survey of Industries (ASI), which follows the same plants from 2000 to 2007. While these data were previously available as a repeated cross-section, the provision of unique plant identifiers allows us to bypass the tricky business of trying to link firms through beginning and end of year accounting information.

India's policy of reserving products for exclusive manufacture by SSIs is unique, but its concern for the promotion and growth of small firms is shared by many countries. A number of developing countries, including India, are characterized by a "missing middle" - a phenomenon in which most employment is concentrated in small and large firms, with few mid-sized firms. The lack of growth of small firms in developing countries is often cited as a cause of the missing middle (UNCTAD, 2006). Despite these concerns, there is little evidence on the patterns of firm growth in India, and evidence from other developing countries is limited and mixed.

A number of studies from developing countries document that small firms grow faster than large firms (see, among others, Mead and Liedholm, 1998 for a summary of results from various developing countries; Gunning and Mengistae, 2001 and Bigsten and Gebreeyesus, 2007 for results from Ethiopia; Sleuwaegen and Goedhuys, 2002 for results from Cote d'Ivoire). However, VanBiesebroeck (2005) shows that after controlling for a number of other characteristics, medium and large firms in nine sub-Saharan African countries grow faster than small firms. Meanwhile, Teal (1998) and Harding, Soderbom and Teal (2004) find little relationship between firm size and growth in Ghana, Kenya and Tanzania.

For India, Mazumdar and Sarkar (2008) document a "missing middle" in the firm size distribution. Das (1995) examines firms in the Indian computer hardware industry, while Shanmugam and Bhaduri (2002) analyze a balanced panel of 392 of large firms that are publicly listed. Both Das (1995) and Shanmugam and Bhaduri (2002) document that small firms grow more quickly; however, these analyses are limited to small, specialized subsets of Indian manufacturing and do not shed light on why overall employment growth in labor-intensive industries has been slow.

The literature on firm growth in developed countries has also evolved, with early researchers finding that small firms grow more quickly and more recent research suggesting that the driver of growth is youth, not size (see, among others, Evans, 1987a, 1987b; Hall, 1987; and Sutton, 1997). Evans (1987a, 1987b) examines more than 20,000 manufacturing firms in up to one hundred industries drawn from a dataset created by the Small Business Administration based on data from Dun and Bradstreet. He finds that "firm growth decreases with firm size when firm age is held constant and decreases with firm age when firm size is held constant." More recently, Neumark, Wall, and Zhang (2011) have also found evidence that small business create more jobs, using the U.S. National Establishment Time Series (NETS) data. However, they find that the negative relationship between establishment size and job creation is sensitive to whether firm size is measured using base period size or average size of the enterprise. In particular, because of the possibility of mean reversion, estimates using average firm size show smaller but still significantly higher job creation rates for smaller firms.

Recent work by Haltiwanger, Jarmin and Miranda (2013) argues that these earlier papers on U.S. firms are flawed due to measurement issues and omitted variable bias. They argue that smaller firms are associated with higher employment growth primarily because of their youth, and they present evidence showing that the higher employment growth of smaller enterprises disappears once they control for age. Haltiwanger et al. conclude that public policy should promote young enterprises rather than small enterprises.

In the first half of the paper, we find evidence for India consistent with the United States experience. Once we control for regression to the mean and for the probability of exit, large factories grow more quickly and create more jobs than small factories, and young factories grow more quickly than old factories. These results are consistent with evidence reported in Haltiwanger, suggesting that "youth trumps size". Our results in the first half of the paper suggest that targeting smaller enterprises is unlikely to lead to greater employment growth, but that encouraging new entry could accelerate job creation. We reinforce these findings in the second half of the paper using the dismantling of the SSI reservation policy as a quasi-natural experiment.

To explore the impact of the SSI reforms, we classify factories into incumbents (those already producing the reserved product) versus entrants (those that moved into the product space after the product was de-reserved). We find that with de-reservation, the average incumbent stagnated, while the average entrant grew. De-reservation reinforced the faster growth of larger factories relative to smaller factories, and reduced employment growth among smaller, older factories. Consistent with the concerns of reservation opponents, we find that de-reservation also encouraged the growth of young entrants, and of incumbents that were previously constrained by the capital limits.

These findings are consistent with the heterogeneous firms literature (Melitz, 2003). In this context, the de-reservation policy may be seen as lowering the fixed entry cost that factories must pay in order to join a particular product market. The resulting increase in competition in the product market raises the productivity level required for survival. The smallest factories are forced to exit the product space, and larger factories increase their market shares. Alternatively, we can view the reservations policy as affecting the optimal behavior of multi-product firms. Larger factories that may have found it optimal to produce reserved products may not have been able to do so when the reservations policy was in place, and thus may have switched to a more optimal allocation after the reforms. In addition, by increasing competition, the de-reservation may have pushed factories to specialize in those products that represent their "core competencies" (Eckel and Neary, 2010).

We also explore the potential endogeneity of the reforms. We first document that there are no pre-treatment trends indicating higher or lower employment growth before products were de-reserved. Second, we create a concordance that allows us to link our firm-level panel to Indian districts. We then compare changes in employment, output, investment, and wage outcomes for districts that were more or less exposed to the de-reservation based on their pre-existing product mix. Using product mix prior to the SSI reforms and tracing treatment at the district level based on the prior allocation of SSI reservations is our preferred approach to addressing potential endogeneity concerns. Estimating district-wide impacts also allows us to measure the net impact on employment outcomes across both shrinking (incumbent) factories and expanding (new entrants into previously restricted products) factories.

We find that districts that were more exposed to the de-reservation based on their pre-treatment product mix experienced higher employment and wage growth over the period from 2000 to 2007. The results suggest that the average change in the fraction of de-reserved employment (0.092) is associated with a 6% increase in district-level employment.3

Our findings contribute to the literature on firm growth in two important ways. First, we document, for the first time, the relationships between firm size, age, and growth among a substantial portion of the manufacturing sector in India. Second, we provide the first systematic examination of whether policies that promote small and medium enterprises are an effective tool for employment promotion. Our results, which use a panel just recently made available by India's Central Statistical Office that follows the same plants over time, suggests that reserving

3 The ASI covers all firms with 10 or more workers using power, or 20 or more workers without power, and all bidi/cigar establishments regardless of size. Observing employment growth among ASI firms means that workers are shifting out of un- or under-employment, informal sector employment, or out of service industries.

specific products for small and medium enterprises was not an effective approach to maximizing employment or wage growth. The dismantling of small scale promotion was accompanied by net employment and wage gains for districts that initially had a larger share of previously reserved products.

The remainder of the paper is organized as follows. Section 2 explains the rationale behind SSI reservation in India, describes the trends in reservation and de-reservation, and reviews the data sets used in estimation. Section 3 documents the relationship between size, age and employment growth. Section 4 identifies the impact of SSI reservation policies on employment, investment, output, and wages over the 2000 through 2007 period. Section 5 concludes.

2. Small-scale Reservation Policies in India

India has historically supported its small scale sector. According to Mohan (2002), one major reason was the government's belief that employment generation is critical in a labor surplus economy. Many believed that SSIs, particularly labor-intensive manufacturing enterprises, would be able to absorb surplus labor. One important pillar of the policy of SSI promotion was the reservation policy, initiated in 1967. Under this policy, which applies exclusively to manufacturing, certain products were reserved for production by SSIs. Initially, only 47 items were reserved (see Table 1), but by 1996 that number had grown to more than 1,000 products. Mohan points out that the only selection criterion mentioned in official documents was the ability of SSIs to manufacture such items. He also notes – as does an official report of an expert committee on small enterprises, of which he was a member – that the choice of products was "arbitrary" (Hussain, 1997; Mohan, 2002).

SSIs were originally defined as firms with up to Rs. 500,000 in fixed assets and fewer than 50 employees. Over time, the employment condition was dropped and the investment ceiling raised, so that by 1999, manufacturing firms with up to Rs. 10 million in plant and machinery (at historical cost) were considered SSIs.[4] Large firms that already made the reserved products were allowed to continue manufacturing them, but their output was capped at current levels. Any further expansion or entry required a commitment to export at least 75% of output (Mohan, 2002).

Despite India's liberalization of a variety of industrial and trade policies in 1991, the reservation of products for SSIs remained in force until the late 1990s. However, the Advisory Committee on Reservation recognized the growing concern that following the 1991 trade liberalization, SSIs had to compete with imported goods, and large firms (which had been grandfathered in) might be able to exercise monopoly power in the market for reserved goods as most other producers would be small. Moreover, growing consumer demand for high-quality goods, and ongoing technological progress, made it more difficult to produce many items in small factories. The Advisory Committee therefore appointed a special committee to reconsider the list of reserved items in 1995 (Office of Development Commissioner, Ministry of Micro, Small, & Medium Enterprises, Government of India, 2007). Based on recommendations from this committee, over 600 items out of more than 1,000 products were de-reserved between 1997 and 2007 (Table 1). While there were a few items removed from the list in earlier years, large-scale de-reservation started in 1997 (15 products) and picked up in 2002 (51 products). From 2003 to 2007, approximately 100 to 200 products were de-reserved each year, with 400 products remaining reserved at the end of that period.

We mapped the list of SSI products to a panel of manufacturing firms from the Annual Survey of Industries (ASI) from 2000 to 2007. The ASI provides a representative sample of all registered manufacturing firms in India, with large firms covered every year, and smaller firms

4 The investment ceiling was raised from Rs. 6.5 million to Rs. 30 million in 1997, but was subsequently reduced to Rs. 10 million in 1999. Banerjee and Duflo (2012) use these changes to examine the impact of directed credit on firm performance.

covered on a sampling basis. While previously the ASI did not release identifiers that would allow researchers to follow the same unit across years, the Central Statistical Office recently reversed this policy and released a panel going back to 1998. However, due to incomplete product coverage in 1998 and 1999 we are forced to begin our analysis in 2000. We drop 1998 and 1999 because without detailed product coverage we cannot identify which firms were affected by SSI reservations and which were not.

The basic unit of observation in the ASI is a factory (establishment). The ASI allows owners who have more than one factory in the same state and industry to provide a joint return, but very few (less than 3% of our sample) do so. In discussing the literature on firm size and growth, we occasionally refer to “firms” but our analysis is conducted at the level of the factory.

Factories report products in the ASI survey using ASI Commodity Classification, or ASICC, codes. We created a concordance between the SSI product codes—which indicate which products were reserved for small and medium enterprises—and the ASICC codes. We describe our concordance procedures in Appendix 1.

Table 2 provides further details on the factories in the ASI. Our dataset contains approximately 30,000 factories in any given year, 25 % of which made at least one reserved product in 2000. Table 2 documents that SSI reservation policies were pervasive and affected a significant share of the manufacturing sector. Yet by 2007, only 10% of factories were making reserved products. Firms making de-reserved products are, on average, younger than firms making reserved products.

Our other key variables are output, investment (capital), and wages. Throughout the paper, output and capital are in real terms, where output is deflated by the wholesale price index (WPI) for the appropriate product category, and capital is deflated by the WPI for plant and machinery.

Wages are measured by dividing the total annual wage bill, deflated by the consumer price index, by the number of employees.

3. Factory Size and Factory Growth

3.1 Modeling the Relationship Between Size, Age and Growth

In this section, we document the relationship between size, age, and growth for Indian manufacturing. We begin with a factory growth model based on Evans (1987a), in which the growth of a factory between time *t* and time t' is a function of its employment size *S*, age *A*, and other characteristics *X* at time *t*:

$$g(t') = f(S(t), A(t), X(t)) \tag{1}$$

We initially define growth between any two consecutive years in which we observe the factory (*t* and t') as:[5]

$$g(t') = \frac{S(t') - S(t)}{S(t)[t' - t]}$$

This is a factory's average annual growth in employment between *t* and t', as a percent of its size when we last observed it ("base-year" size) in year *t*. In keeping with much of the prior analysis of size and growth, we initially limit our analysis to continuing factories; entry and exit are discussed below.

This approach to measuring the role of size in employment growth has been challenged on several grounds. There is the potential that the commonly observed negative relationship between size and growth is driven, in part, by regression to the mean. Factories that have experienced an

5 Note that Evans (1987a) defines growth as (ln S(t') –ln S(t))/(t'-t). We use a slightly different definition in order to facilitate comparison with more recent work by Haltiwanger et al. (2013), but results are nearly identical when using the original definition from Evans (1987a).

idiosyncratic, negative shock in year t may shed labor and thus be classified in a smaller size category. As they are unlikely to experience a similar shock in year t', they may return to their normal employment levels, thus creating a spurious, negative relationship between size and growth (Haltiwanger et al., 2013).

To address the potential for regression to the mean, we alter our measures of both growth and size. Following Haltiwanger et al. (2013), we construct size as the average size between t and t': $S_{avg}(t) = 0.5[S(t) + S(t')]$. We also modify the measure of growth to reflect the updated version of factory size:

$$g_{avg}(t') = \frac{S(t') - S(t)}{\mathrm{S_{avg}(t)}[t' - t]}$$

This "average size" approach was first proposed by Davis et al. (1996), and has also been implemented by Haltiwanger et al (2013) and Neumark et al (2011). These recent papers and earlier work show that using average firm size (with and without age controls) significantly affects the relationship between size and growth, which these authors interpret as an indication of mean reversion.

Another challenge in estimating the relationship between size and growth arises because of sample selection. All of the growth rates measured above are conditional on survival, and include only continuing firms. Since small factories tend to have higher failure rates than large factories, the estimated growth rate of small factories, conditional on survival, is likely to be biased upwards relative to the unconditional growth rate of small factories. To overcome this challenge, we assign a growth rate of -100% to all factories that we observe exiting. At the same time, new factories (those with an age of zero) are assigned a growth rate of +100%. Note that new factories are different from "new entrants" as defined in Section 4; the latter indicates factories that have moved into a new product space, while the former indicates newborn factories. 6

We estimate the relationship between growth and size as follows:

$$g_{ij}(t') = \beta_0 + \beta_s s_{ij}(t) + \beta_{s2} s_{ij}(t)^2 + \beta_a a_{ij}(t) + \beta_{a2} a_{ij}(t)^2 + \beta_{sa} s_{ij}(t) a_{ij}(t) + X'_{ij}\beta_X + \alpha_j + \alpha_y + \varepsilon_{ij} \quad (2)$$

where s_{ij} is the log of employment in factory i and industry j, a_{ij} is the log of factory age, X_{ij} is a vector of factory characteristics, and a_j and a_y are industry and accounting year dummies, respectively. For notational clarity, we distinguish between an accounting year (y) and the time period in which we observe a factory (t or t').[7] As controls, we include in the X_{ij} vector of factory characteristics a dummy variable for multi-plant firms, urban factories, and government-owned factories.[8] We include year dummies in order to control for secular trends in factory growth rates. We also include dummy variables for each industry at the 3-digit National Industrial Classification (NIC) level.

6 Our data on exit are imperfect, because small factories in our dataset are not sampled every year. Therefore, it is possible that we observed a factory in 2006, and that it exited in 2007, but we do not observe this exit because it was not sampled in 2007, and therefore was not flagged as closed in our dataset. The results from this exercise should therefore be viewed as the upper bound of estimated growth for any given size or age class. We also attempted an alternative specification, which assumes that all firms that we do not observe in 2007 have exited. This assumption is likely to grossly overstate exit, but can serve as a lower bound of estimated growth for a given size and age class. Results were qualitatively similar and are thus not included.

7 Note that when size is measured as base-year size, this specification automatically excludes any factories that previously had zero labor. However, when average size is used, factories that previously had zero labor but now have positive labor will be included. In the next section of our paper, we explore the impact of SSI reservations on firm size. Since the dependent variables are in logged values, any observation with a zero value is dropped. To be consistent, we re-estimated Equation 2 dropping any observations with zero labor (prior to calculating average size). The results are similar to those presented here and are thus not shown.

8 We define multi-plant firms as those that report more than one factory in their ASI return. The government ownership dummy is set equal to one if the factory is either partially or wholly owned by any level of government. Multi-plant firms and government owned factories represent approximately 3% of our sample each, while urban factories represent about 58% of our sample.

We also allow for a flexible relationship between size and growth by measuring size and age using dummy variables for various categories (1-4 employees, 5-9, 10-19, 20-49, 50-99, 100-249, 250-499, 500+ for size; 0 years, 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, 13-15, and 16+ for age). We estimate fully-saturated models using a complete set of interactions between size and age, and we predict growth rates by applying the estimated model while holding size (or age) fixed in a particular category and allowing all other variables to be equal to their observed values. This strategy also guards against a potential challenge noted by Bernard et al. (2014) – that the calculated growth rates of newborn factories might be biased upwards if they were only open for part of their first year of production, and thus only reported partial year sales. These authors document this bias for export sales; our analysis allows us to separately identify growth rates of factories that are at least 1 year old, which should eliminate the concern that employment may also be affected by this partial-year bias.

3.2 The Relationship Between Size, Age and Growth

Table 3 presents results. In Panel (a), we rely on base-year size and include only continuing factories. This approach is consistent with most of the prior work on firm size and growth, but may be biased in the presence of reversion to the mean and exit. In Panel (b), we address these two issues by using average rather than base-year size, and by controlling for exit.

First consider the results that use base-year size. Column (1) of Panel (a) presents results that include size but not age. Column (2) adds age as a control, as well as the interaction between size and age. Column (3) weights each observation by its sampling multiplier. The coefficient on size in all three specifications in Table 3 is significant and negative, indicating that employment growth is higher for smaller factories.

To account for the higher-order and interaction terms, we estimate the actual effect of size and age on growth, evaluated at sample means, as follows:

$$g_s \equiv \frac{\partial g}{\partial s} = \beta_s + 2 * \beta_{s2} s + \beta_{sa} a$$

$$g_a \equiv \frac{\partial g}{\partial a} = \beta_a + 2 * \beta_{a2} a + \beta_{sa} s$$

The median size in our data set is 46 employees, while the median age is 14 years. Evaluated at the median, the net impacts of size and age continue to be negative (g_s = -0.033, g_a = -0.026) when size is defined as the number of employees in the base year. These results are consistent with the work by Evans (1987a), who finds that g_s = -0.0374, g_a = -0.0381 in a sample of U.S. firms.

In contrast, Panel (b) of Table 3 shows that correcting for regression to the mean and exit significantly affects our results. The coefficient on size, which was negative in Panel (a), becomes positive and statistically significant in Panel (b). This indicates that larger factories exhibit higher employment growth, in contrast to the previous results indicating that small factories grow faster. Comparing Columns (1) and (2) shows that the positive relationship between size and growth holds regardless of whether or not we control for age.9 In Column (3), our results are qualitatively similar when we weight observations with sampling multipliers. In Column (4), we include only factories in the "Census" sector and confirm that the large, positive relationship between size and growth is similar when we limit the sample to factories whose exit we can reliably observe. In all of these specifications, the coefficients on age remain negative and statistically significant, indicating that younger factories exhibit higher employment growth. Using the estimates from Column (1), the effect of size on growth (g_s) is +0.071 and the effect of age on growth (g_a) is -0.020, when evaluated at median size and age.

9 We also estimated Equation (2) while controlling for regression to the mean but not for exit. We find that the coefficient on size is positive but smaller than in Panel (b) of Table 2, confirming the hypothesis that failing to account for exit biases the coefficient on size downwards.

Figure 1 confirms these findings while allowing a more flexible relationship between size, age, and growth. When base-year size is used, small factories (Panel (a)) and young factories (Panel (b)) appear to grow faster. But when we control for regression to the mean by using average size, youth trumps size. The effect is even stronger when we further control for exit. Younger factories continue to exhibit higher employment growth, but larger factories exhibit higher employment growth. Panel (c) of Figure 1 brings together the size and age results by showing projected growth rates for each size and age class. The results in this figure control for regression to the mean and exit, and confirm that growth is driven by young, large firms.

Taken together, the results in Table 3 and Figure 1 indicate that factory growth in India is not fundamentally different than in the United States. Our results are similar to those of Haltiwanger et al. (2013), who find that when using base-year size and not controlling for age, net growth among US firms is about 15 percentage points higher for small continuing firms than for large continuing firms. Those authors then show that when controlling for age, the relationship between size and growth is close to zero for all except the smallest firms, which continue to exhibit growth rates about 12 percentage points higher than large firms. In contrast, in the Indian case, we find that the relationship between base-year size and growth is robust to controlling for age. Nonetheless, once we control for regression to the mean and exit, we also find that growth is driven by youth rather than size.

What do our results mean for employment growth? To explore this issue, we turn to the relationship between factory size and job creation, following Neumark et al. (2011). Table 4 shows net job creation (gross job creation minus gross job destruction) and total employment for each size category, averaged across all years.[10] Column (3) shows the ratio of net job creation to total employment for each size category, averaged across all years. Column (4) presents an

10 We do not apply sampling multipliers, but instead interpolate labor force across sampled years.

alternative way of measuring net job creation: calculating job creation rates for each factory, averaging by size category, then averaging across sample years.

Consistent with our results on factory growth, we find that when using base-year size, the net job creation rate is highest for small factories, and decreases with size. However, when controlling for regression to the mean by using average factory size, we find that small factories have a negative net job creation rate, and job creation rates generally rise with factory size.

Our results suggest that there is no inherent reason to promote small-scale enterprises on the basis of superior employment generation. If these results are indeed correct, then we would expect that India's policies to promote small-scale firms actually discouraged employment growth, instead of promoting it as the architects of the policy had intended. In the next section, we explore how the dismantling of SSI reservations affected employment and other outcomes.

4. Removal of Small-scale Reservation Policies and Employment Growth

The SSI reservations were aimed at protecting small factories, and Figure 2 presents some preliminary evidence on this point. In 2007, nearly 7,000 factories were making products that had been de-reserved, while approximately 3,600 factories were making products that were still reserved. The figure shows the difference in the share of factories in each size and age class, for factories making de-reserved versus reserved products. Positive (negative) bars indicate that factories making de-reserved products were more (less) likely to be in a particular size-age class. One key result is that the "missing middle" reappears in the reserved sector, relative to the de-reserved sector, suggesting that small-scale reservation could have been an important factor behind the absence of medium-sized firms in India. Another key fact that emerges from this figure is that factories making reserved products tended to be older and smaller than factories making de-reserved products.

To what extent did the SSI reservation policy protect these smaller, older factories? In this section, we use the dismantling of the SSI reservation policy to measure its impact (see Table 1) on employment, investment, output, and wages among factories of different sizes and ages. While we are particularly interested in the impact on employment, we also report impacts on investment, output, and wages. In principle, small-scale reservation policies applied primarily to factories with a historical cost of plant and machinery below Rs. 10 million during our sample years. Consequently we would expect that with the removal of reservation policies, investments in plant and machinery (and thus output) would also increase, particularly for factories that were previously constrained by the Rs. 10 million ceiling. Our results will show that this is indeed the case: investment grew fastest for those enterprises close to the Rs. 10 million ceiling.

Some commentators have also argued that the SSI reservations policy held back manufacturing output as a whole. By exploring the impact of SSI reform on output, we can explore whether de-reservation affected output growth as well. Finally, we also explore the impact on average wages, since one stated goal of reservation policies was to enhance income distribution.

4.1 Factory-Level Effects of De-reservation

For the factory-level analysis, treatment is defined as the elimination of small-scale reservation on the factory's first-observed primary reserved or de-reserved product. We estimate an difference-in-differences (DID) equation of the following form for factory *i* in year *t*:

$$y_{it} = \alpha_i + \alpha_t + \beta Deres_{it} + \omega_{it} \quad (3)$$

The dependent variable y_{it} is alternatively defined as the (log of) employment, output, capital or the average per-employee wage of factory *i* at time *t*. $Deres_{it}$ is a dummy variable that is equal to 1 if the factory's main reserved product has been de-reserved. Where possible, we include all factories – even those that do not help to identify β because they are not affected by the reservation policy – because these factories help to identify the secular year trends in factory performance.

Because we are controlling for both year (α_t) and factory (α_i) fixed effects, β is identified from a combination of (1) products becoming de-reserved and (2) factories switching into or out of making (de)reserved products. To distinguish between these channels, we interact the de-reservation dummy with indicators identifying incumbents and entrants into the product market. We create a dummy variable *Incumbent* that equals 1 if a factory ever made a de-reserved product before it was de-reserved. Similarly, we create a dummy variable *Entrant* that equals 1 if a factory ever made a de-reserved product *after* it was de-reserved, but not before. Note that our factory fixed effects absorb the direct impacts of being an incumbent or entrant, so we include only the interactions with our *Deres* variable:

$$y_{it} = \alpha_i + \alpha_t + \gamma Deres_{it} * Incumbent_i + \rho Deres_{it} * Entrant_i + \varepsilon_{it} \tag{4}$$

Our factory-level estimates for equations (3) and (4) are reported in Table 5. The point estimates in Panel (a) indicate that when we do not distinguish between incumbents and entrants we find that on average, de-reservation across the entire sample of factories did not have a statistically significant impact on employment, output, or capital. However, removal of small-scale reservation was associated with a significant increase in the average, per-employee wage. The coefficient of 0.018 indicates that on average across all factories the removal of small-scale reservation was associated with a 1.8 percent increase in the average (real) wage paid by the factory.

These average results mask considerable heterogeneity among incumbents and entrants. Panel (b) of Table 5 shows that for entrants into a previously reserved product space, employment, output, capital investment and wages increased significantly. Employment and output increased on average by 8 percent, and capital investment by 10 percent. Average real wages increased by approximately 7 percent.

However, for incumbent factories that previously produced reserved products and remained in the sample, the coefficients on all outcome variables are statistically indistinguishable from zero. These findings suggest that with de-reservation, the average incumbent stagnated, while the average entrant grew. In the following section, we examine the extent to which these effects varied by factory size and age, and thus affected the relationships among size, age, and growth.

4.2 Effects of De-reservation by Factory Size and Age

The SSI reservations program was aimed at assisting small factories. Moreover, the results in Section 3 show that the growth patterns of small and large factories differ substantially. In this section, therefore, we explore whether the impacts of de-reservation differed by factory size along two dimensions. The first is based on the historical value of a factory's fixed assets, which was used as a threshold to determine eligibility for the manufacture of reserved products; the second is employment size.

Reserved products could typically be produced only by factories with historical values of plant and machinery below a certain value. However, factories with historical capital investment above the threshold could produce reserved products if they committed to exporting a certain share (usually 75%) of production. Moreover, large incumbent factories (those that were already producing the product before it was reserved, or small incumbent factories that grew above the threshold) could obtain a "Carry On Business" license to continue production. However, these factories were constrained to produce no more than they had previously produced.

Table 6 shows how the effect of de-reservation varied for factories that reported book values of plant and machinery above versus below the Rs. 10 million threshold.11 In Panel (a), we find that de-reservation reduced employment and output among factories that were previously below the threshold, i.e. factories that were eligible for SSI protection, and increased output and employment among factories that exceeded the threshold, i.e. that were constrained pre-de-reservation.12

In Panel (b), we split the results by incumbents versus entrants. As expected, factories that were protected by the reservation policy – incumbents with pre-de-reservation levels of plant and machinery within the SSI cap – shed workers, reduced their output, and reduced their capital stock. In contrast, and consistent with the prohibition on new factories with capital above the threshold entering a reserved market, the largest increases in employment and output are found among new entrants that would have been actively constrained by the SSI cap. The effect on employment is statistically significant as well as economically large; the average factory that was previously prevented from entering a reserved product market space, but did so after the de-reservation, exhibits an 11% increase in employment after de-reservation. Output and capital also increased by 11% and 8%, respectively.

Incumbents that were also presumably grandfathered, and constrained by historical output levels, also exhibited increases in employment and output, but to a much lesser extent. Interestingly, we also find an increase in capital and wage among entrants that would have been within the threshold (and thus allowed to enter the product space) even before de-reservation. One possible explanation is that the product reservations may also have constrained small

11 The Rs. 10 million threshold technically applies to the historical value of plant and machinery; our measure is imperfect in that it reflects the reported, book value of plant and machinery, and is therefore likely to understate historical value.

12 Exceptions were made for factories producing primarily for the export market, although these factories would still have been constrained in terms of their domestic sales.

factories from entering the product space, perhaps due to monopolistic conditions created by large, grandfathered incumbents. Once reservations were lifted and de-reserved product markets became more competitive, smaller factories may have entered and grown, potentially shifting towards a more skilled workforce, or finding labor regulations and union wage bargaining more binding as they grew.

We would expect that if the SSI threshold were a binding constraint, the most productive incumbent factories would grow until just below the threshold. These incumbent factories are the ones that would be most likely to benefit from de-reservation. Figure 3 shows the effect of de-reservation on changes in value of plant and machinery for incumbent factories broken down by their average, pre- de-reservation values of plant and machinery. Figure 3 suggests that incumbents just below the threshold were in fact constrained by the reservation policy, and increased their investment in plant and machinery after de-reservation. The investment by incumbents above the threshold also increased, in keeping with the increased employment and output among these grandfathered factories documented in Table 6.

To what extent do these differences by capital investment size hold if we measure size in terms of employment? To the extent that reservation policies protected small firms from natural attrition, we expect that de-reservation would have had a particularly strong negative impact on smaller, older firms. Furthermore, to the extent that there are complementarities between labor and capital, we would expect de-reservation to have had a positive effect on firms with a large labor force. In sum, we would expect de-reservation to reinforce the relationships between size, age, and growth that were observed in the first half of the paper.

To examine this issue, we interact the de-reservation variable in Equation 4 with a dummy for each factory size and age category. Size is measured as average employment size, as defined in Section 3. Figure 4, Panel (a) plots the coefficients on de-reservation for each size and age class, and shows that larger factories grow faster with de-reservation, while smaller factories shrink. This pattern holds across all age classes.

In Panels (b) and (c), we break down the effect for incumbents and entrants. For ease of interpretation, we interact the de-reservation variable with each size category, controlling for age, and vice-versa, rather than showing results for each size and age class independently. Panel (b) shows that among both incumbents and entrants, larger (smaller) factories grow faster (slower) with de-reservation. The relationship is strong and monotonic, and the standard errors are small. This evidence suggests that the de-reservation encouraged both large incumbents – factories that were likely grandfathered in but constrained not to increase production – as well as large entrants – those prevented from entering reserved product markets. Panel (c) shows that de-reservation particularly encouraged growth among young entrants. The results for incumbents are less clear, but suggest that the oldest and youngest factories may have shrunk the most.

Taken together, the findings suggest that the de-reservation policy reinforced the relationships between employment size, age and growth that were found in the first half of the paper. De-reservation increased the tendency of larger, younger factories to grow relative to smaller, older factories. The growth in employment was driven both by large entrants that moved into the previously reserved product space, as well as by large incumbents that were previously constrained to limit their output.

4.3 Potential Endogeneity of De-reservation Policy and Net Impact of SSI Reservation Policies on District Employment

One concern in the factory-level analyses is the potential endogeneity of the SSI reforms. Although the initial selection of products for reservation has been called "arbitrary", it is possible that products were strategically chosen for de-reservation as a function of the characteristics of factories manufacturing those products. Documents on the process from the Ministry of Micro, Small & Medium Enterprises indicate that products were de-reserved based on the recommendations of a special committee. Committee members were asked to consider a variety of factors when determining which products to de-reserve, including the labor intensity of production, the minimum economic scale of production, the export orientation of small factories manufacturing those items, and consumer interests.

The special committee produced a report identifying products for de-reservation. This report indicated a number of reasons for selecting the first set of products recommended for de-reservation, namely: feasibility of producing quality products given the threshold on investment; need for higher investment due to product innovation; safety and hygiene issues associated with certain products; export potential; resource utilization; and the creation of a "monopoly like situation" in certain product markets due to the Carry On Business licenses granted to large factories (Office of Development Commissioner, Ministry of Micro, Small, & Medium Enterprises, Government of India, 2007).

Our baseline specifications include factory fixed effects, which control for any time-invariant, factory-level characteristics that are correlated with de-reservation. However, the committee indicated that some products were selected for de-reservation based on recent changes in product innovation. Therefore, it is possible that the product markets for de-reserved items were changing in a systematically different way than the markets for non-de-reserved items.

Pre-Treatment Trends In Figure 5, we provide some evidence on the nature of pre-de-reservation trends. Panel (a) shows box plots of pre-de-reservation growth in employment for factories making reserved products, by year of de-reservation. As a comparison, it also shows box plots of growth in employment for factories making products that were never de-reserved, and other factories (those that never made a reserved or de-reserved product). Sampling multipliers are used to generate a representative sample at the product level. This figure shows that there is little evidence that the timing of de-reservation is correlated with pre-de-reservation *changes* in employment at the product level. Therefore, our DID regressions should mitigate any concern about the selection of larger factories into earlier de-reservation.

Panel (b) performs a similar exercise at the factory level. Here, we do not apply sampling weights, but rather show factories for which we observe at least two pre-de-reservation years.[13] As with the product level results, there is no evidence of a difference in pre-de-reservation trends in growth.

We might also be concerned that our differential results for entrants and incumbents are driven not by entrants growing due to de-reservation, but because the de-reservation policy simply attracted entrants that were already growing quickly. To investigate this possibility, Panels (c) and (d) show box-plots of pre-de-reservation levels and trends in factory-level employment, for entrants and incumbents. Employment levels are similar among incumbents and entrants, although incumbents exhibit a longer right tail. In contrast, incumbents exhibit a longer *left* tail of slow-growing (or shrinking) factories, relative to entrants, as shown in Panel (d). Nonetheless, these figures suggest that entrants and incumbents are fairly similar in terms of pre-de-reservation size and growth patterns. We find similar pre-treatment patterns for output, capital, and wage, both by year of de-reservation, and for entrants versus incumbents.

Long Differences Another way to mitigate concerns about the exact timing of de-reservation is to consider long differences. We therefore regress the change in the dependent variable for a given number of lags (ranging from 1 year to 5 years) on the change in reservation status. We do not include factory fixed effects in this case. This specification also reduces potential noise in year-to-year changes in factory characteristics.

---

13 Note that in this case, we are able to include factories making product de-reserved in 2001, as we can observe those factories in 1998 and 1999, although we do not have a complete list of the products they made in those years.

Table 7 presents results. We show only the results for employment and wages here, but results for other outcomes also confirm our previous findings. The effect of de-reservation remains robust: we observe an increase in labor among new entrants and an increase in wages across both entrants and incumbents, with a larger effect among new entrants. The fact that the size of the effect increases with longer lags suggests that the effects of de-reservation on both incumbents and entrants grow over time. 14

District-Level Effects of De-reservation Policy Finally we examine the effects of the de-reservation policy at the district level using the pre-treatment allocation of reserved and non-reserved products. For each of the 353 districts in India that have at least 10 factories reported in the ASI for each year in our sample, we construct a measure of exposure to de-reservation as follows:

$$FrDeres_{dt} = \frac{\sum_p (Employment2000_{dp} X Deres_{pt})}{TotalEmployment2000_d}$$

$FrDeres_{dt}$, the fraction of employment exposed to de-reservation, is calculated as the sum over all products *p* of employment associated with that product in district *d* in 2000, multiplied by a dummy variable indicating whether the product was de-reserved, and divided by total district-level employment in 2000. We allocate each factory's employment to its various products based on output shares.

14 One limitation of the long-difference factory-level results is that as they are necessarily skewed towards larger factories, since these factories are more likely to be observed for any given lag, and to survive for longer periods of time. This concern is not an issue for the district-level analysis below, since we use all observed factories in any given year, and limit our sample to a balanced panel of districts. In unreported results available from the authors we calculated the mean and median employment levels among factories in each of the long difference regressions. We find that the average employment size of factories in the lagged regressions is substantially larger than the average employment size of factories in the baseline regressions. However, there are only small differences in size as we increase the lag length. Therefore, the observed increase in effects with longer lags is likely due to the increasing effect of the policy over time, rather than a selection effect.

Our measure of exposure to de-reservation is similar to that used by Topalova (2010) to study the impact of tariff liberalization on Indian districts. It exploits the fact that the de-reservation policy was implemented at a national level and varied across products, but calculates each district's exposure based on beginning-of-period product mix. Therefore, it avoids any changes in a district's product mix that may have been induced by the de-reservation policy. At the same time, it uses geographic variation in exposure to de-reservation, which is less likely to have influenced the special committee's decisions than product-level characteristics. Figure 6, Panel (a) shows the fraction of employment in each district that was associated with reserved products in 2000. Panel (b) shows the extent to which products were subsequently de-reserved by 2007, weighting each de-reserved product by its labor share in 2000.[15]

We estimate the following DID model at the district level:

$$y_{dt} = \alpha_d + \alpha_t + \beta FrDeres_{dp} + \mu_{dt} \qquad (3)$$

The left hand side variable, y_{dt} is alternatively the log of employment, output, capital, or wages. We calculate these variables at the district level by aggregating the factory-level variables, inflated by their sampling weights.

Table 8, Panel (a) shows the baseline DID results. The point estimates show a positive relationship between de-reservation and factory employment, output, capital and wages, although the results are only statistically significant for employment. The point estimate for employment suggests that the impact of de-reservation at the district level was large and significant in magnitude. The coefficient, at 0.282, suggests that a district which would have gone from 100 percent of employment covered by small scale reservation policies to 0 would have increased

15 If a factory produces more than one product (reserved or not), we allocate labor force to products in proportion to their contribution to total output value.

employment by approximately 30 percent. In the data, the average change in the fraction of de-reserved employment was 0.092, indicating an increase in employment on average across India due to dismantling the small scale reservation policies of nearly 3 percent.

Panel (b) confirms that the effect of de-reservation on district-level employment remains positive and statistically significant when using long-differences between 2000 and 2007. The magnitude of the coefficient increases relative to the fixed effects year by year results. The point estimate, at 0.692, suggests that the average change in the fraction of de-reserved employment (0.092) is associated with a 6% increase in district-level employment. In Panel (c), we find that the effect of de-reservation on employment appears to increase over time. In Panels (b) and (d), there is also some evidence that output and wages are positively affected, although the results are often indistinguishable from zero.

5. Concluding Comments

For the past 60 years, India has promoted small-scale industries, including a cornerstone policy of reserving production of some goods to smaller enterprises. The stated goals of the reservation policy included promoting employment growth and income redistribution, but some commentators have argued that the policy constrained growth. In this paper, we examined whether smaller Indian factories contributed more to job growth than other manufacturing enterprises. We then measured whether the SSI reservation policy fulfilled the expectations of either its supporters or its detractors, by promoting employment or constraining growth.

Our results in the first half of the paper suggest that Indian factories have behaved in a similar fashion to U.S. enterprises. If size is measured using the average measure as defined by Haltiwanger et al (2013), we find that larger factories in India exhibited higher employment growth and created more jobs than smaller factories. As in the United States, the importance of small-scale is eclipsed by the importance of youth.

India’s reforms allow us to use changes in product reservation policies to measure the importance of size in employment promotion. India eliminated small-scale reservations for more than half of all reserved products between 1997 and 2007. We find that districts that were more exposed to the de-reservation policy experienced higher employment growth between 2000 and 2007. The magnitude of the effect is large: between 2000 and 2007 a district facing the average amount of de-reservation would have experienced a 3-6% increase in overall employment.

To explore the mechanisms through which these changes might have occurred, we examine the effects of the de-reservation policy on incumbent versus entrant factories within those markets. Consistent with the reservation policy’s stated goal of protecting employment in small factories, we find that the de-reservation decreased employment among smaller, older factories. Also consistent with the claim that reservation was holding back the growth of larger factories, we find that de-reservation led to the entry and expansion of output, employment, and investment among new entrants to the previously reserved product space, particularly those factories that were previously constrained from entering by their existing stock of fixed assets. These findings could be interpreted through the lens of the heterogeneous firms literature (Melitz, 2003); as de-reservation increases competition in a product market, large factories increase their market shares at the expense of small factories.

How well did the reservation policy achieve its goals? Our findings suggest that while small scale reservations may have protected employment in certain small factories, it did so at the expense of employment in other factories. With respect to the goal of income enhancement, there is significant evidence that de-reservation increases average wages, but it is not clear whether this effect is due to entrants paying higher wages to existing workers, or to a shift towards a higher-skilled workforce. Our district-level results suggest that the removal of small-scale reservations *increased* overall employment by encouraging the growth of younger, larger factories – those that are most likely to pay higher wages, create more investment, and generate growth of employment.

References

Bigsten, Arne and Mulu Gebreeyesus, "The Small, the Young, and the Productive: Determinants of Manufacturing Firm Growth in Ethiopia," Economic Development and Cultural Change, 2007, 55, 813-840.

Das, Sanghamitra, "Size, age and firm growth in an infant industry: The computer hardware industry in India," International Journal of Industrial Organization, 1995, 13, 111-126.

Banerjee, Abhijit and Esther Duflo, "Do Firms Want to Borrow More? Testing Credit Constraints Using a Directed Lending Program," Working Paper, June 2, 2012.

Bernard, Andrew B., Renzo Massari, Jose-Daniel Reyes, and Daria Taglioni, "Exporter Dynamics, Firm Size and Growth, and Partial Year Effects," NBER Working Paper 19865, January 2014.

Das, Sanghamitra, "Size, Age and Firm Growth in an Infant Industry: Computer Hardware Industry in India," International Journal of Industrial Organization 1995, 13: 111-126.

Davis, Steven J., John Haltiwanger, and Scott Schuh, Job Creation and Destruction, Cambridge, MA: MIT Press, 1996.

Dunne, Timothy, Mark J. Roberts, and Larry Samuelson, "The Growth and Failure of U.S. Manufacturing Plants," Quarterly Journal of Economics, 1989, 104 (4), 671-698.

Eckel, Carsten and J. Peter Neary, "Multi-Product Firms and Flexible Manufacturing in the Global Economy," The Review of Economic Studies, 2010, 77, 188-217.

Evans, David S., "The Relationship Between Firm Growth, Size, and Age: Estimates for 100 Manufacturing Industries," The Journal of Industrial Economics, June 1987a, 35 (4), 567-581.

Evans, David S., "Tests of Alternative Theories of Firm Growth," The Journal of Political Economy, August 1987b, 95 (4), 657-674.

Gunning, Jan William and Taye Mengistae, "Determinants of African Manufacturing Investment: The Microeconomic Evidence," Journal of African Economies, 2001, 10, 48-80.

Hall, Bronwyn H., "The Relationship Between Firm Size and Firm Growth in the US Manufacturing Sector," The Journal of Industrial Economics, June 1987, 35 (4), 583-606.

Haltiwanger, John C., Ron S. Jarmin, and Javier Miranda, "Who Creates Jobs? Small vs. Large vs. Young," Review of Economics and Statistics, 2013, 45(2), 347-361.

Harding, Alan, Mans Soderbom, and Francis Teal, "Survival and Success among African Manufacturing Firms," February 2004. CSAE Working Paper 2004/05, Centre for the Study of African Economies, Oxford University.

Hussain, Abid, Report of the Expert Committee on Small Enterprises, January 27, 1997.

Mazumdar, Dipak and Sandip Sarkar, Globalization, Labor Markets and Inequality in India, New York: Routledge, 2008.

Mead, Donald C. and Carl Liedholm, "The Dynamics of Micro and Small Enterprises in Developing Countries," World Development, 1998, 26, 61-74.

Melitz, Marc J., "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity," Econometrica, 2003, 71 (6), 1695-1725.

Mohan, Rakesh, "Small-Scale Industry Policy in India: A Critical Evaluation," in Anne O. Krueger, ed., Economic Policy Reforms and the Indian Economy, Chicago and London: The University of Chicago Press, 2002, pp. 213-302.

Neumark, David, Brandon Wall, and Junfu Zhang, "Do Small Businesses Create More Jobs? New Evidence for the United States from the National Establishment Time Series", The Review of Economics and Statistics, February 2011, 93 (10): 16-29.

Office of Development Commissioner, Ministry of Micro, Small, & Medium Enterprises, Government of India, Review of the List of Items Reserved for Manufacture in the Small Scale Sector, 2007.

Panagariya, Arvind, India: The Emerging Giant, New York: Oxford University Press, 2008.

Shanmugam, K.R. and Saumitra N. Bhaduri, "Size, age and growth in the Indian manufacturing sector," Applied Economic Letters, 2002, 9, 607-613.

Sleuwaegen, Leo and Micheline Goedhuys, "Growth of firms in developing countries, evidence from Cote d'Ivoire," Journal of Development Economics, 2002, 68 (1), 117-135.

Sutton, John, "Gibrat's Legacy," Journal of Economic Literature, March 1997, 35 (1), 40-59.

Teal, Francis, "The Ghanaian Manufacturing Sector 1991—1995: Firm Growth, Productivity and Convergence," June 1998. CSAE Working Paper 98/17, Centre for the Study of African Economies, Oxford University.

Topalova, Petia, "Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India," American Economic Journal: Applied Economics, 2010, 2, 1-41.

UNCTAD, The Least Developed Countries Report 2006, New York and Geneva: United Nations Conference on Trade and Development, 2006.

Van Biesebroeck, Johannes, "Firm Size Matters: Growth and Productivity Growth in African Manufacturing," Economic Development and Cultural Change, March 2005, 53 (3), 545-584.

Table 1: Small-Scale Industry Product Reservations

Year	Total Number of Products Reserved	Number of Additional Products De-reserved
1967	47	
1970	55	
1974	177	
1978	806	
1980	833	
1983	872	
1986	863	
1996	1051	
1997	1036	15
1998	1036	0
1999	1027	9
2000	1027	0
2001	1012	15
2002	961	51
2003	886	75
2004	801	85
2005	693	108
2006	506	187
2007	400	106

Note: Data for 1967 through 1986 taken from Table 6.3 in Mohan (2002). Data for 1996 onwards taken from various publications of the Government of India, Ministry of Micro, Small, & Medium Enterprises.

Table 2: Summary Statistics for ASI Manufacturing Firms by Participation in Reserved Product Market

	Manufacturing Reserved Product				Manufacturing De-reserved Product				Not manufacturing Ever-reserved products			
year	Labor (000s)	Age (mean)	Factories		Labor (000s)	Age (mean)	Factories		Labor (000s)	Age (mean)	Factories	
2000	1093	16.6	7,364	24%	71	17.2	1,306	4%	3,374	19.3	21,447	71%
2001	1025	16.9	7,405	23%	233	13.9	2,334	7%	3,300	19.0	22,300	70%
2002	1072	17.0	7,707	24%	269	14.7	2,713	8%	3,307	19.5	21,769	68%
2003	1024	16.8	9,553	22%	463	15.7	4,001	9%	3,549	18.6	29,698	69%
2004	856	17.2	7,666	20%	537	15.8	4,361	12%	3,411	18.9	25,406	68%
2005	768	17.2	7,390	18%	732	15.6	5,502	14%	3,679	17.8	27,855	68%
2006	645	16.2	6,690	17%	850	15.2	5,960	15%	3,905	17.2	27,365	68%
2007	445	18.0	3,607	10%	1,015	15.3	6,968	20%	4,095	17.4	24,357	70%

Notes: Summary statistics for all factories are authors' calculations based on ASI data. No sampling multipliers applied. Labor is total for each group-year, in thousands. Age represents mean value for each group-year.

Table 3: Relationship Between Factory Size, Age and Growth

Panel (a) Base-Year Size and Age

	(1) Baseline	(2) Baseline	(3) Multipliers
ln Base-Year Size	-0.086	-0.096	-0.16
	(0.0036)***	(0.0038)***	(0.0065)***
ln Base-Year Size Sq.	0.0064	0.0077	0.016
	(0.00038)***	(0.00040)***	(0.00075)***
ln Base-Year Age		-0.052	-0.045
		(0.0038)***	(0.0058)***
ln Base-Year Age Sq.		0.0042	0.0032
		(0.00068)***	(0.0010)***
ln Base-Year Size x		0.0013	-0.00022
ln Base-Year Age		(0.00066)*	(0.0010)
Multiplant	-0.030	-0.013	-0.0074
	(0.0040)***	(0.0039)***	(0.0043)*
Urban	-0.037	-0.020	-0.027
	(0.0019)***	(0.0019)***	(0.0029)***
Govt Ownership	-0.029	-0.021***	-0.027
	(0.0035)***	(0.0033)	(0.0061)***
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	179738	174960	174960
R^2	0.025	0.029	0.038

Panel (b) Average Size and Age, Correcting for Exit

	(1) Corrected	(2) Corrected	(3) Multipliers	(4) Census
ln Avg Size	0.18	0.21	0.25	0.19
	(0.0048)***	(0.0051)***	(0.0081)***	(0.0087)***
ln Avg Size Sq.	-0.017	-0.014	-0.017	-0.012
	(0.00055)***	(0.00052)***	(0.00081)***	(0.00086)***
ln Avg Age		-0.10	-0.083	-0.14
		(0.0058)***	(0.010)***	(0.0080)***
ln Avg Age Sq.		0.024	0.024	0.025
		(0.00090)***	(0.0014)***	(0.0012)***
ln Avg Size x		-0.011	-0.016	-0.0064
ln Avg Age		(0.00100)***	(0.0017)***	(0.0016)***
Multiplant	-0.030	0.023	0.0018	0.054
	(0.0050)***	(0.0049)***	(0.0051)	(0.0058)***
Urban	-0.020	0.025	0.040	0.0056
	(0.0030)***	(0.0026)***	(0.0041)***	(0.0042)
Govt Ownership	-0.095	-0.079	-0.095	-0.070
	(0.0063)***	(0.0059)***	(0.0086)***	(0.0072)***
Observations	209755	205290	205279	90568
R^2	0.026	0.053	0.067	0.058

Notes: Dependent variable is percent change in factory employment size (i.e., factory growth). “Baseline” specifications include continuing factories with no sampling weights. “Corrected” indicates that we correct for factory entry and exit. “Multipliers” indicates that sampling weights are applied. “Census” indicates that only factories in the Census sector are included. Panel (a) shows results for base-year size and age, while Panel (b) shows results for average size and age, as described in the text, and corrects for exit. Multiplant is a dummy variable equal to 1 if the firm reported more than one factory in the survey. Urban and Govt Ownership are dummy variables equal to 1 if the factory is located in an urban area or reports any government ownership. Standard errors are clustered at the factory level. *, ** and *** represent significant at the 10%, 5% and 1% levels respectively.

Table 4: Net Job Creation Rates by Factory Size

Size Class (employees)	(1) Net Job Creation	(2) Total Employment	(3) Net Job Creation/ Total Employment	(4) Net Job Creation Rate
		Panel (a): Base-Year Factory Size		
0-4	4,241	28,044	15.1%	16.3%
5-9	6,829	72,166	9.5%	9.1%
10-19	12,540	174,977	7.2%	6.7%
20-49	27,369	381,417	7.2%	6.8%
50-99	28,549	471,994	6.0%	5.8%
100-249	48,697	1,019,122	4.8%	4.4%
250-499	25,840	931,854	2.8%	2.6%
500+	-30,980	2,674,773	-1.2%	-1.1%
		Panel (b): Average Factory Size		
0-4	-1,231	8,739	-14.1%	-16.0%
5-9	-3,814	59,779	-6.4%	-6.9%
10-19	-2,883	187,056	-1.5%	-1.8%
20-49	12	420,305	0.0%	-0.1%
50-99	5,920	513,907	1.2%	1.0%
100-249	21,699	1,108,917	2.0%	1.8%
250-499	37,357	1,181,770	3.2%	2.9%
500+	59,725	3,364,316	1.8%	1.5%

Notes: Net job creation is gross job creation minus gross job description, averaged across 2000-2007. Total employment is also averaged across 2000-2007. Column (3) shows the ratio of net job creation to total employment, averaged across all years. Column (4) shows net job creation rates for each factory, averaging by size category, then averaging across sample years. Linear interpolations are used for factories not sampled every year. Panel (a) shows results where factory size is defined using base-year, while Panel (b) shows results where factory size is defined using average size, as described in the text. Analysis restricted to factories that appear at least twice between 1998-2009.

Table 5: Impact of De-reservation on Factory-Level Outcomes

Panel (a): Aggregate Results

	log(Labor)	log(Output)	log(Capital)	log(Wage)
t ≥ year de-reserved	0.000	0.006	0.005	0.018
	(0.008)	(0.012)	(0.010)	(0.005)***
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
R^2	0.01	0.02	0.01	0.03
N	290,724	248,897	288,318	288,526

Panel (b): Incumbents versus Entrants

	log(Labor)	log(Output)	log(Capital)	log(Wage)
Incumbent X	-0.015	-0.007	-0.013	0.008
t ≥ year de-reserved	(0.009)	(0.012)	(0.011)	(0.005)
Entrant X	0.076	0.081	0.100	0.068
t ≥ year de-reserved	(0.018)***	(0.031)***	(0.025)***	(0.013)***
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
R^2	0.01	0.02	0.01	0.03
N	290,724	248,897	288,318	288,526

Notes: "t ≥ year deserved" is a dummy variable that takes the value of 1 when the product is removed from the list of reserved products. "Incumbent" indicates that the factory previously made the product when it had reserved status. "Entrant" indicates that the factory only made the product after it had been de-reserved. Errors are clustered at the factory level. *, ** and *** represent significant at the 10%, 5% and 1% levels respectively.

Table 6: Impact of De-reservation on Factory-Level Outcomes – By Value of Plant and Machinery

Panel (a): Aggregate impact

	log(Labor)	log(Output)	log(Capital)	log(Wage)
Within SSI cap X t ≥ year de-reserved	-0.039 (0.010)***	-0.030 (0.014)**	-0.006 (0.013)	0.012 (0.006)*
Above SSI cap X t ≥ year de-reserved	0.060 (0.014)***	0.072 (0.019)***	0.035 (0.016)**	0.028 (0.008)**
Age group controls	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
R^2	0.02	0.03	0.01	0.05
N	290,724	248,897	288,318	288,526

Panel (b): Incumbents versus Entrants

	log(Labor)	log(Output)	log(Capital)	log(Wage)
Incumbent X Within SSI cap X t ≥ year de-reserved	-0.053 (0.011)***	-0.043 (0.015)***	-0.028 (0.014)**	-0.002 (0.006)
Entrant X Within SSI cap X t ≥ year de-reserved	0.039 (0.022)*	0.060 (0.042)	0.117 (0.033)***	0.088 (0.018)***
Incumbent X Above SSI cap X t ≥ year de-reserved	0.050 (0.016)***	0.064 (0.021)***	0.025 (0.018)	0.030 (0.009)***
Entrant X Above SSI cap X t ≥ year de-reserved	0.111 (0.028)***	0.110 (0.044)**	0.082 (0.038)**	0.021 (0.018)
Age group controls	yes	yes	yes	yes
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
R^2	0.02	0.03	0.01	0.05
N	290,724	248,897	288,318	288,526

Notes: "Within/above SSI cap" refers to a firm's average estimated value of plant and machinery in years pre- de-reservation exceeding 10 million rupees. "Incumbent" indicates that the factory previously made the product when it had reserved status. "Entrant" indicates that the factory only made the product after it had been de-reserved. The label "t ≥ year deserved" is a dummy variable that takes the value of 1 when the product is removed from the list of reserved products. Errors clustered at the firm level. *, ** and *** represent significant at the 10%, 5% and 1% levels respectively.

Table 7: Impact of De-reservation on Factory-Level Outcomes – Long Differences

Panel (a): Labor, Aggregate Impact

	1 lag	2 lags	3 lags	4 lags	5 lags
t ≥ year de-reserved	0.003	-0.002	0.027	0.010	0.028
	(0.008)	(0.009)	(0.010)***	(0.012)	(0.015)*
N	121,867	95,318	72,394	50,923	33,825

Panel (b): Labor, Incumbents versus Entrants

	1 lag	2 lags	3 lags	4 lags	5 lags
Incumbent X	0.000	-0.012	0.021	0.002	0.015
t ≥ year de-reserved	(0.009)	(0.010)	(0.011)*	(0.013)	(0.016)
Entrant X	0.023	0.054	0.060	0.056	0.096
t ≥ year de-reserved	(0.019)	(0.019)***	(0.023)***	(0.027)**	(0.031)***
N	121,867	95,318	72,394	50,923	33,825

Panel (c): Wage, Aggregate Impact

	1 lag	2 lags	3 lags	4 lags	5 lags
t ≥ year de-reserved	0.004	0.015	0.023	0.038	0.050
	(0.005)	(0.006)**	(0.006)***	(0.007)***	(0.008)***
N	121,599	95,012	72,125	50,726	33,693

Panel (d): Wage, Incumbents versus Entrants

	1 lag	2 lags	3 lags	4 lags	5 lags
Incumbent X	-0.003	0.008	0.017	0.032	0.043
t ≥ year de-reserved	(0.006)	(0.006)	(0.007)***	(0.008)***	(0.009)***
Entrant X	0.053	0.058	0.055	0.073	0.085
t ≥ year de-reserved	(0.016)***	(0.015)***	(0.017)***	(0.020)***	(0.022)***
N	121,599	95,012	72,125	50,726	33,693

Notes: The dependent variable is the difference between labor (Panels (a) and (b)) or wage (Panels (c) and (d)) in year t and year t-k where k is 1-5 (Columns (1)-(5), respectively). The right hand side variables are also differenced by the appropriate lag k. Errors clustered at the firm level. *, ** and *** represent significant at the 10%, 5% and 1% levels respectively.

Table 8: Impact of De-reservation on District-Level Outcomes

Panel (a): Within-District Effects

	log(Labor)	log(Output)	log(Capital)	log(Wage)
Fraction de-reserved	0.282	0.162	0.043	0.075
	(0.141)**	(0.166)	(0.222)	(0.071)
District FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
R^2	0.09	0.22	0.15	0.01
N	2,824	2,824	2,824	2,824
N cluster	353	353	353	353

Panel (b): Long Differences, 2000 to 2007

	Δ log(Labor)	Δ log(Output)	Δ log(Capital)	Δ log(Wage)
Δ Fraction de-reserved	0.692	0.428	0.383	0.153
	(0.236)***	(0.242)*	(0.365)	(0.125)
R^2	0.03	0.01	0.00	0.00
N	353	353	353	353

Panel (c): Labor, Variable Lags

	1 lag	2 lags	3 lags	4 lags	5 lags
Fraction de-reserved	0.006	0.028	0.244	0.398	0.602
	(0.121)	(0.121)	(0.119)**	(0.173)**	(0.256)**
N	0.00	0.00	0.00	0.01	0.01

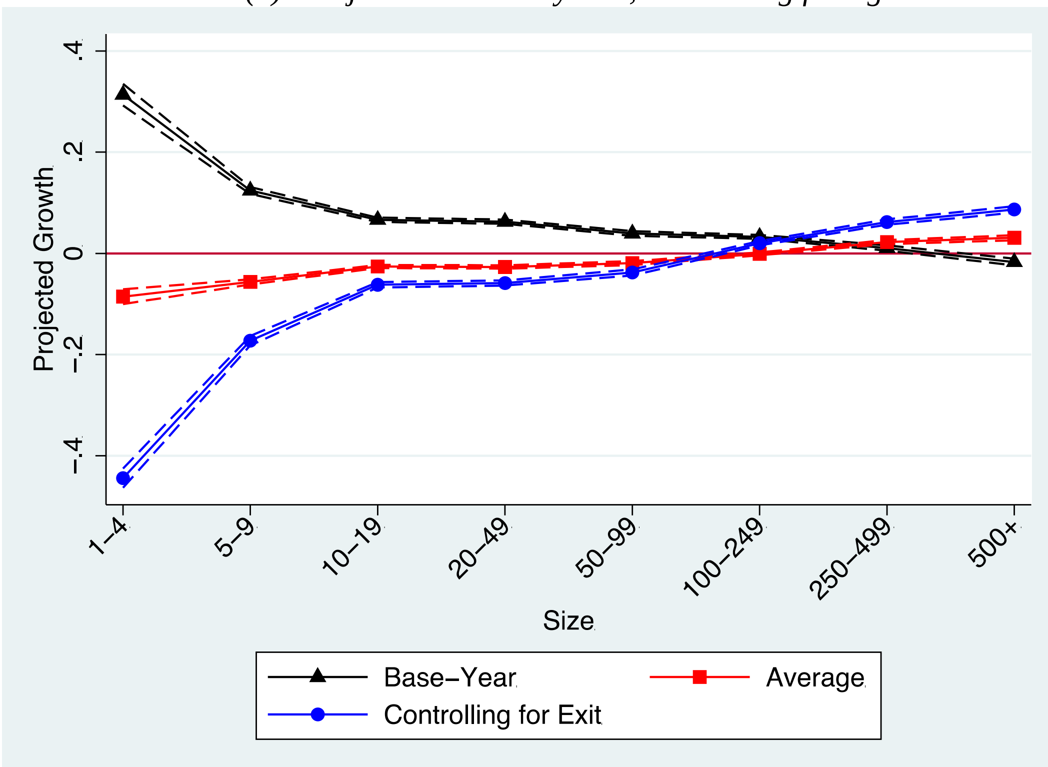
Panel (d): Wage, Variable Lags

	1 lag	2 lags	3 lags	4 lags	5 lags
Fraction de-reserved	0.165	0.086	0.034	0.144	0.172
	(0.050)***	(0.061)	(0.082)	(0.086)*	(0.127)
N	0.00	0.00	0.00	0.01	0.01

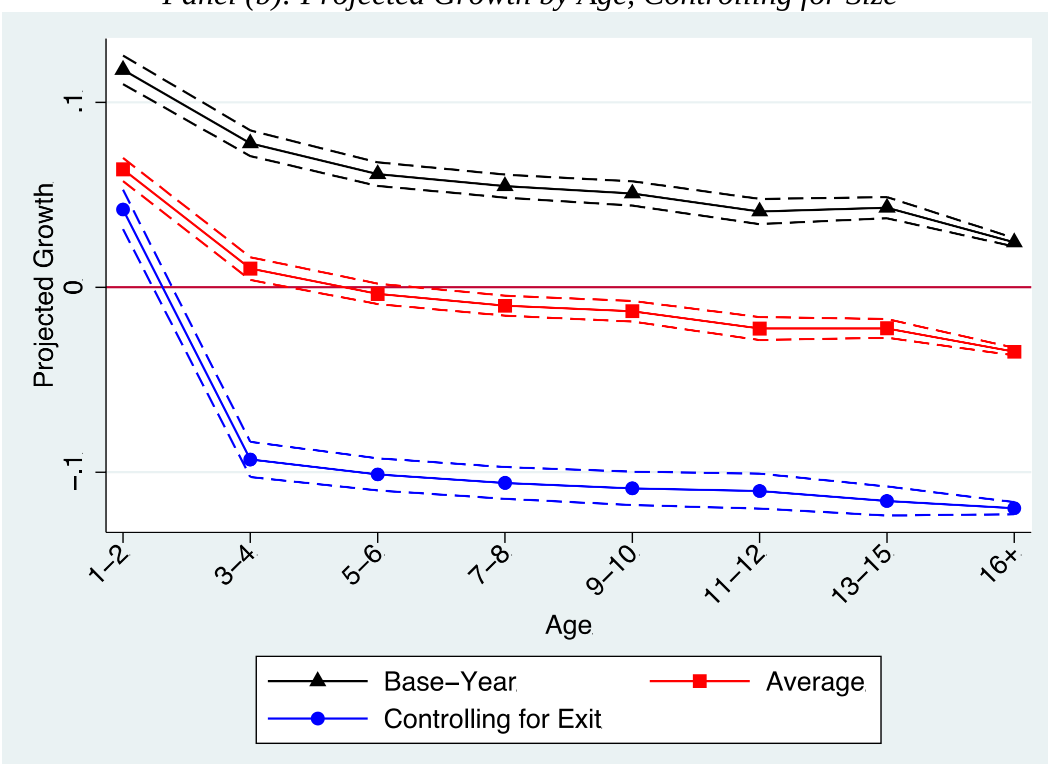
Notes: Panel (a) shows fixed effects regressions of dependent variables (shown in column headings) on fraction of employment in a district in 2000 that was subsequently associated with product de-reservation. Panel (b) shows long-difference regressions of changes in dependent variables (shown in column headings) from 2000-2007 on fraction of employment in a district in 2000 that was subsequently associated with product de-reservation. Panels (c) and (d) show regressions of changes in labor and wage, respectively, at lagged intervals from 1-5 years. Regressions use all districts that, after applying weights, have at least 10 factories in each ASI year. Standard errors are clustered at the district level. *, ** and *** represent significant at the 10%, 5% and 1% levels respectively.

Figure 1: Factory Size, Age, and Growth

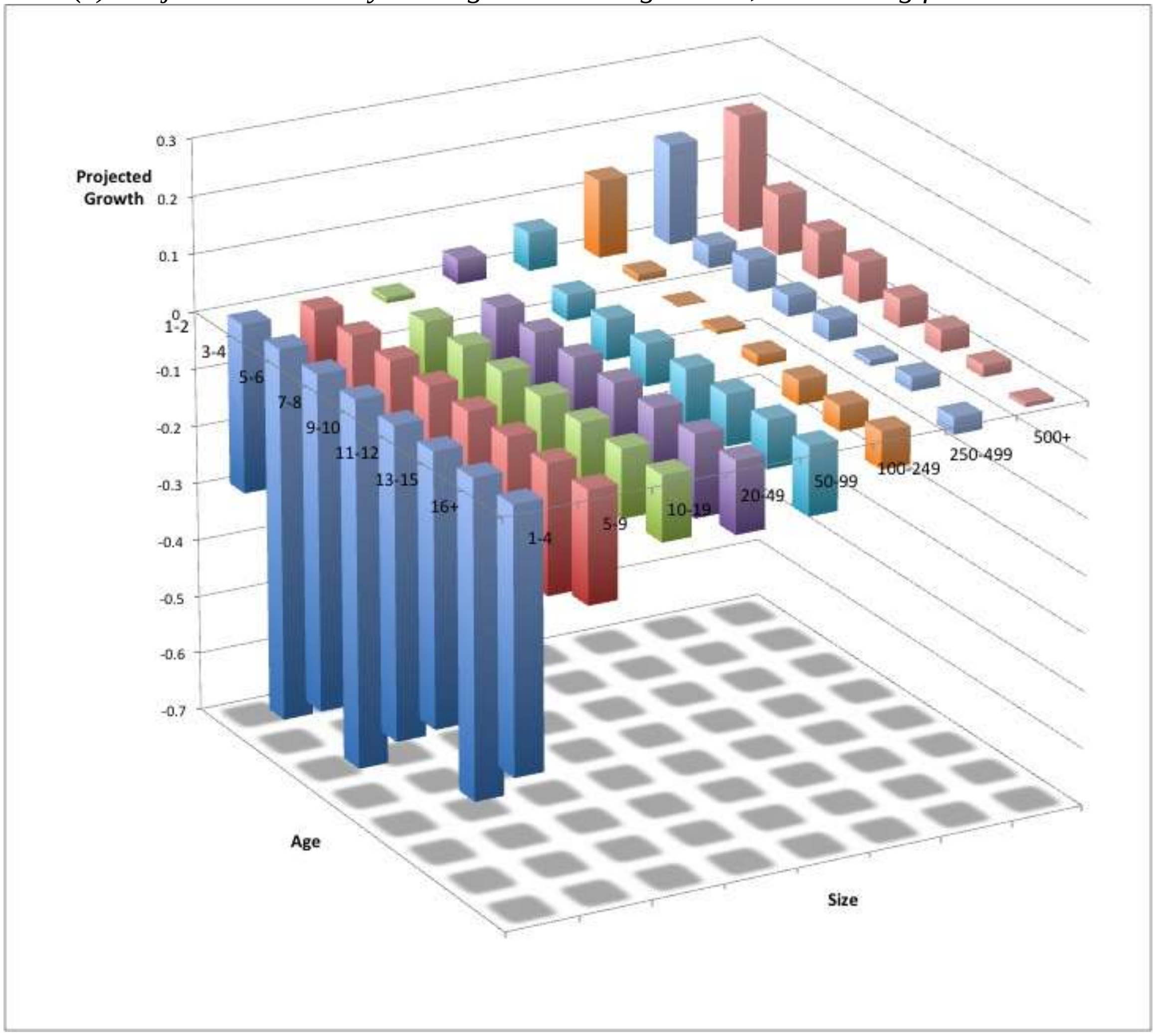
Panel (a): Projected Growth by Size, Controlling for Age



Panel (b): Projected Growth by Age, Controlling for Size

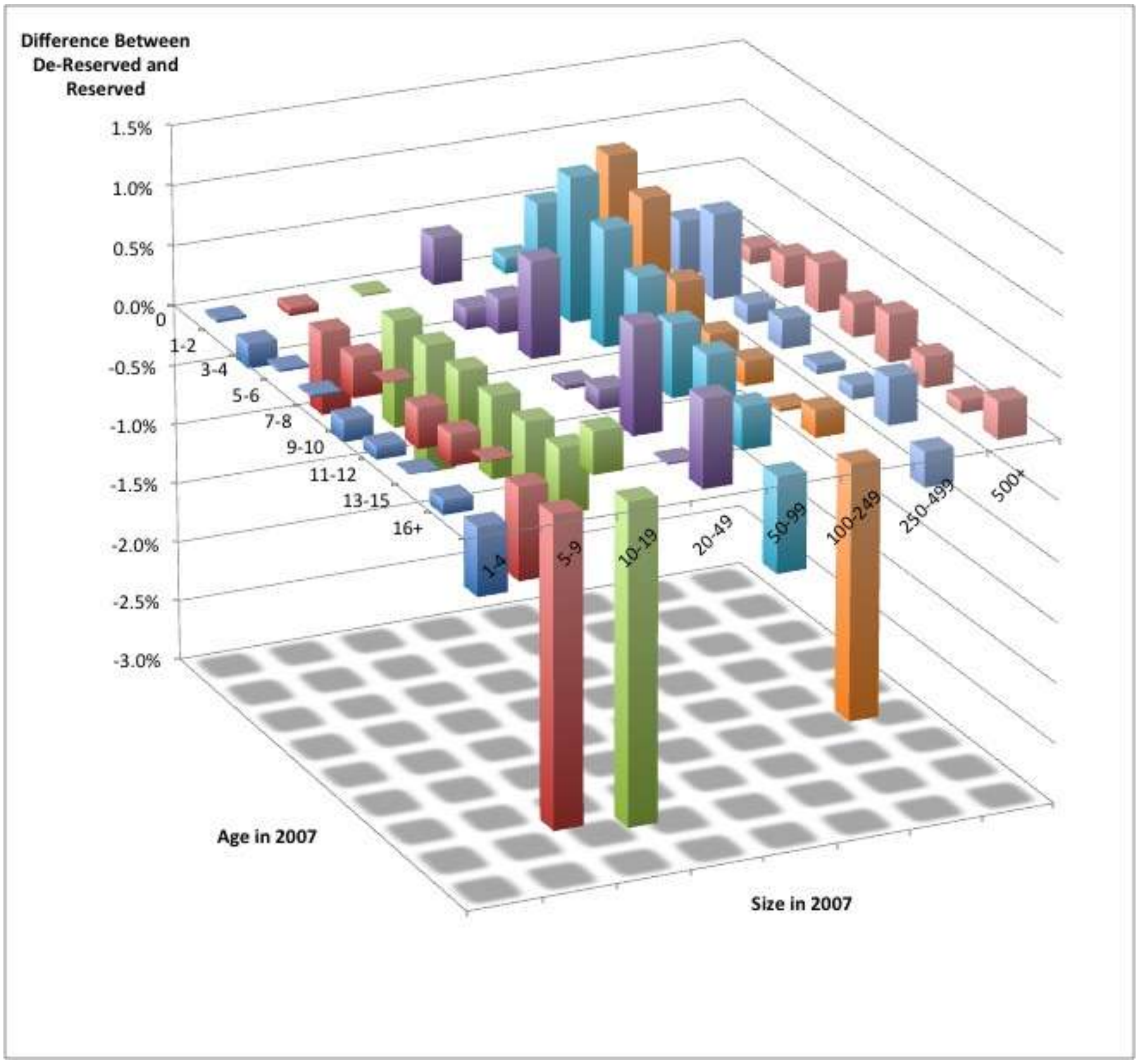


(c) Projected Growth by Average Size and Age Class, Controlling for Exit



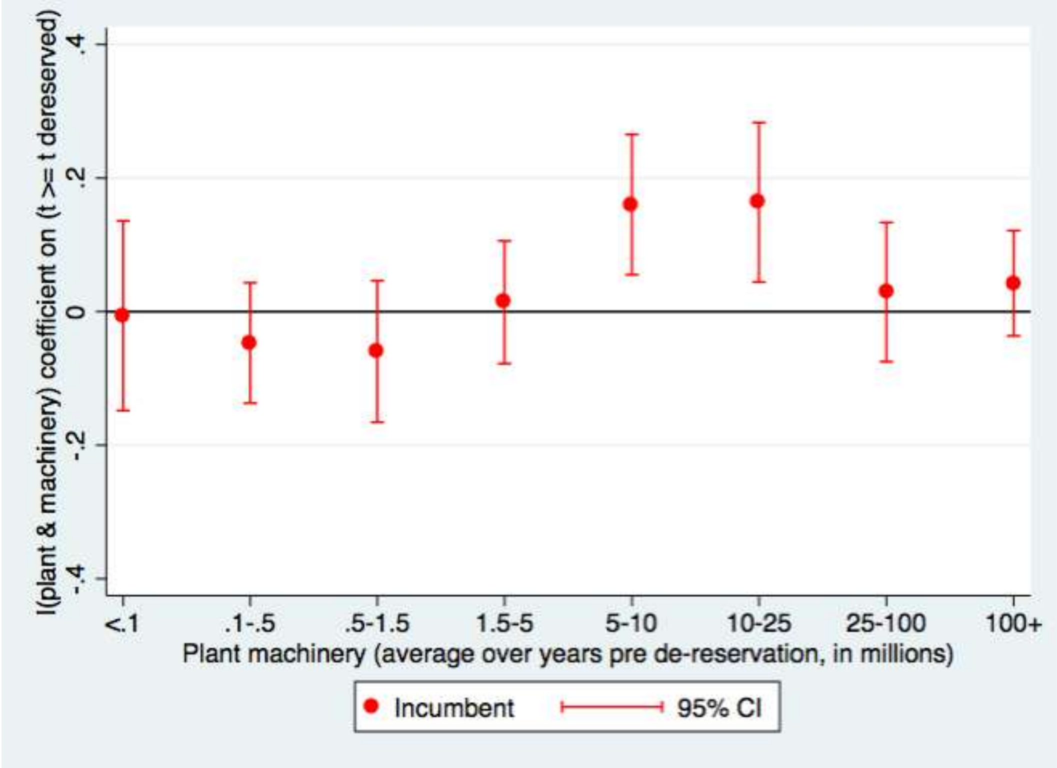
Notes: Panels (a) and (b) show projected factory employment growth rates by size (controlling for age) and age (controlling for size), respectively. “Base-Year” and “Average” indicate that only continuing factories are included, with size and age are measured as defined in the text. “Controlling for exit” indicates that average size and age are used, and entry and exit are addressed as discussed in the text. Panel (c) shows projected factory employment growth rates for each size and age class, using average size and age and controlling for exit.

Figure 2: Difference in Size-Age Distribution Among Factories Making Reserved Versus De-Reserved Products



Notes: Share of factories making de-reserved products in each size and age class in 2007, minus share of factories making reserved products in each size and age class in 2007. Positive (negative) values indicate that factories making de-reserved products are more (less) likely to be in a particular size and age class.

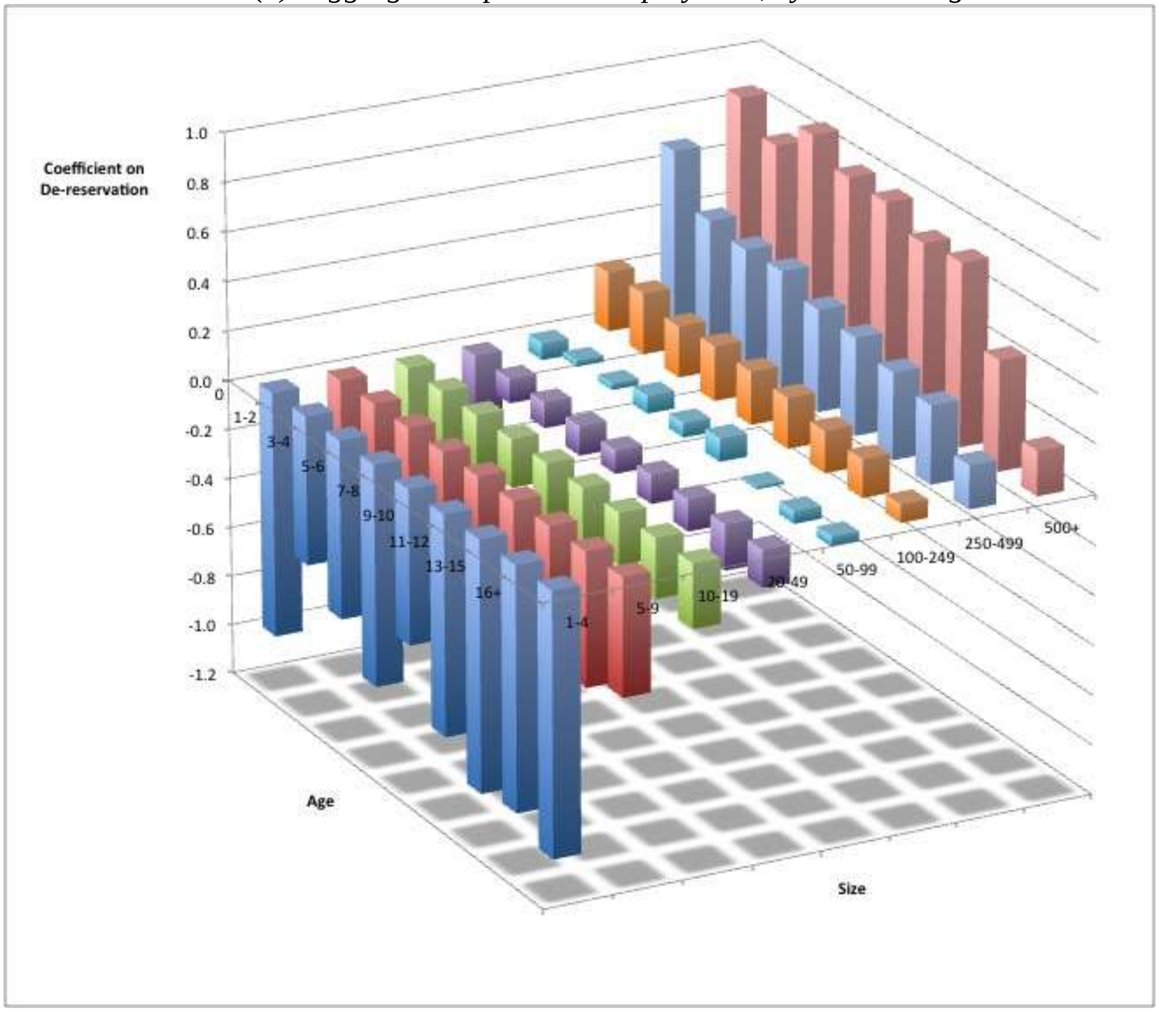
Figure 3: Impact of De-reservation on Incumbent Factories Near the Investment Threshold



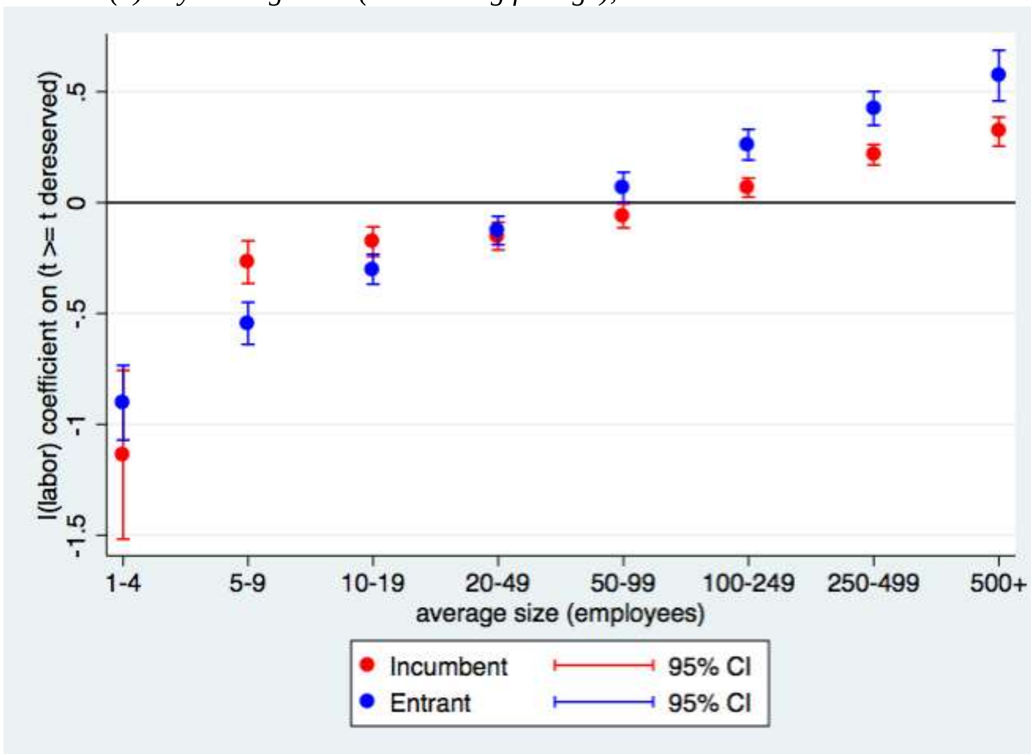
Notes: Coefficients from a regression of log of plant and machinery value on de-reservation, for incumbents to the product space. Manufacturing firms with historical investment in plant and machinery up to Rs. 10 million could be considered small-scale industries.

Figure 4: Impact of De-reservation on Employment – By Employment Size and Age

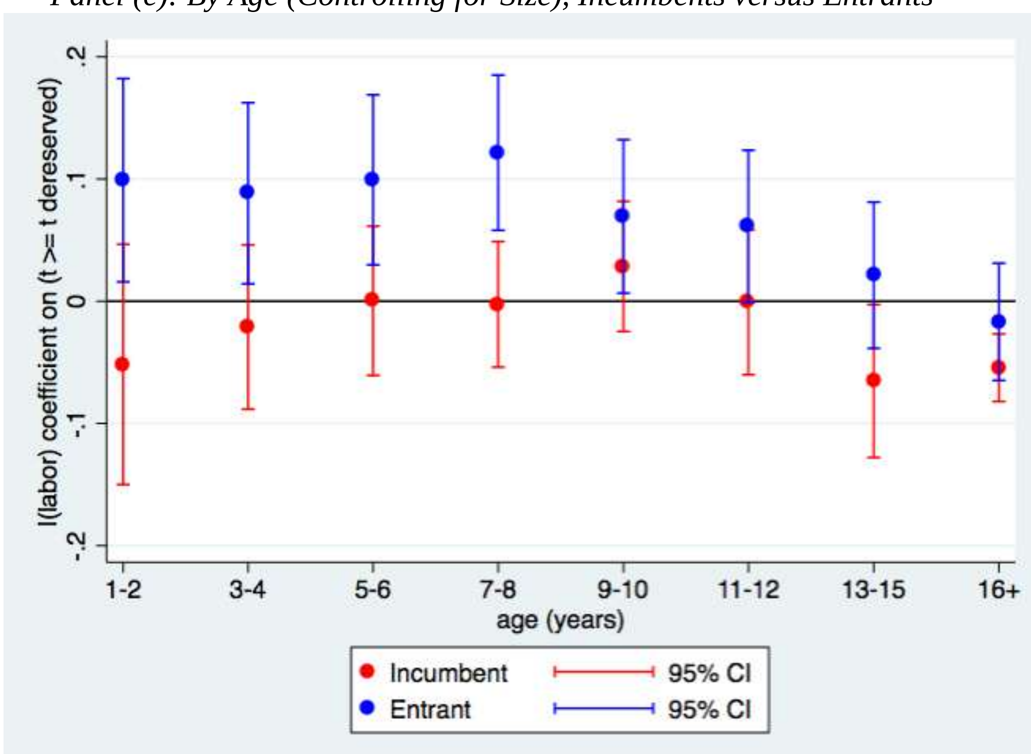
Panel (a): Aggregate Impacts on Employment, by Size and Age



Panel (b): By Average Size (Controlling for Age), Incumbents versus Entrants



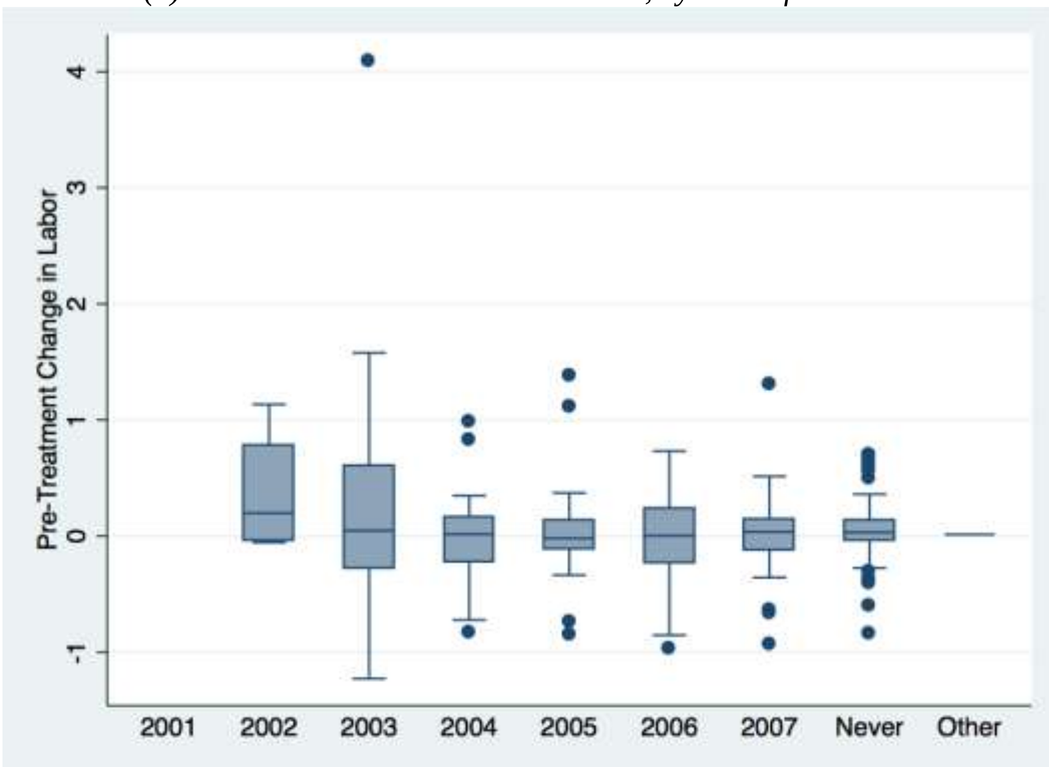
Panel (c): By Age (Controlling for Size), Incumbents versus Entrants



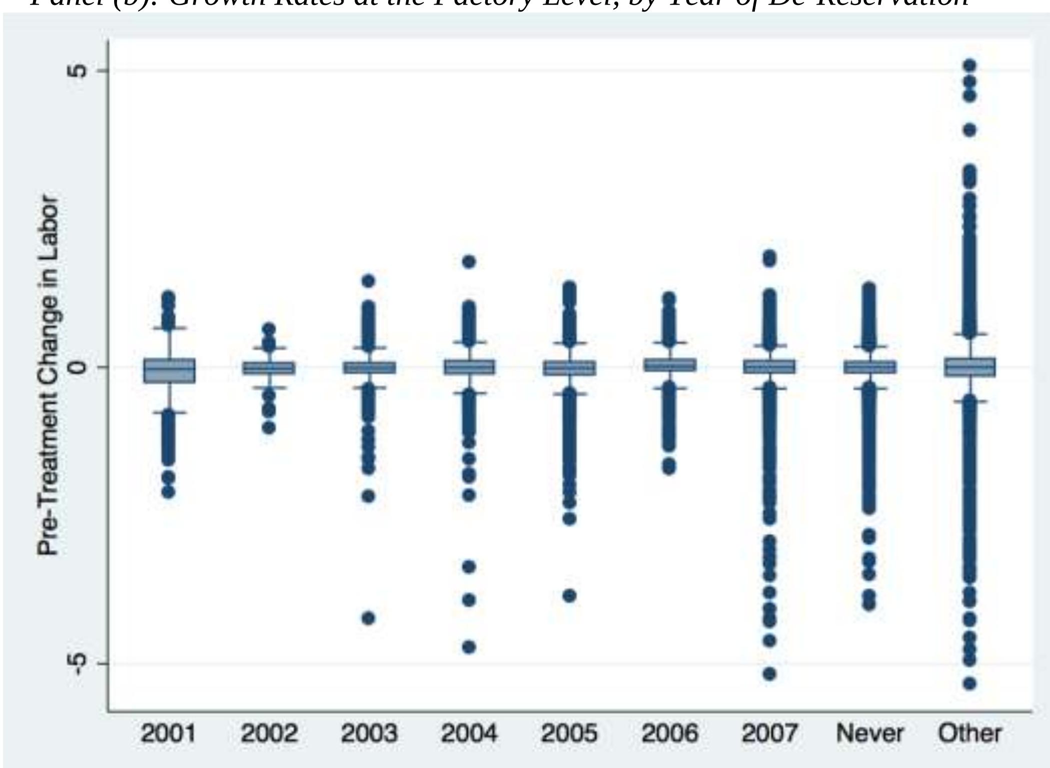
Notes: Panel (a) shows the coefficients from a regression of log of employment on de-reservation, interacted with a dummy variable for each size and age class. Panel (b) shows the coefficients from a regression of the log of employment on de-reservation, interacted with dummy variables for size and for whether the factory is an incumbent or an entrant into the product space, controlling for age. Panel (c) shows the coefficients from a similar regression, using age rather than size interactions.

Figure 5: Pre-De-Reservation Trends in Employment by Year of De-Reservation

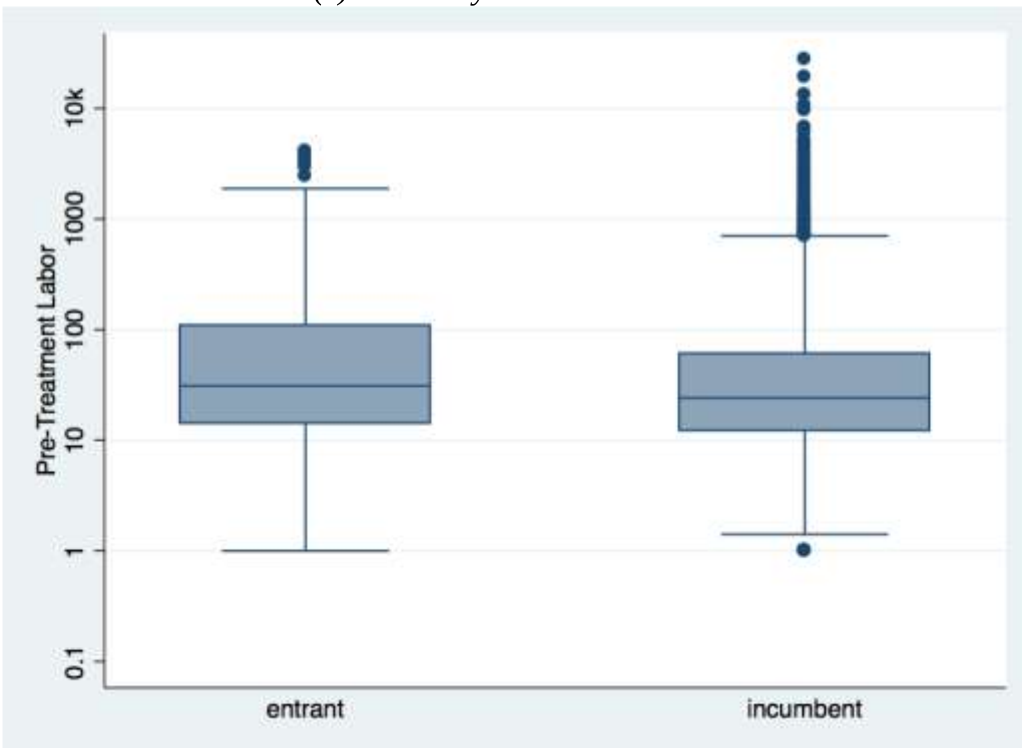
Panel (a): Growth Rates at the Product Level, by Year of De-Reservation



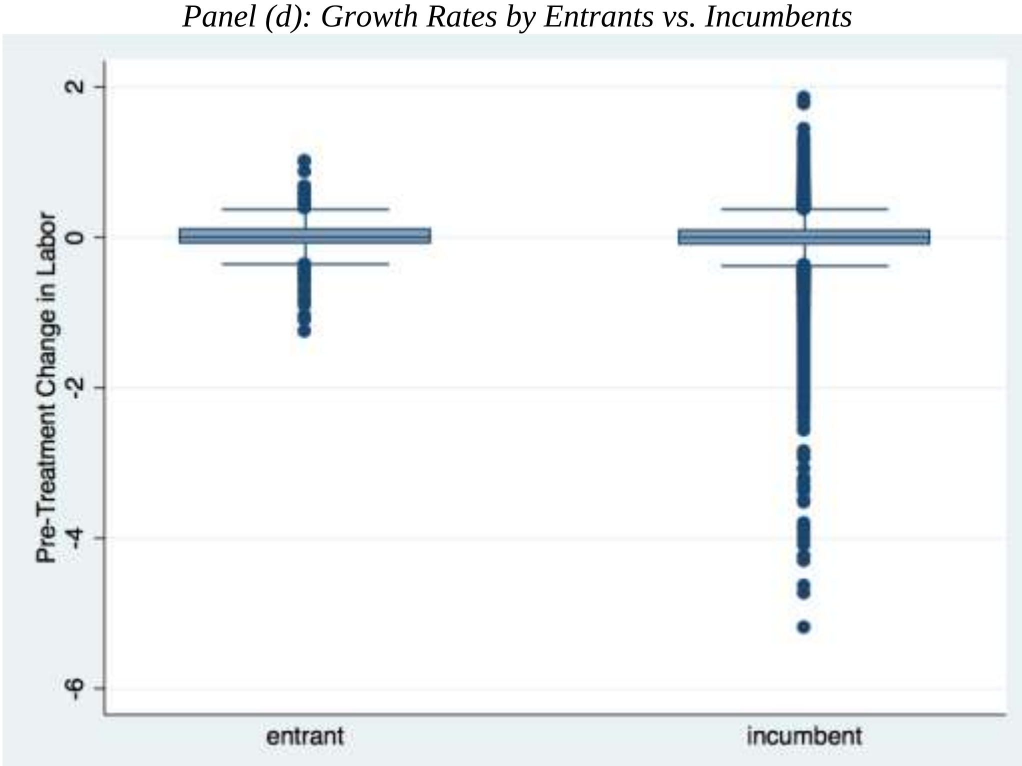
Panel (b): Growth Rates at the Factory Level, by Year of De-Reservation



Panel (c): Levels by Entrants vs. Incumbents



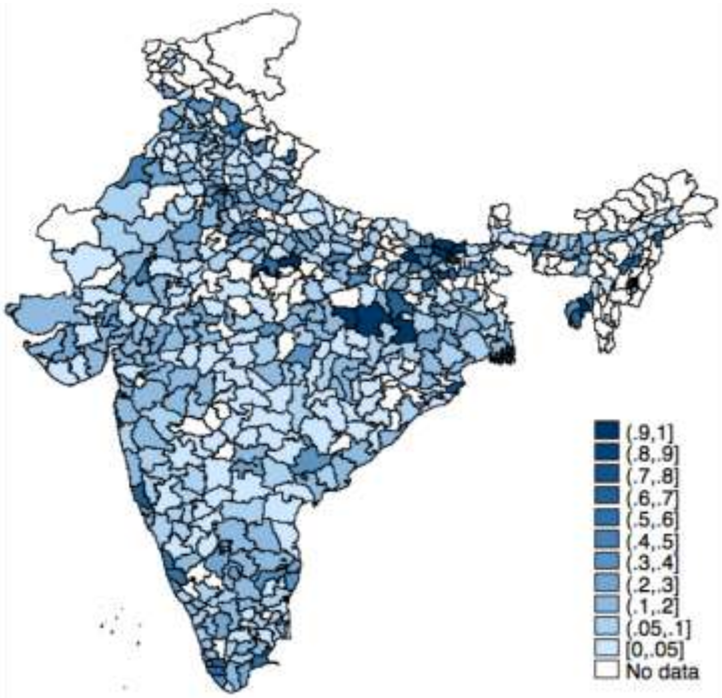
Panel (d): Growth Rates by Entrants vs. Incumbents



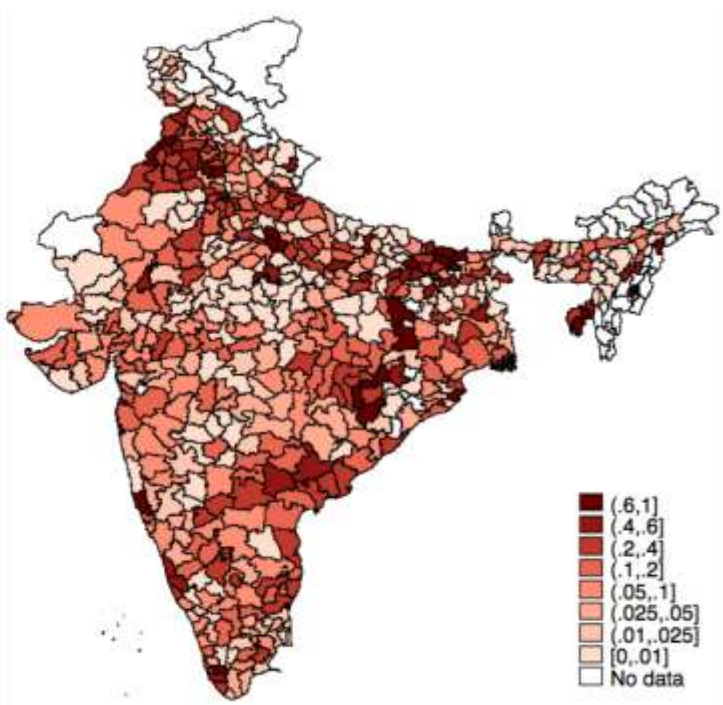
Notes: Panels (a) and (b) show pre-de-reservation growth rates in employment at the product and factory levels, respectively, by year of de-reservation. Panels (c) and (d) show average pre-dereservation levels and growth rates, respectively, for entrants versus incumbents. In all plots, the box shows the 25^{th} and 75^{th} percentiles, and the upper and lower horizontal bars indicate the lower and upper adjacent values.

Figure 6: Product Reservation and De-reservation by District

Panel (a): Fraction of Employment in 2000 Associated with Products Ever Reserved



Panel (b): Fraction of Employment in 2000 Associated with Products De-reserved 1997-2007



Notes: Panel (a) shows the fraction of employment in 2000 that was associated with producing a product that was ever reserved, by district. Panel (b) shows the fraction of employment in 2000 that was associated with producing a product that was eventually de-reserved, by district.

Appendix 1: Data Cleaning Details

Annual Survey of Industries Data

We use a factory-level panel from the Annual Survey of Industries (ASI) covering 2000 to 2007. The ASI sampling frame covers all registered (formal) manufacturing firms. Large firms are considered part of the "Census" sector, and are surveyed every year. Smaller firms are considered part of the "Sample" sector, and are sampled every few years. The survey provides sampling weights that allow the construction of representative samples at the state-by-industry level.

We carried out a number of preliminary steps to make the data ready for analysis. First, we excluded services and mining factories from our analysis, as the growth patterns in these sectors may be different from those in manufacturing. Second, we dropped any factories that had no employees in all years in which we observed them between 2000 and 2007 (these factories were typically in the sampling frame but reported as closed).

In certain cases, factories were reported as closed, but still reported positive employment and output. In contrast, an open factory occasionally reported no employment in a particular year, but then returned to positive employment the following year. To deal with these anomalies, we re-defined closure as having no employees and either having no output or being flagged as closed in the data. This measure of closure is consistent with our goal of measuring employment growth. Nonetheless, such anomalies affect less than 10% of the factories in our dataset and do not appear to be driving our results.

In the second part of the paper, on SSI reservations, our use of logged dependent variables means that any observations with zero values of the dependent variable under consideration (employment, output, capital, or wages) was dropped. We confirmed that our results in the first part of the paper (on factory size and growth) were similar when we simply dropped all observations with zero labor, rather than defining closure as discussed above.

Finally, we note that the growth measures based on "average" size are, by definition, bounded by -2 and +2. However, the growth measure based on "base-year" size is bounded below by -1, but is not bounded above. About 1% of our factories exhibited growth rates of more than 200% (more than +2 using the "previous" size measure), and examination of these observations suggested that many of them may have been data entry mistakes. We therefore removed any factories that had growth rates based on "base-year" size that were among the top 1% of growth rates. We also examined the size-growth relationships including these factories. As we would expect, we found a much larger, negative relationship between "base-year" size and growth, but there is little change in the results based on "average" size.

This analysis uses the ASI panel identifiers supplied by Ministry of Statistics and Programme Implementation. The panel dataset does not include district identifiers; we merge these in from the annual cross-sections that we purchased separately.

Matching Firm-Level Data with Product Reservation Status

During the years we study (2000-2007), product codes in the ASI were classified under the ASI Commodity Classification (ASICC). During this period, there were 4,805 ASICC product codes in manufacturing that respondents could choose from when answering the survey. Although respondents could in theory list up to 10 output products on their form, over 90% of respondents listed 4 or fewer products. For most years of the panel, 50-60% of respondents listed only one product.

We created a concordance between the ASICC product codes and the list of reserved and de-reserved products. Because some of the ASICC codes are very broad, we matched products reserved to each factory based on both ASICC and 5-digit industry. In some cases, the match between ASICC codes and SSI codes was so exact that we were able to create the match based solely on the product descriptions. In other cases, we used the lengthy descriptions associated with the industry codes to help resolve many questionable concordances. We assumed that a product was matched to an ASICC code if it was at least a partial match.

The following table shows a subset of illustrative industries with ASICC codes and reserved products matched to those codes.

NIC	Industry description	Primary output products	Year De-reserved	Reserved product description
5142	Manufacture of vegetable oils and fats (excluding corn oil)	other refined oil, n.e.c, palm oil, refined, oil, mustard, oil, groundnut, oil-cake, mustard, oil, cotton, oil-cake, cotton seed, oil-cake, groundnut	PSR	Rapeseed, mustard, sesame, groundnut oils except solvent extracted
15322	Manufacture of sago and sago products	sago	2004	Tapioca sago
15493	Processing of edible nuts	cashew kernel	2004	Sweetened Cashew nut products
15495	Grinding and processing of spices	spices, mixed, chilli, dry, hing, turmeric, seed, dhanya, whole or broken, spices, n.e.c	PSR	Ground and processed spices other than spice oil and resin spices
17115	Weaving, manufacture of cotton and cotton mixture fabrics	fabrics, cotton, yarn bleached, cotton, cloth finished /processed, cotton, grey cloth (bleached / unbleached)	2005	Cotton cloth knitted
19116	Finishing of upper leather, lining leather and garment leather etc.	leather, crome tanned, leather, tanned, shoe upper, leather	2001, PSR	Chrome/vegetable tanned hides & skins semifinished, Leather shoes upper closed
20101	Sawing and planing of wood (other than plywood)	timber/wooden planks, sawn/resawn, sawn timber posts / squares, wood sawn	2007	Sawn timber
21023	Manufacture of corrugated fibre board containers	boxes, corrugated sheet, cartons / boxes, paper	PSR	Corrugated fiber board containers
24114	Manufacture of dyes	dye intermediates, others, dye, vat, colour used in food products, dye, synthetic, others	2012	Dyes [very long list]
24222	Manufacture of paints, varnishes, enamels or lacquers	paint, paints, enamels, painting oil, paints (paste) other than alum paste, paints, plastic emulsion	PSR	Red lead paints, Wagon black paints, Graphite paints, Aluminium paints, Bitumen based paints
24241	Manufacture of soaps all types	soap, toilet (excl. baby soap), detergent powder, soap, flakes –washing detergent cake, soap, cake -washing, soap, bar - washing	PSR	Laundry soap
25191	Manufacture of rubber plates, sheets, strips, rods, tubes, pipes, hoses and profile-shapes etc.	automobile rubber components, n.e.c, hose pipe / pipe set, moulded goods, rubber	2005, 2006	Auto rubber components, Rubber hose pipes - excepting braided hoses, Rubberized canvas hose pipes-excepting wire braided high pressure hydraulic hoses, Rubber tubes, Rubber washers, Rubber thread (Except bare rubber thread of over 80 gauges and heat resisting rubber thread), O ring-rubber, Microcellular sheets
26914	Manufacture of ceramic sanitary wares: sinks, baths, water-closet pans, flushing cistern etc.	sanitary ware, porcelain-other	2007	Chemical porcelain: 1. Flat tipped basins 2. Round and rectangular type dishes
26956	Manufacture of hume pipes and other pre-fabricated structural components of cement and/or concrete for building or civil engineering	concrete products, n.e.c, poles & posts of concrete, r c c spun pipes, hume pipe	2007	Reinforced cement concrete pipes up to 100 cms diad, Salt glazed sewer pipe, Asbestos pipes and fittings-for household purposes only according to ISI specification
29214	Manufacture of parts and accessories for agricultural and forestry machinery and equipment	agriculture implements motor vehicle, others & parts, n.e.c, spares, agricultural machinery-other, agricultural & forestry machinery/parts, n.e.c.	2002, 2005, 2006	Forks, Hoes, Sickles, Other agricultural implements, Harvester grader, baler & other earth moving blades used in agricultural machines, Low speed gear for use in agricultural machines, thresher-Made of cast iron/mild steel--Non-heat treated
3699	Manufacture of stationery articles n.e.c.	dot pen with refill, pencil, refill, ball/dot pen, stationary /all purpose items-n.e.c	PSR	Ball point pens, Pencils, Writing inks & fountain pen inks, Fountain pens, Pen nibs, Fountain pens and ball pens components excluding metallic tips, Hand stapling machine, Paper pins, Carbon paper, Typewriter ribbon for mechanical type writer, Hand numbering machines, Pencil sharpeners, Pen holders