

Spatial Development and Agglomeration Economies in Services

Lessons from India

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Abstract

Although many studies consider the spatial pattern of manufacturing plants in developing countries, the role of services as a driver of urbanization and structural transformation is still not well understood. Using establishment level data from India, this paper helps narrow this gap by comparing and contrasting the spatial development of services with that in manufacturing. The study during the 2001-2010 period suggests that (i) services are more urbanized than manufacturing and are moving toward the urban and, by contrast, the organized manufacturing sector is moving away from urban cores to the rural periphery; (ii) manufacturing and services activities are highly correlated in spatial

terms and exhibit a high degree of concentration in just a few states and industries; (iii) manufacturing in urban districts has a stronger tendency to locate closer to larger cities relative to services activity; (iv) infrastructure has a significant effect on manufacturing output, while human capital matters more for services activity; and lastly, (v) technology penetration, measured by the penetration of the Internet, is more strongly associated with services than manufacturing. Similar results hold when growth in activity is measured over the study period rather than levels. Manufacturing and services do not appear to crowd each other out of local areas.

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Section 1: Introduction

The importance of services for development is widely recognized but underexplored. In developing countries like India, the service sector is believed to have the potential for leading inclusive growth through spillovers (Banga, 2005; Eichengreen and Gupta, 2011). Although there is some evidence that “modern services” are obtaining important scale and rates of growth (Eichengreen and Gupta, 2011), skepticism about the sector persists as most growth in the sector is observed only in the last two decades and is driven primarily by modern technology-intensive services (Panagariya, 2008). In 2013, the value added from the service sector contributed to over 50% of India’s GDP and accounted for about 70% of its growth. By contrast, Indian manufacturing accounted for less than one-third of GDP levels and growth (World Development Indicators). Although many studies consider the spatial pattern of manufacturing plants in developing countries, the role of services as a driver of urbanization and structural transformation is still not well understood. Our paper helps narrow this gap through a study of establishment level information from India where we can compare and contrast services with manufacturing.

Research on India’s services sector has drawn global attention, perhaps because it is considered an outlier among South Asia and other emerging countries (Ansari, 1995; Ghani, 2010). Most labor-rich emerging economies such as Taiwan, the Republic of Korea, and China witnessed structural transformation from agriculture to manufacturing, as the shares of labor-intensive manufacturing in GDP and employment rose. India, on the other hand, observed a stagnant manufacturing employment share compared to rising shares of tradable and non-tradable services (Dehejia and Panagariya, 2010).¹ Liberalization and reforms have raised India from under-performance to a leader in the share of services in national value added, although employment growth is less dramatic (Kochhar et al., 2006; Chanda, 2002; Gordan and Gupta, 2003).² Reforms raised the demand for services by increasing per capita income and reducing the constraints on technology adoption, which led to the development of information and communication technologies (ICT) and ICT-enabled business services. Studies suggest that liberalization of the Indian economy expanded services output through spillovers from the manufacturing to the service sector and by making better-quality inputs available domestically, whether foreign or home-made (Dehejia and Panagariya, 2014).

The paper closest to our work is by Dehejia and Panagariya (2010), who use two waves of the establishment level services data collected by the National Sample Survey to trace the spatial location of plants in the services industry. Their work suggests that while services output is heavily concentrated in large enterprises located in urban areas, more than half of the workers are employed in own-account enterprises, which do not employ any hired workers. This finding is even stronger when smaller enterprises are also included. Since smaller enterprises in the services sector also have lower output per worker, output per enterprise, and growth in output over time vis-à-vis larger enterprises, their work suggests that the transformation of India to a modern economy would require more than just the movement of workers from agriculture to industry—it would also require a movement of workers from smaller to larger services enterprises or,

¹ Dehejia and Panagariya (2010) find that labor laws stunted the growth of Indian manufacturing but did not affect services. Goswami et al. (2012) find that services in India took off because of higher quality for services-specific infrastructure, endowments, and institutions compared to the manufacturing sector.

² Reforms in the service sector were a part of the overall reform program which led to privatization, the removal of FDI restrictions, and streamlining of approval procedures, among others. Details of the reforms affecting services are available from the authors upon request.

alternatively, modernization of own-account enterprises. This calls for an investigation into the role that technology can play in such a transition.

Our work builds on this literature in several directions. First, we construct a large empirical platform that can jointly study the spatial development of manufacturing and services during the 2000-2010 period. This platform provides a longer time span than earlier work and the best comparability across sectors, allowing us to uncover common and divergent patterns between manufacturing and services. Second, we study closely the spatial movements of the sectors in terms of district traits and also spatial positions within India vis-à-vis the largest cities and urban/rural levels. Third, we relate these patterns to the local technology development of districts to shed light on the ICT-enabled hypotheses. Finally, we consider the joint development of manufacturing and services, examining whether the two sectors complement or crowd each other out. This analysis explores the use of Bartik-style instruments to isolate exogenous shifts in the activity of each sector at the district level to study responses in the other sector.

Our basic descriptive work provides several important results. (i) Services are more urbanized than manufacturing in terms of plants, employment, and output. (ii) Both unorganized manufacturing and services are moving towards the urban core, with the share of unorganized manufacturing plants rising from 30% to 42% since 2000 and services similarly rising from 41% to 48%. (iii) While organized manufacturing is moving away from urban core to rural periphery, this trend is less clear for “organized” services.³ The share of organized services in rural areas first increased from 33% to 59% from 2000 to 2005, but it subsequently declined to 46% in 2010. (iv) There is a high spatial correlation between manufacturing and services activity, whether measured in terms of their location within states or in regions with proximity to large cities. (v) In both manufacturing and services, activity is highly concentrated in just a few states and in just a few industries. Both sectors have about 90% of their economic activity clustered within 600 km of India’s seven largest cities.

Based on population in the 2001 census, we define the three largest cities of India as the “big-3,” while the seven largest cities are referred to as the “big-7.” Big-3 cities include Mumbai, Kolkata, and Delhi, while big-7 is a group that additionally includes the next 4 largest cities, Bangalore, Chennai, Hyderabad and Ahmedabad. When measuring the average levels of activity during 2001-2010, relative to rural districts lying at a distance of over 300 km from the nearest of the big-7, our econometric analysis suggests that: (i) manufacturing in urban districts has a stronger tendency to locate closer to larger cities relative to services activity. For instance, relative to services, manufacturing output is found to be over 3 times higher for urban districts within 100 km of big-3 cities. Further, for each district band, and for each measure of activity, be it plant count, employment or output, the size of the coefficients on the indicator variable measuring proximity to big cities is always larger for manufacturing vis-à-vis services. (ii) In the case of rural districts, however, both manufacturing and services show a higher inclination to cluster within 100 km of the nearest big-3 cities, perhaps to get access to these cities. Again, this tendency is stronger in manufacturing vis-à-vis services. For instance, services output is only half as likely to be clustered around big-3 cities relative to that of manufacturing. (iii) As for other covariates that affect activity in the two sectors, infrastructure at the local district level has a significant effect on manufacturing output, while literacy rate is more likely

³ While the official data do not define organized services, we classify the set of services establishments with over ten employees as “organized” and the remaining as “unorganized” to draw comparisons with the organized and unorganized sectors in manufacturing.

associated with services activity. (iv) When technology penetration is measured via the penetration of Internet among plants, services activity is more affected, while the use of computers equally affects both manufacturing and services output. For instance, a unit standard deviation (SD) increase in the share of plants using Internet is associated with a 0.11 SD increase in services output while the impact on manufacturing is insignificant.

When investigating growth in activity from 2001 to 2010, we note that (i) services growth is not tied to being located in urban districts close to the big-3 cities; that is, there are significant jumps in activity in urban districts located away from big cities, such as in the urban districts located more than 300 km away from big-7 cities. (ii) Growth in manufacturing activity in rural districts responds positively to being located in close proximity to big-3 cities, while such a growth pattern is not observed for services. (iii) Services follow population due to the “proximity burden,” while growth in manufacturing activity depends on the quality of and proximity to physical infrastructure. For instance, a unit SD increase in district population is associated with a 0.17 SD increase in both services plant count and employment growth. (iv) Technology penetration, whether measured in terms of Internet or computer usage, has a larger and more significant association with growth in services relative to manufacturing activity. For instance, a unit SD increase in Internet usage among plants is associated with an increase in services employment growth of 0.19 SD, while it has no significant impact on manufacturing activity. These results hold broadly even when we run a conditional estimation with initial levels of activity.

We extend this methodology in explaining the activity in levels and growth across the following two dimensions: (i) Large Plants: relative to the reference category, manufacturing activity for large plants is more likely to be located near big cities. Across urban and rural districts, manufacturing activity is more likely located in rural districts if it happens to be within 100 km of big-3 cities. These results are qualitatively similar to that obtained in the unrestricted sample. Large services plants display significant activity in urban districts around the next four to seven largest cities, rather than around the big-3 cities. This is in contrast to the unrestricted sample where services activity is not tied to being located in urban districts around big cities. Nonetheless, within rural districts, the results are qualitatively similar to unrestricted estimations that find a concentration of services activity around big-3 cities. In the restricted specification with only the large plants, the penetration of technology in terms of Internet usage matters not only for services plants but also for manufacturing plants. For instance, a unit SD increase in the share of plants using Internet is associated with an increase in employment of about 0.1 SD in large manufacturing as well as services plants.

(ii) High wage plants: regardless of whether districts are urban or rural, high wage manufacturing jobs are more likely to be located close to big-3 cities and slightly less likely to be close to the next four to seven largest cities. However, high wage services activity is more likely to be located only in urban districts that are in close proximity to the next four to seven largest cities. Thus, unlike the full sample, where services jobs are attracted to rural locations, high wage services jobs are disproportionately concentrated in urban districts in proximity to the next four to seven big cities. In this restricted sample, literacy rates matter very significantly for high wage services activity, whether measured as plant count, employment or output. Further, the penetration of technology in terms of Internet usage in this restricted sample is correlated with both services and manufacturing output. For instance, relative to the reference category, a unit SD increase

in the share of plants using Internet is associated with an increase in output of about 0.13 SD in high wage manufacturing and services plants.

Our final analysis is an assessment of whether growth in manufacturing activity complements or crowds out services activity growth or vice versa. Starting with an OLS estimation, we find that growth in services activity is modestly correlated with manufacturing activity. For instance, a unit SD rise in services employment growth is associated with a 0.08 SD increase in manufacturing employment growth. The strength of the reverse relationship is in fact stronger. For instance, a unit SD increase in manufacturing employment is associated with a 0.17 SD increase in service employment growth. These relationships continue to hold with or without controlling for spatial indicators and/or district traits. Additionally, our OLS results are also present when focusing on large or high wage plants. We conclude this analysis with a Bartik instrument variable estimation that further suggests the two sectors do not have major spillover effects on each other.

Section 2 of this report discusses the related literature on the spatial location patterns of manufacturing and services firms. Section 3 describes the data used for our work, and Section 4 documents descriptive results. Section 5 provides econometric analyses to compare the spatial movements of manufacturing and services over the 2000-2010 period and investigate how the sectors connect to each other. Section 6 concludes our paper with final remarks, pointing to some areas for future research.

Section 2: Literature Review

Much of the literature on spatial allocation of activity takes its clues from the US experience, which is the most studied nation. It is a stylized fact that manufacturing activity has been de-concentrating from large cities since World War II, while services are increasingly agglomerating in central locations (e.g., Dumais et al., 2002; Kim, 1995; Kolko, 1999).⁴ The shift of manufacturing to smaller cities and hinterlands is motivated by many reasons, among which rising land rents in the city center were perhaps most important. Firms also moved to avoid conflict with residential areas and associated regulations. Other reasons for such decentralization include industrial shifts and operational maturity and the birth of new activities in new places. Another cause has been the orchestration of development by local business and political leaders through property ownership and political maneuvering, guided by a general vision of metropolitan expansion (Walker, 2004; Muller, 2001).

While manufacturing is increasingly situated in lower-cost and periphery settings, services are becoming more concentrated in urban areas (e.g., Glaeser and Kohlhase, 2004; Desmet and Fafchamps, 2006; Arzaghi and Henderson, 2008). This is especially true in wholesale and retail trade and finance, insurance and real estate (FIRE) industries. Research on the US (e.g., Desmet and Rossi-Hansberg, 2014) and France (e.g., Barlet et al., 2013) find that service industries are localized at very short distances and are primarily situated in the hearts of big cities and strongly benefit from highly-localized technological spillovers. Overall, evidence for this urbanization of services is present in many settings.

⁴ Kolko (1999) finds that there has been a growing concentration of manufacturing in small and medium-sized cities and of business services in larger cities.

Digging deeper, services agglomerate more at the zip code level than the county level in the US. The Ellison-Glaeser county level agglomeration index in the US for services industries at the six-digit North American Industry Classification System (NAICS) level is 0.0068, while that for manufacturing is 0.0132. Thus, manufacturing firms are more likely to agglomerate in the same county to save on transport costs or have access to similar resources (natural or labor), but they do not need to co-locate at the zip code level and thus they can economize on land rents (Kolko, 2010). Kerr and Kominers (2015) provide a broader discussion and theory regarding the formation of clusters at different spatial lengths.

These distinctions raise an important point as we prepare to consider the Indian experience. The broader sector of services includes two very polar forms of activity (as well as intermediate cases): (i) high-end business services that benefit from agglomeration economies and flow towards the largest center cities, and (ii) very localized services that focus on satisfying consumer demand in a small spatial area. On some dimensions—especially the urbanization of services—these cases push activity in the same direction. On other dimensions, they can work in different ways. For example, the business services model predicts rising and disproportionate concentration in India's largest cities, while the local demand model predicts growth that is proportionate to population levels. Both of these differ from manufacturing, and our analyses below will trace out features.

What makes services different from manufacturing? Some service industries require close proximity with consumers (e.g., professional services), while others can be transmitted over the Internet. Services that rely on ICT are less dependent upon proximity, as witnessed by the growth of outsourced activity to India as a whole. Services and manufacturing cluster for different reasons. While manufacturing agglomeration has been linked to all of the Marshallian economies and natural advantages (e.g., Ellison et al., 2010; Faggio et al., 2014), services appears even more linked to knowledge spillovers and labor pooling. Knowledge spillovers promote urbanization in both these sectors, while evidence regarding the cost of transporting goods to customers appears less consistent for manufacturing and services (Glaeser and Kohlhase, 2004; Kolko, 2010).

Recent models have documented the evolution from sectoral to functional specialization across cities (Duranton and Puga, 2005). These models contend that a separation of headquarters activities, such as R&D from production or back-unit work, is optimal only if firms can locate their production facilities in environments with strong sector specialization and their headquarters in business districts where business service employment is abundant.⁵ Such a functional separation can contribute to the emergence of central business districts (CBD) alongside spatially distributed operations. Business services may have greater benefits from proximity for firm headquarters, and the shift from sectoral to functional specialization could imply that service-focused business centers will be fewer and larger compared to manufacturing centers.

What explains this pattern of sectoral and functional specialization? Ota and Fujita (1993) describe the fragmentation of firm activities between core and periphery settings through ICT developments that allow firms to geographically separate their headquarters and front-end activities from back-office work such as

⁵ Using data on auxiliary establishments in the US from 1977 to 1997, Davis and Henderson (2008) find that headquarters of firms agglomerate in the central districts of large metro areas to take advantage of services and production externalities (which decline with distance) in the form of the availability of differentiated local service input suppliers and the scale of other headquarter activity nearby.

production and R&D. Specifically, when the front-unit activity needs to constantly be in touch with other firms' headquarters, it agglomerates in the core, while the back-unit activity is pushed to the periphery. Arguably, services require physical proximity and hence there is a greater need for this sector to agglomerate in urban core locations vis-à-vis manufacturing that can be operated from the hinterlands. Rossi-Hansberg et al. (2009) attribute such sectoral disaggregation to increasing population and land rents, which motivate firms to disintegrate their operations and keep at the center only those functions which benefit most from interactions in urban areas. Thus, the increase in CBD employment is mainly that of managers and service professionals.

Many factors suggest that the two sectors could crowd each other out of locations. Desmet and Rossi-Hansberg (2009) attribute differences in spatial location across manufacturing and services to the maturity of the industry.⁶ While electricity may have been the last general purpose technology (GPT) to significantly affect manufacturing, Desmet and Rossi-Hansberg (2014) argue that recent ICT innovations have overturned services more than other sectors.⁷ Duranton and Puga (2001) contend that in a mature industry most of the external economies from agglomeration have been exploited and knowledge spillovers are weak. This makes clustering in such an industry expensive if land is a critical factor of production. Thus, as spillovers weaken, manufacturing industries tend to move out of the core. By this logic, firms in services industry are still "young," learning about ICT, and stand to gain significantly more by clustering in the core zone despite its costs. Desmet and Rossi-Hansberg's work suggests the "S-shaped" pattern of spatial location in the services sector to be a more general trend across the developed world, and not just confined to the US. We study below some of these dynamics across the two sectors.

Despite this rich portrait from advanced economies, we still have lots to learn about how these lessons and stylized facts apply to the developing world. Limited evidence on developing countries suggests some deviations. In fact, developing countries are presently experiencing trends similar to that observed in the US in the late 19th and early 20th centuries. Manufacturing facilities in developing countries often locate in large cities, perhaps because learning and adaptation are critical to the successful transfer of technology from abroad. However, as the industry matures and technology standardizes, higher land rents are likely to push the firms out to peripheral locations as in the US. Such a process is in its early stages in China and Indonesia. Similarly, evidence from India reveals that the services sector, and to a certain extent manufacturing, is increasingly concentrated in high density clusters. Desmet et al. (2015) explain that in India, services are "young," and manufacturing is perhaps not as "mature" as in the US or Europe. Given the rise of services-driven growth in India, they argue that it is being advanced by ICT, so increased spatial concentration in services is only natural. They also argue that heightened manufacturing clustering connects to the nascent nature of Indian manufacturing and its need to overcome historical barriers and regulations and to adopt modern technology. Fernandes and Sharma (2012) find that delicensing during the 1990s contributed to the de-concentration of Indian manufacturing.

⁶ Their study documents that, irrespective of the size of counties in the US, the growth in manufacturing employment converged. By contrast, services witnessed an S-shaped pattern of spatial location, with intermediate-sized counties initially experiencing higher growth in services employment.

⁷ In a dynamic setting, Desmet and Rossi-Hansberg (2014) propose that innovation in the services sector leads to spatial concentration of employment and productivity in the sector. This is because innovation offers externalities in the form of knowledge spillovers that can be reaped only via agglomeration. Given that land prices and rents rise in prime locations, dynamic spatial models find that both sectors do not overly concentrate in space, but perhaps closely so (e.g., services in city center and manufacturing in peripheral areas) to save on transport costs.

The above studies look at patterns across districts, but the within-district shifts in spatial activity are also nuanced for Indian manufacturing. Ghani et al. (2012), for instance, describe stark differences in the spatial location of plants in organized versus unorganized sectors within manufacturing. Their work suggests that plants in the organized sector are moving away from the urban core and into the rural periphery within districts, while the unorganized sector is moving in the reverse direction. While the overall trend for urbanization in India's manufacturing has slowed down, the localized importance of education and infrastructure have not. Their research suggests that districts with better education and infrastructure have experienced a faster pace of urbanization, but higher urban-to-rural cost ratios have also led firms to move out of urban areas.

India's experience may differ from other developing economies. For instance, Desmet et al. (2015) suggest that the spatial pattern of location of firms in manufacturing and services in China bears much greater similarity to the US, where decreasing returns dominate in high density cities and agglomeration economies are strongest in medium-density clusters. What constrains the growth of intermediate-sized cities in India compared to the US or China? Desmet et al. (2015) find that high density clusters remain attractive places due to the presence of a large percentage of highly-educated labor and access to telecommunication services. The importance of distance to large cities or access to certain basic utilities is, however, not the primary reason for the increasing concentration in both services and manufacturing. Many studies have underscored the importance of the impact of infrastructure investments in suburbanization of manufacturing (e.g., Baum-Snow, 2007; Baum-Snow et al., 2015; Rothenberg, 2013). Although local infrastructure matters for the suburbanization of India's formal manufacturing sector (Ghani et al., 2012), large-scale highway investment does not quite explain this phenomenon completely (Ghani et al., 2013, 2015). On the other hand, the role of highway investment is less emphasized for services. As a rare example, Glaeser and Ponzetto (2010) suggest transport and communication technology improvements explain much of the increased geographic concentration of services in urban cores like New York compared to places like Detroit and Glasgow.

Section 3: Data Description

We compare spatial trends in the manufacturing and services sector. We describe the manufacturing data first, followed by services.

Manufacturing

We use the same plant level information as much of prior research on the Indian economy, including Ghani et al. (2014). This project draws upon six surveys from two major sources of data, the Annual Survey of Industries (ASI) and the National Sample Survey Organization (NSSO). ASI is a survey of the organized sector undertaken annually by the Central Statistical Organization, a department in the Ministry of Statistics and Program Implementation, Government of India. Under the Indian Factory Act of 1948, all establishments employing more than 20 workers without using power or 10 employees using power are required to be registered with the Chief Inspector of Factories in each state. This register is used as the

sampling frame for the ASI.⁸ The ASI extends to the entire country, except the states of Arunachal Pradesh, Mizoram and Sikkim and the Union Territory (UT) of Lakshadweep.

ASI is the principal source of industrial statistics for the organized manufacturing sector in India. It provides statistical information to assess changes in the growth, composition, and structure of the organized manufacturing sector, comprising activities related to manufacturing processes, repair services, gas and water supply, and cold storage. As noted in Ghani et al. (2012), organized manufacturing contributes the substantial majority of India's manufacturing output, while the unorganized sector accounts for the substantial majority of employment for Indian manufacturing workers.

Manufacturing activity undertaken in the unorganized sector, such as households (own-account manufacturing enterprises, or OAME) and unregistered workshops, is covered by the NSSO. Following the first Economic Census 1977, small establishments and enterprises not employing any hired workers (that is, OAME) that engaged in manufacturing and repair activities were surveyed on a sample basis in the 33rd round of the NSSO during 1978-79. Subsequent surveys covering OAEs and Non-Directory Manufacturing Establishments (NDME) were conducted in the 40th and 45th rounds of the NSSO during 1984-85 and 1989-90, respectively. In 1994-95, the first integrated survey on unorganized manufacturing and repair enterprises, covering OAMEs, NDMEs, and DMEs, was undertaken during the 51st round of the NSSO. Subsequently, surveys of manufacturing enterprises in the unorganized sector were conducted in the 56th (2000-01), 62nd (2005-06), and 67th (2010-11) rounds.⁹

⁸ The sampling design followed in most ASI surveys is a stratified circular systematic one. All factories in the updated frame (universe) are divided into two sectors: Census and Sample. The Census Sector is comprised of industrial units that belong to the six less-industrially developed states or UTs: Manipur, Meghalaya, Nagaland, Tripura, Sikkim, and the Andaman & Nicobar (A&N) Islands. For the rest of the states/UTs, the Census Sector includes (i) units having 100 or more workers and (ii) all factories covered under Joint Returns. All other units belonging to the strata (state x four-digit industry of the NIC-04 framework) having four or fewer units are also considered as Census Sector units. Finally, the remaining units, excluding those of Census Sector, called the Sample Sector, are arranged in order of their number of workers and samples are then drawn circular systematically considering a sampling fraction of 20% within each stratum (state x sector x four-digit industry) for all states. An even number of units with a minimum of four are selected and evenly distributed in two sub-samples.

⁹ Thus, the surveys on unorganized manufacturing enterprises usually covered: (i) manufacturing enterprises not registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948; (ii) manufacturing enterprises registered under Section 85 of Factories Act, 1948; (iii) non-ASI enterprises engaged in cotton ginning, cleaning, and baling (NIC-2004, code 01405); and (iv) non-ASI enterprises manufacturing bidi and cigar (those registered under the Bidi and Cigar Workers (condition of employment) Act, 1966, as well as those un-registered). Some of the surveys (such as 2010-11) covered trading enterprises and services establishments, but we exclude them for the purposes of our paper. Additionally, the NSSO excludes: (i) repairing enterprises not falling under Section 'D' of NIC-2004; (ii) departmental units such as railway workshops, RTC workshops, government mint, sanitary, water supply, gas, storage, etc. in line with ASI coverage; (iii) units covered under ASI; and (iv) public sector units. The sample design for the unorganized sector is a stratified multi-stage design. The first stage units (FSU) are the census villages in the rural sector and Urban Frame Survey (UFS) blocks in the urban sector. The ultimate stage units are enterprises in both sectors. In case of large FSUs, one intermediate stage of sampling is the selection of three hamlet-groups/sub-blocks from each large rural/urban FSU. Two frames were used (as per the 62nd round survey): List frame and Area frame. List frame was used for urban manufacturing enterprises only. For unorganized manufacturing enterprises, a list of about 8000 large non-ASI manufacturing units in the urban sector prepared on the basis of the data of the census of manufacturing enterprises conducted by Development Commissioners of Small Scale Industries in 2003 was used as the list frame for surveys in 2005-06 and 2010-11. Area frame was adopted for both rural and urban sectors. The list of villages as per census 2001 was used as the frame for the rural sector, and the latest available list of UFS blocks was used as

To allow comparison with the services data, we use the following years from organized and unorganized manufacturing: 2000-01 and 2005-06 for both sectors, and additionally 2009-10 from the ASI and 2010-11 from NSSO. For the sake of simplicity, we normally refer to the sample year by the starting year—for instance, the sample survey in the year 2005-06 is referred to as the 2005 survey. We likewise use 2010 in the tables and text to refer to the years 2009-10 for ASI data and years 2010-11 for NSSO data. As depicted above, the NSSO data provide the maximum possible coverage in terms of included years for the unorganized sector. Our development procedures below will seek to address changes in internal organisation of surveys where they exist.

The ASI records few technology-related variables: (i) a binary variable on the use of computerized accounting systems (available 2005-2010), and (ii) assets in the form of software and hardware (2001-2010), which we deflate and convert to USD, PPP. The NSSO data record more variables that are consistent between manufacturing and services. For 2001-2010, we are given a variable for communication expenses. The following are also available for 2005-2010: (i) assets in the form of software and hardware; (ii) value of hired software and hardware assets; (iii) rent paid on hired hardware and software assets; and (iv) expense of repair and maintenance of software and hardware assets. Additionally for the year 2010, the following variables are available: (i) expense on computers and photocopiers; (ii) rent on calls, and (iii) binary responses on usage of the Internet, which we describe in greater detail below.

Services

Beginning with the 57th round conducted during July 2001 to June 2002, the NSSO surveyed unorganized enterprises belonging to the service sector. This survey was repeated in the 63rd round (2006-2007) and 67th round (2010-2011). The survey covered the whole of the Indian Union except (i) Leh (Ladakh), Kargil, Punch and Rajauri districts of Jammu & Kashmir, (ii) interior villages situated beyond five km of a bus route in Nagaland, and (iii) villages of Andaman and Nicobar Islands, which remain inaccessible throughout the year. Thus the corresponding State/UT level estimates and the all-India results presented in this report relate to the areas covered under survey.

Unfortunately, the NSSO coverage is less consistent over time for services. The 57th round surveyed broadly all unorganized service sector enterprises engaged in the activities of hotels and restaurants; transport, storage and communication; real estate, renting and business activities; education; health and social work and other community, social and personal service activities. The 63rd and 67th rounds additionally covered financial intermediation services, which were not covered in the 57th round, while specific sectors such as non-mechanized transport activities related to transport via railways and activities of business, employers and professional organizations were excluded after the 57th round. The 67th round also extended coverage to include service sector enterprises pursuing the activities of wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, as well as services related to waste collection, treatment and disposal. The NSSO does not survey public administration and defense, private households with employed persons, or extra-territorial organizations and bodies. As with manufacturing, the sample stratification in services also includes both the district level and the two-digit

frame in the urban sector. The relevant year's economic census was used as frame for the towns with population 10 lakhs or more (as per Census 2001).

NIC sectors.¹⁰ Although some changes in NIC definitions are evident, we have placed them into a consistent format using 2004 definitions.

As with manufacturing, the NSSO collects establishment level information for services regarding output, inputs (raw materials and other inputs), fixed assets, value of land and buildings, employment, energy consumption, and so on. Several technology variables are available across either two or three surveys: (i) call charges and rent payable (local call/STD/ISD, cyber café, radio paging, cellular etc.); (ii) communication expenses (telephone, telegram, fax, postal, courier, e-mail, etc.); (iii) expenses on consumables used in computers, Xerox, cyclostyle, etc.; and (iv) assets in the form of software and hardware. The final 67th round further surveys the use of computers, Internet, web presence, intranet, sale/purchase via Internet, LAN, broadband, and VOIP. These responses are binary, and the same set of questions is asked of unorganized manufacturing establishments as well.

Yearly values for variables that are reported on a monthly basis are obtained by multiplying 12 in the case of perennial and casual enterprises; we multiply by the reported number of months a business is in operation for seasonal enterprises. Monetary values are deflated and converted to 2005 PPP in USD values. Deflators for disaggregate services are calculated from the gross value added (GVA) in current prices relative to the GVA in constant prices, available from the Ministry of Statistics and Programme Implementation (MOPSI) India. These disaggregate services include: (i) electricity gas & water supply, (ii) construction, (iii) trade, (iv) hotels & restaurants, (v) railways, (vi) transport by other means, (vii) storage, (viii) communication, (ix) banking & insurance, (x) real estate, (xi) public administration & defense, and (xii) other services. For deflating purposes, we use the three-digit NIC codes and description to allocate each services establishment into these broad disaggregate categories.

Urban-Rural Definitions

The ASI and NSSO surveys identify whether each establishment is in an urban or rural location. Our study considers movements in urbanization over time, and we also classify districts, for some exercises, as being mostly urban or rural. Thus the comparability of this question over time and its definition are very important. To begin, the statutory definition of an urban setting during our period of study is:

- (a) All statutory places with a municipality, corporation, cantonment board or notified town area committee, etc., or
- (b) A place satisfying the following three criteria simultaneously:
 - i) A minimum population of 5,000;
 - ii) At least 75% of male working population engaged in non-agricultural pursuits; and
 - iii) A population density of at least 400 per sq. km. (1,000 per sq. mile).

¹⁰ Irrespective of the size of establishments, the 57th and the 67th round surveys include all establishment enterprises in the main geographical sampling frame (“area frame”), while the 63rd round introduced a separate “list frame” for the largest enterprises in the corporate sector. Although 998 of such large service sector firms were initially identified in the list frame, for multiple reasons only 438 of them were finally surveyed. While this sampling difference could raise concerns, they are alleviated by the fact that the former two surveys also paid attention to large enterprises in a manner very similar to the list frame of the 63rd round. For instance, the 57th round surveyed all enterprises with 200 or more workers, thus making the 57th survey round comparable with the 63rd round.

This definition has been mostly stable since the 1961 Census, as described further in Ghani et al. (2012).¹¹ Among our datasets, the 2000 surveys follow the 1991 classification, and the 2005 and 2010 surveys follow the 2001 Census classifications. Our primary focus is on urbanization changes since 2001, and the formal definition of an urban area has not changed during this period. A modest amount of urbanization adjustments within districts between 2000 and 2005 could be due to updates on district sub-units, which is hard to interpret.¹² We mostly focus on whether a district is overall mostly urbanized or mostly rural in 2000, which is time invariant and not influenced by these updates.

It is also important to note that India uses a more demanding set of criteria than most countries to define what is “urban” (e.g. Bhagat, 2005, United Nations, 2001). For instance, substantial parts of US metropolitan areas like Atlanta or Phoenix would be classified as rural in Indian statistical analyses because their population densities fall below 1,000 persons per square mile. Thus, our measured urbanization for India will be lower than many international standards. This consideration does not, however, affect the longitudinal consistency of our trends for India.

Sample Preparation

Our work compares manufacturing and services during the overlapping period of 2000-2010. The raw data have 155,513 ASI observations and 408,002 NSSO observations. For the ASI, we drop establishments that are not “open,” excluding plants that were closed or non-operational when surveyed, were deleted due to deregistration, were out of coverage (that is belonging to defence, oil storage), etc. Next, we drop ASI establishments that do not belong to the manufacturing sector. Such industries may relate to mining and quarrying, fishing and aquaculture, or services sector. Finally, we flag observations with null, missing, negative, or extremely large values of output, output per worker, and employment. At this stage, those states that are not surveyed by ASI are also flagged from the NSSO surveys. These include the states of Arunachal Pradesh, Mizoram, Sikkim, and the Union Territory of Lakshadweep. We also flag observations that have blank state codes. In the end, we drop observations that have any one of the flags described above. These drops result in a final sample of 93,749 for the organized sector and 402,035 for the unorganized sector for the three survey years under consideration.

The NSSO surveys many more establishments in the services sector, about 800,000 during our period of study. We drop some very small industries: NIC 61 (Inland, sea and coastal water transport), 73 (Research on natural sciences, engineering, social sciences and humanities), and 90 (Sanitation services). We also drop NIC industries 37 (Recycling) and 50–52 (Wholesale and retail trade, repair of motor vehicles & household goods) due to inconsistent coverage across survey years. The latter exclusions substantially reduce the included establishment counts.

To prepare for our spatial analyses, we also exclude plants from small and conflict states. These include Andaman and Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir, Tripura,

¹¹ India’s Ministry of Urban Development Report (2011), Kundu (2006, 2009, 2011), Himanshu (2007), Mohan and Dasgupta (2005), Planning Commission (2008), Bhagat (2011), Sivaramakrishna, Kundu and Singh (2005) provide greater details. Chandrashekhar (2011) and Mohanan (2008) examine the trends in workers commuting between rural and urban areas.

¹² Kundu (2011a) suggests that reclassification between the 1991 and 2001 Censuses is a minor factor. Bhagat and Mohanty (2009) calculate that reclassifications account for about 12% of the total change in urbanization between the 1991 and 2001 Censuses.

Manipur, Meghalaya, Mizoram, Nagaland and Assam. In some analyses, we drop observations for plants with negative value added, missing raw materials value and missing values of fixed assets. Lastly, we also drop any observation in the services sector surveyed from the states of Arunachal Pradesh, Lakshadweep, Mizoram and Sikkim because they are not covered by the organized manufacturing survey, with which we seek to compare trends. The latter step impacts less than 1% of our sample. We are left with 355,702 observations corresponding to the year 2001, 186,889 from 2006, and 110,241 in the year 2010. These correspond to over 400 districts each year. In upcoming regression analyses at the district level, we drop a small number of observations that lack district identifiers.

Section 4: Descriptive Results

Table 1 describes the spatial data at its broadest level. Panel A presents the raw observation counts noted above and their breakdown by sector, year and urban/rural spatial location. Panel B applies sample weights to these observations to estimate the total number of plants in the Indian economy within our set of industries (noting again the exclusion of some services components). Panel C presents break outs of activity for the organized and the unorganized sectors, and Panel D provides district counts. The services sector is officially unorganized, including its largest establishments, but we proxy an “organized services” sector using the same definition as present in manufacturing (more than 10 employees) so that we can compare trends in the establishment size distribution.¹³

Panels B and C show several interesting features. (i) About 99% of establishments in each year in the services sector have fewer than 10 employees. This is similar to the size composition of the overall manufacturing sector, where the unorganized sector dominates the industry in terms of establishment count. (ii) The services sector accounts for more of the larger establishments in India compared to manufacturing. Since the year 2000, 60-70% of larger plants in India belong to the services industry. Manufacturing and services contribute more equally to the count of smaller establishments. (iii) Services are more urbanized than manufacturing on all dimensions, with output showing a particularly large gap, reflective of larger services establishments being in urbanized areas. (iv) Unorganized manufacturing and services are urbanizing during the period, with manufacturing plant shares rising from 30% to 42% and services shares from 41% to 48% since 2000. The trend is similar in terms of employment and output. (v) While organized manufacturing is moving away from the urban core to the rural periphery (see Ghani et al., 2012, for trends dating to 1989), the same trend is not evident for organized services. The share of organized services plants in rural areas first increased from 33% to 59% from 2000 to 2005, but then retreated to 46% in 2010. A similar trend is evident for organized services employment, but output follows a reverse trend. With only three surveys, we are not able to establish trends as we could for manufacturing, but the evidence does suggest smaller establishments in the sectors are behaving similarly, while larger establishments diverge between manufacturing and services.

¹³ Although we refer to establishments with more than 10 employees as “organized,” most private sector services enterprises, whether small or large, are officially in the unorganized sector because services establishments in India are not officially required to register under the Indian Factories Act, 1948. An alternative approach could be to disaggregate services into own-account enterprises (OAE) and establishment enterprises (EE) with the former representing the plants that operate without any hired workers on a regular basis, while the latter refers to those that employ them. While the OAE are clearly informal plants, EE could potentially include both informal and formal sector enterprises.

Table 2 documents patterns for 28 states and union territories (UTs). Panel A presents estimated plant counts, while Panel B presents the share distribution. The correlation between manufacturing and services distributions over states is above 0.93 in all surveys; that is, states that with a high share in manufacturing also hold a high share of services. West Bengal and Uttar Pradesh have the largest shares for both sectors. While their share of manufacturing plants has remained stable since 2000, their share for services has declined. Other states such as Tamil Nadu and Andhra Pradesh that capture close to 10% of plant share in manufacturing are steadily increasing their share in services. In total, the six states of West Bengal, Uttar Pradesh, Tamil Nadu, Andhra Pradesh, Gujarat, and Maharashtra capture close to 60% of all plants counts in both manufacturing and services.¹⁴

To explore whether richer states have a higher share of economic activity in the two industries, Figure 1 plots the GDP per capita in 2000 against the corresponding share of manufacturing (Panel A) and services activity (Panel B). States with higher income tend to be smaller and thus hold a smaller share of activity in both sectors. However, Panels C and D show that growth is positively associated with income level. Thus, states with higher income have displayed higher growth in both industries. The subsequent sections of this paper will refine this picture and also analyze this growth in terms of distances from big cities, the extended use of information technology, and so on.

Panel C of Table 2 documents the urbanization patterns in the two sectors, while Panel D presents the share of organized plants. These panels suggest that: (i) UTs such as Delhi, Chandigarh, and Pondicherry are the most urbanized; (ii) some medium-sized states such as Gujarat, Haryana, and Tamil Nadu are experiencing increased urbanization in both manufacturing and services, whereas large states such as Madhya Pradesh have experienced an above-average urbanization in services but a below-average urbanization in manufacturing; (iii) with the exception of Delhi and Gujarat, urbanization rates are higher in services vis-à-vis manufacturing as shown by the Mfg:Serv Ratio; (iv) similar to plant counts, urbanization levels are highly correlated at the state level across sectors, never falling below 0.88 in a given year; (v) by contrast, the organized sector shares in manufacturing and services are not as strong correlated, ranging from 0.17 to 0.48 across surveys.¹⁵

Table 3 documents similar statistics using two-digit industries. Panel A presents the estimated plant count, Panel B shows industry distributions, Panel C tabulates urbanization trends, and Panel D catalogues the organized activity within these disaggregate industries.¹⁶ Panels A and B suggest that of the 21 two-digit NIC industries within manufacturing, about 85% of establishments belong to six industries: food products and beverages, tobacco products, textiles, wearing apparel, wood and wood products and furniture manufacturing. Within services, two industries, hotels and restaurants and land transport, contribute about

¹⁴ The Appendix repeats this table and upcoming calculations for larger establishments with 10 or more employees. Bigger states like Maharashtra and Tamil Nadu appear to have a higher share of large plants.

¹⁵ Appendix Tables A2a-A2c present urban shares in plants, employment and output, respectively, for organized and unorganized sectors across states. When urbanization is measured in terms of plant counts, organized sector manufacturing has higher urban shares vis-à-vis the unorganized sector, while the trend is less clear for employment and output. The overall urban share among plants and employment in manufacturing is dominated by the trend in the unorganized sector, while the organized sector matters more for output. Tables A2d-A2f present similar tables for services, where urbanization is always higher for the organized sector. Along all metrics, aggregate services trends are mostly determined by the unorganized sector.

¹⁶ Appendix Tables A1c-A1e again isolate large plants for comparison.

half of the plant count. A few other services such as education and health services, financial intermediation, and other business services also feature prominently. Thus, both sectors show a concentrated industry composition.

These largest industries show lower urbanization shares. For example, in manufacturing, food products and beverages, tobacco products, and wood and wood products are among the least urbanized, while hotels and restaurants and land transport are below average in services.¹⁷ Panel D also suggests that the correlation between higher urban share and organized sector share is rather weak.¹⁸ For instance, although industries such as office, accounting and computing machinery in the manufacturing industry and computers and related activities in the services industry are highly organized and urbanized, other industries such as coke, refined petroleum and nuclear fuel in manufacturing and financial intermediation in services are largely rural but highly organized.

We next describe the spatial layout of activity in India. World Bank legal issues do not permit the display of maps, and so we describe the share of activity present in regions around the three largest cities in India: Mumbai, Kolkata, and Delhi. Using distances between district centroids, we create nine distance bands in intervals of 100 km stretching from 0-100 km to 800+ km. In additional work, we consider instead distance to the seven largest cities that further include Bangalore, Chennai, Hyderabad and Ahmedabad. Table 4a presents the share of plants, employment, and output within these distance rings around the three largest cities for manufacturing, and Table 4b repeats this for services. Tables 4c and 4d alternatively consider distance to the seven largest cities.

Three significant points emerge. First, in the case of manufacturing, nearly 60% and 90% of economic activity takes places within 600 km of the three and seven largest cities, respectively. These shares are slightly larger for the organized portion of this sector. Relative to manufacturing, economic activity in services tends to be spread around larger distance bands when top three cities are considered, with about 53% of organized and 57% of unorganized plant activity being present within 600 km of the largest cities.

Second, distance from the top three vs. seven cities has a different relationship for the two sectors. With the exception of the 100-200 km distance band, activity for organized manufacturing tends to decline faster and in a more regular pattern from the three largest cities compared to services, where activity is relatively more spread out. On the other hand, these differences are less dramatic when looking at distance from the seven largest cities, where economic activity declines smoothly for most distance bands after the initial spike in the 200-300 km distance band. These possible differences between the three largest cities and the next four are further investigated in the upcoming econometric analyses.

Third, Figure 2 shows that both sectors moved into closer proximity to the big-3 cities during 2000-2010, and this is also true when distance bands are measured from big-7 cities. The pattern, however, is especially

¹⁷ Appendix Tables A3a-A3c present the urban shares in plants, employment and output by manufacturing industry. These provide more detail to patterns highlighted with Table 1. Analogously, Tables A3d-A3f present the urban share for plants, employment and output for organized and unorganized services by industry. Organized services has a higher urban shares compared to unorganized services. Financial intermediation services are a minor exception, where it is slightly more urbanized in the unorganized sector in terms of all outcome variables.

¹⁸ Unorganized manufacturing and services are witnessing an increase in their urban shares of plants, yet the urban share of organized plants is larger relative to unorganized plants.

prominent for services and becomes more visible at the expense of the 200-400 km zone around these largest cities, compared to manufacturing. Thus, even though improvements in transport infrastructure are helping activate intermediate sized cities (Ghani et al., 2015), the importance of the largest cities is undeniable and important to model.

Table 4e evaluates the correlations between services and manufacturing economic activity in terms of plant count, employment and output across the distance rings. Panel A presents this correlation for the activity nearest to the three largest cities, and Panel B repeats for the top seven cities. As noted for Table 2, this correlation table shows that manufacturing and services activity are also highly interrelated spatially across distance bands. More important, all of the correlations are increasing from 2000 to 2010. In words, this suggests that the spatial layouts of manufacturing and services are becoming increasingly integrated. We later connect this to whether one sector tends to crowd the other out of districts, generally finding this not to be the case and that the two sectors may modestly complement each other.

As a final descriptive step, we tabulate the technology variables that are new to our study. Tables 5a and 5b present the shares of establishments across industry codes that use computers and the Internet in 2010.¹⁹ This information is available only for the NSSO survey year 2010-11 (67th round) and thus is not reported for organized manufacturing. Each panel separates the usage of technology by rich and poor states and by urban and rural locations, dropping cells with fewer than 10 observations.

As would be expected in the manufacturing sector, over 80% of the plants in office, accounting and computing machinery industry use computers. Adoption rates are much higher in urban areas, while the differences between rich and poor states are more muted. Office, accounting and computing machinery is also the industry that records the highest usage of Internet. Nevertheless, unlike the usage of computers, plants in richer states are more likely to use Internet than those in poor states, while the gap between rural and urban regions is only marginal. Other industries that show higher usage of computers and Internet include publishing, printing and media reproduction and medical, precision and optical instruments, watches. For the most part, adoption rates are higher in rich states and urban areas.

Within services, it is not surprising that computers and related activities record the highest usage of computers and Internet, with the usage of new technologies in organized services always being considerably higher than that in unorganized services. Other organized services with high use of technology include financial intermediation, post and telecommunications, other business activities and supporting/auxiliary transport activities, and travel agencies. Education and health services also record a high usage of computers, but show lower Internet usage. Services establishments in richer states adopt technology somewhat more than those in poor ones, while those in urban areas have greater usage ratios than their rural counterparts.

¹⁹ Computers and Internet are the most adopted IT metrics. Appendix Table A4a-A4b shows additional tabulations for Web presence, use of Intranet, sales and purchases through the Internet, presence of narrowband, presence of fixed broadband, presence of mobile broadband, use of local area network (LAN), and the use of extranet.

Section 5: Econometric Analyses of Spatial Movements

Building upon the above descriptive findings, we next conduct three econometric analyses of manufacturing and services activity in levels and growth during 2000-2010. We first consider an augmented comparative analysis of district level performance of manufacturing and services that combines spatial factors (e.g., distance to large cities, urban/rural location) with local traits (e.g., population, infrastructure). The estimating equation takes the following form:

$$Y_i = \sum_u \sum_d \beta_{d,u} \cdot (0,1) R_{i,u,d} + \Phi_i + \varepsilon_i \quad (1)$$

where Y_i is the outcome variable of district i measured either in levels or in growth terms. For both manufacturing and services, economic activity can be computed in terms of establishment count, employment or output level. The subscript u represents an index that categorizes a district i as primarily urban or rural depending on whether the urban plant share of the district is over or under the national median value. $R_{i,u,d}$ represents the distance rings, d , of districts i in each urban or rural district group u .

Distance rings, as measured from the centroid of a district, are defined as districts located in the following 5 bins: within 100 km from the centroid of the nearest big-3 cities, within 100 km from the centroid of the nearest next four to seven largest cities, within 100-300 km from the centroid of the nearest big-3 cities, within 100-300 km from the centroid of the nearest next four to seven largest cities, greater than 300 km from the centroid of the nearest big-7 cities. Interacting these distance bins with the urban-rural index, u , for a district gives us a total of 10 spatial indicators. We choose the spatial indicator variable representing rural districts lying at a distance of over 300 km from the centroid of nearest of the seven largest cities as the reference category.

Table 6 gives the descriptive statistics in each of above described spatial rings. Out of a total of 421 districts, 102 districts lying within 300 km range of the big-7 cities are urban. Only 45 districts located within 300 km range of big-7 cities are rural, while 60% of the districts that are located beyond 300 km from big cities are rural. Irrespective of their location with respect to big cities, rural districts generally register a negative growth in plant and employment in the manufacturing sector and a considerably lower growth in output relative to their urban counterparts. By contrast, growth in the services sector, although smaller in the rural districts relative to their urban counterparts, is mostly positive in all distance rings except in those located within 100 km of the top four to seven big cities. In fact, rural districts located within 100-300 km from the next four to seven big cities actually register a higher output growth relative to their urban counterparts. Comparing growth across manufacturing and services sectors in urban districts, we note a higher growth in services activity relative to manufacturing. In rural districts, by contrast, manufacturing plant and employment growth is higher as long as districts are within 100 km of a big-7 city, but not otherwise. Growth in output for manufacturing located in the rural districts, on the other hand, exceeds that in services.

The vector Φ_i in the estimating equation (1) represents the standard set of district level traits, primarily including district population, demographic dividend (age profile), female-to-male ratio, percent of population belonging to a scheduled caste or tribe, literacy rate and composite infrastructure measure, all of which are taken from the 2001 population census. The composite measure of infrastructure includes an

index on the quality of roads, telecom infrastructure, access to electricity and safe drinking water. In addition, we account for spatial variables such as distance to a national highway, distance to a state highway and distance to a railway, measured from the edge of the district using arc GIS software. We also explain our outcome variables using factors such as technology penetration measured as the proportion of plants in a district using computers or the Internet, taken directly from the latest NSS surveys.

Table 7a presents our first regression analysis on the log average activity level over the period 2001-2010, for a cross-section of 421 districts. Outcome variables are log of activity as measured by plant count, employment count and output levels for both manufacturing and services, across the columns. Explanatory variables, which are measured at the district level, include the above described spatial indicator variables as well as the standard district traits. The outcome variables as well as the explanatory variables are in unit standard deviation format. All regressions are weighted by district population, and the table reports robust standard errors.

In Table 7a we observe that relative to the reference category, which is the set of 165 rural districts lying at a distance of over 300 km from the nearest of the big-7 cities, manufacturing in urban districts has a stronger overall presence closer to the larger cities (Columns 1-3), which is most evident in the high magnitude of the coefficients for districts lying within 100 km of the nearest big-3 cities. The magnitude of the coefficient declines as the distance from the big-3 or the next four to seven largest cities increases. By contrast, the tendency for services activity in urban districts to locate in proximity to bigger cities is slightly lower than that observed in manufacturing (Columns 4-6). For instance, relative to services, manufacturing output is found to be over three times higher for urban districts within 100 km of big-3 cities. Further, for each district band, and for each measure of activity, be it plant count, employment or output, the size of the coefficients on the indicator variables measuring proximity to big cities is always larger for manufacturing than for services. Lastly, for any measure of activity in both manufacturing and services, we observe a higher tendency to locate in rural districts when these districts are within 100 km of big-3 cities. Such agglomeration of economic activity in rural districts is absent beyond the first 100 km distance band and also even among cities that are ranked lower. Again, this tendency is stronger in manufacturing than in services. For instance, services output is only half as likely to be disproportionately clustered around big-3 cities relative to output in manufacturing.

Across our measures of manufacturing activity, we note that proximity to big-3 cities in urban districts is associated with a larger impact on output relative to plant count, while the reverse is true for rural districts. Although we present the outcome variables for overall manufacturing, it is straightforward to understand whether these aggregate results are driven by the organized or the unorganized sector. Specifically, Ghani et al. (2012) find that the unorganized sector accounts for over 99% of the plant count, 80% of the employment and less than 20% of output. Thus, the results on plant count and to a certain extent on employment in overall manufacturing is motivated primarily by the unorganized sector, while that on output is dictated by the organized sector. In the specific situation described above, we infer that the coefficients observed for overall manufacturing in Columns 1 and 2 of Table 7a (that is, on plant count and employment, respectively) represent the effect coming primarily from the unorganized sector, while the effect on output in Column 3 is dominated by the organized sector.

District population and demographic dividend (the latter being measured as the ratio of working age population relative to non-working age population) predict the economic activity in both the manufacturing and services sectors. Although literacy rates do not have a positive influence on economic activity in manufacturing, they exhibit a positive and significant association with services output. Specifically, a unit SD in district literacy rate is associated with a 0.08 SD increase in services output. This is as expected given the importance of skill and education for services (e.g., Amin and Mattoo, 2008). Output of both goods and services is predicted by the local district level composite infrastructure index that includes measures on the quality of roads, telecom, electricity and safe drinking water.

Along with these core elements, we also embed technology metrics into the analyses to see if we can determine a special role for local ICT capabilities. Specifically, we account for the technology penetration in a district by controlling for the proportion of plants in unorganized manufacturing and services sectors that use the Internet in 2010. Technology measures such as Internet usage are not available among organized manufacturing plants in the 2009-10 ASI data available from the Ministry of Statistics and Planning Implementation (MoPSI), but this is not a worry for our application. In the face of inadequate provision of public services, larger plants in the organized sector have proportionally greater access to basic infrastructure services because they have the capital to make lumpy investments and build their own infrastructure or generate their own electricity (e.g., Ghani et al. 2014). Our technology measure thus captures access to basic technology services for more than 99% of establishments.

Technology penetration does not explain the average activity in the manufacturing sector, but it is significantly associated with average employment and output in services. For instance, a unit SD increase in usage of Internet among plants is associated with a 0.11 SD increase in services output. This result is broadly consistent with the literature that underscores the importance of Internet for the services sector (e.g., Freund and Weinhold, 2002; Goswami et al., 2012). Internet use is expected to impact both manufacturing and services, although in the case of the former it improves activity indirectly by allowing a better flow of information on markets and thereby reducing entry costs. In the case of services, Internet access directly affects activity as well as tradability, both domestically and internationally, because new services, which can be delivered via the Internet, can now be traded almost costlessly, irrespective of location. Thus, the Internet is likely to have a greater impact on services relative to manufacturing.²⁰ However, when technology penetration is linked with the use of computers, then both manufacturing and services output rightly respond to this measure of technology, as digitization affects both services and manufacturing in an analogous manner (see Appendix Table A5a). Overall, our results on spatial indicators and other covariates remain robust to the inclusion or exclusion of any measure of technology penetration.²¹

Subsequently, using the same set of covariates, we explain the log growth of economic activity from 2001-2010 in Table 7b. We note the following patterns: (i) an urban district located within 100 km of a big-3 city is associated with higher growth in services activity, but a similar growth trend appears in manufacturing

²⁰ For example, Freund and Weinhold (2004) argue this in the context of international trade.

²¹ The overall goodness-of-fit of this model, as measured by adjusted R-squared, ranges from 0.6 to 0.67 for each activity level in both the manufacturing and services sector. Spatial indicators tend to explain about 24% to 48% of the total variation in economic activity, with our models having the greatest explanatory power for manufacturing output, followed by services output. District covariates, on the other hand, explain 54% to 67% of the total variation in activity levels. Irrespective of the sector, it is again the output level of a district that is best explained by district covariates.

only in districts within 100 km of the next four to seven largest cities. (ii) Nonetheless, services growth is not tied to being located in urban districts close to the big-3 cities, as we do observe positive movement in the urban district bin located over 300 km from big-7 cities. (iii) Manufacturing and services activity growth in rural districts responds positively to being located within 100 km of big-3 cities; nonetheless, growth in services located in rural districts is negatively correlated to being in proximity to the next four to seven largest cities. This broadly corroborates the findings of Ghani et al. (2012), who document the migration of large manufacturing plants located in districts close to big cities into their rural periphery.

In terms of district covariates determining the growth in manufacturing and services, there are a few differences. Services follow population when growth in activity is measured through plant count or employment, as most services are intangibles and their exchange requires the proximity of suppliers and providers, sometimes referred to as the “proximity burden” (Christen and Francois, 2009). A unit SD increase in district population is associated with an approximately 0.17 SD growth in both services plant count and employment. By contrast, manufacturing growth is not associated with district population because goods can be produced in one location and transported to where their demand is. Nonetheless, this ability to transport depends on the quality of infrastructure, which appears with a positive and significant coefficient for manufacturing but not for services.²² As for gender bias across the two sectors, studies show that industries within the manufacturing sector have a higher proportion of male workers, while the services industry is perhaps relatively less biased to hiring female employees (e.g., Banga and Bansal, 2009). Consistent with such studies, our result suggests a higher female-to-male ratio in population is negatively associated with manufacturing activity growth, but not so with services.

Lastly, we find significant correlation of technology penetration, in terms of Internet usage, with growth in services sector activity, be it plant, employment or output, but not so in manufacturing. For instance, a unit SD increase in Internet usage among plants is associated with an increase in services employment growth of 0.19 SD, while it has no significant impact on growth in manufacturing activity. These results hold even when we link technology penetration with the use of computers rather than the Internet, except that manufacturing output growth also weakly responds to digitization (see Appendix Table A5b). For example, a unit SD increase in the share of plants using computers is associated with an increase in manufacturing output growth of 0.04 SD, while it is associated with a larger impact of 0.18 SD on services output growth.

In an alternative setting, presented in Table 7c, we extend the specification in Table 7b by adding the initial level of economic activity. Conditional estimations are usually run to check for convergence and/or mean reversion. Thus, this specification works as a robustness test for the importance of spatial indicator variables and technology penetration in the presence of observed convergence, as indicated by the negative and highly significant coefficients for initial economic activity. The table suggests that the importance of proximity to big-3 cities in explaining growth under this conditional specification is heightened, especially for the manufacturing sector. In the services sector, the role of big-3 cities is slightly diminished in urban districts but highly enhanced in rural districts. As before, services are also growing in urban districts that are located far away from the big-7 cities. District traits such as population are associated with services growth as before, but in this conditional specification it is also important in explaining the growth in manufacturing. The latter effect is, however, smaller in magnitude and appears with larger standard errors.

²² In a multivariate setting, distance to railways shows a negative partial correlation; that is, longer distance to railways is associated with enhanced growth in manufacturing activity.

Infrastructure and distance to railways, as before, matter for growth in manufacturing activity, while the penetration of technology as measured by the use of Internet is associated with growth in services activity but not with growth in manufacturing. For instance, a unit SD increase in the share of plants using the Internet is associated with an increase of 0.116 SD in services output growth and a 0.096 SD growth in employment among services plants. Such a significant impact on the manufacturing sector due to Internet penetration is absent even in a conditional setting. If technology penetration is measured by the use of computers, we again find the gap between manufacturing and services remains but narrows (Appendix Table A5c).²³

Certain characteristics of large-sized plants have attracted wide interest from business and policy circles. For instance, studies show that larger plants pay higher wages (e.g., Brown and Medoff, 1989), are more productive (e.g., Hasan and Jandoc, 2010), are more likely to participate in international trade (e.g., Melitz, 2003) and create more jobs (e.g., Mazumdar, 2003; Hasan and Jandoc, 2010). To this end, we extend our framework to isolate the effects of proximity to big cities and technology penetration on larger plants. In Tables 8a-8c, we replicate the estimations in Tables 7a-7c, but where the district level aggregates of activity are computed through a restricted sample of large plants only. These plants are primarily the organized sector plants that account for a majority of the share in economic activity. Thus, we expect the coefficients on plant count, employment and output to move in tandem with each other because they would primarily represent the activity of the organized sector.

In terms of plant count, Table 8a suggests that: (i) relative to the reference category of large plants located in rural districts more than 300 km away from big-7 cities, manufacturing activity for large plants is more likely located close to big cities. Across urban and rural districts, manufacturing activity is more likely located in rural districts if it happens to be within 100 km of big-3 cities. These results are qualitatively similar to that obtained in the unrestricted sample. (ii) Large services plants show significant activity in urban districts around the next four to seven largest cities, rather than the big-3 cities. This is in contrast to the unrestricted sample where services activity is not tied to being located in urban districts around big cities. Nonetheless, within rural districts, the results are qualitatively similar to the unrestricted estimations that find a concentration of services activity around big-3 cities.

In the restricted specification, we find a similar role for population in explaining manufacturing and services activity of large plants, but the demographic dividend is no longer associated with higher activity of organized services plants. Large services establishments, instead, care more about literacy levels. Unlike the unrestricted sample where only the output of manufacturing and services plants responds to infrastructure, large plants in both manufacturing and services care about the quality of infrastructure in terms of all measures of activity, plant count, employment or output. Likewise, in the restricted specification with only the large plants, the penetration of technology in terms of Internet usage matters not only for

²³ Measuring the goodness of fit of our growth regressions through adjusted R-squared, we find that the overall goodness of fit improves substantially when we move from unconditional regressions in Table 7b to controlling for initial activity in the conditional regressions presented in Table 7c. For instance, in the case of manufacturing plant count, the adjusted R-squared increases from 0.19 in unconditional estimations to 0.48 in conditional estimations, while for the services sector it improves from 0.10 to 0.80. About 18% of the variation in manufacturing plant count growth and 51% of the variation in services plant count growth in this conditional setting is explained by the initial level of plant count. Spatial indicators explain 14% of this variation in manufacturing and 7% in services, while the district covariates account for 12% of variation in manufacturing and 8% in the case of services.

services but also for manufacturing plants. For instance, a unit SD increase in the share of plants using Internet is associated with about 0.1 SD increase in employment for large manufacturing as well as services plants. These results continue to hold when modelling computer adoption rather than Internet penetration (Appendix Table A6a).²⁴

Tables 8b and 8c replicate Tables 7b and 7c, which measure the growth in activity from 2001 to 2010, but this time we include only large plants. We note the following differences and similarities in pattern: (i) relative to the reference category of large plants located over 300 km in rural districts, there is not much growth in activity, in either manufacturing or services, for urban districts located within 100 km of a big-3 city or the next four to seven largest cities. (ii) Irrespective of their proximity to big cities, large plants, in both services and manufacturing, do not observe growth in urban districts. (iii) Yet, large manufacturing plants are similar to other plants in the sense that their growth in rural districts responds positively to being located within 100 km proximity to big-3 cities. (iv) Large services plants strongly follow population, reinforcing the “proximity burden,” while in the unrestricted sample, manufacturing growth is not associated with district population. (v) Growth in large manufacturing plants is less biased towards a male workforce, except in output growth, where the effect of the female-to-male ratio is found to be negative and significant. The result on gender dimension with respect to the growth in activity of large services plants is qualitatively similar to that obtained for the entire sample of plants. (vi) The results on growth in activity of large plants due to technology penetration, whether measured by usage of Internet or computers (the results for the latter measure are presented in Appendix Table A6b), remains qualitatively similar to that observed for the entire sample of plants.

Conditional estimations for the restricted sample based on large plants are presented in Table 8c. Relative to unconditional estimations, conditional results emphasize a greater importance of spatial indicators in explaining the growth in activity even for large plants. This feature of conditional estimations is similar to that seen in the unrestricted sample. Here, we note that regardless of the district being urban or rural, the importance of proximity to big cities in explaining the growth among large plants in manufacturing and services activity is remarkably heightened relative to unconditional estimations. District traits such as population are associated not only with services growth as before, but in this conditional specification it also assumes significant importance for manufacturing growth. This finding is similar to that observed in the unrestricted sample which included all plants (Table 7c). As in the unconditional specification, infrastructure matters not only for manufacturing activity growth but also for services. On the other hand, the penetration of technology, as measured by the share of plants using the Internet, is associated with growth in services activity of large plants but not so for manufacturing. Contrarily, if technology penetration is measured by the share of plants using computers, we find similar effects in both manufacturing and

²⁴ The overall goodness of fit in this restricted regression is slightly diminished relative to the unrestricted regressions. For instance, the adjusted R-squared for manufacturing output regression in the restricted regression is 0.57, relative to 0.66 in the unrestricted regression, while that in services output is 0.59 as compared to 0.68. However, this decline is mainly due to the power of the district covariates in explaining the activity of large plants. The goodness of fit from spatial indicators is in fact improved, albeit marginally, in most of these restricted regressions. For example, spatial bins explain 34% of the variation in manufacturing output level in the unrestricted sample, but 43% in the sample that aggregates district activity for large plants only.

services (Appendix Table A6c). This result is qualitatively similar to that observed for the entire sample of plants.²⁵

While the importance of services for development is widely recognized, the sector's role in urbanization, job creation and structural transformation is generally less understood. Figure 3 shows the person level wage distribution across manufacturing and services sectors, which we calculate using plant level averages weighted by employee counts. The wage distributions in both sectors have shifted to the right since 2000, towards better paying jobs (values are in real 2005 currency). The next set of models evaluate the traits of places connected to the growth of these high wage jobs. To do so, we extend our methodology from Tables 7a-7c to focus only plants whose average wage per worker is over the 75th percentile. Tables 9a-9c show these corresponding results. Table 9a shows that irrespective of a district being urban or rural, high wage manufacturing jobs are more likely to be located close to big-3 cities and slightly less likely to be located near the next four to seven largest cities. High wage services activity is more likely to be located in urban districts that are close in proximity to the next four to seven largest cities. Thus, unlike the full sample, where services jobs are attracted to rural locations, high wage services jobs are most concentrated in urban districts in close proximity to the next four to seven big cities.

In the analysis of high wage plants, we observe a similar role for population and the demographic dividend in explaining manufacturing or services activity. As for infrastructure, while it is associated with a higher output for manufacturing and services in the whole sample, it appears to be critical only for services output in this restricted estimation. Literacy rates are very significant for high wage services activity, even more so than in the full sample. Further, unlike the base sample, the penetration of technology in terms of Internet usage is strongly correlated with the presence of high wage manufacturing and services activity, and the same finding holds with computer adoption (Appendix Table 7a).

Tables 9b and 9c consider growth of high wage plants. We note the following differences and similarities compared to the base sample: (i) the spatial variables for manufacturing generally show fewer indications of disproportionate growth in one area of the country over others. (ii) For the services sector, we find patterns similar to that in the unrestricted sample, with strong growth of high wage plants in urban and rural districts located within 100 km of big-3 cities. (iii) However, unlike the unrestricted sample, high wage services plants are not spread out to urban districts beyond 300 km from big cities.

The results with respect to district population remain broadly similar relative to those obtained in the unrestricted sample, but gender ratios and infrastructure matter less. The latter result may again reflect larger plants having the ability to build their own infrastructure as required. Finally, the result for growth in activity of large plants due to technology penetration, whether measured by usage of Internet or computers (the latter being presented in Appendix Table A7b), is strongly associated with significant growth in both services and manufacturing activity. The positive impact of Internet on manufacturing

²⁵ When moving from unconditional estimations to conditional estimations, we note a significant improvement in goodness of fit. For instance, the R-square of the regression of manufacturing and services employment increases from 0.3 to 0.64 and 0.4 to 0.57, respectively. This comes mainly from the fact that about 51% and 43% of the variation in manufacturing and services employment growth, respectively, comes from the initial level of economic activity. The contribution of spatial rings in explaining the growth in activity of large firms, as measured by adjusted R-squared, is fairly small. The adjusted R-squares for the spatial bins range from -0.018 to 0.048.

activity growth is something that is specific to high wage plants and was not observed in the full sample. The connection of Internet penetration to high wage services growth is exceptionally strong.

Table 9c presents the conditional estimations version of Table 9b, where we highlight the importance of spatial indicator variables and technology penetration for high wage plants even in the presence of convergence. As in the unrestricted sample, these conditional estimates emphasize a greater importance for spatial rings in explaining the growth in manufacturing and services activity, relative to the unconditional estimates. Our results suggest that, relative to the reference category, growth of high wage manufacturing plants in terms of plant count, employment and output is more tied to rural districts located within 100 km of big-3 cities. However, when a district is located in proximity to the next four to seven big cities, growth in manufacturing activity occurs regardless of the district being urban or rural. By contrast, the growth in services activity for high wage plants takes place across all spatial bands in urban districts, while when located in rural districts, its growth is mainly tied to being closer to big-3 cities. The result for services activity growth is not different from that observed for the unrestricted sample. Most of the other district traits resemble the results for Table 9b, with the renewed importance for services of several demographic features and infrastructure.

To summarize, our analysis from Tables 7a-9c shows that a parsimonious set of district features does a good job of explaining manufacturing and services growth. Spatial bands matter, reflective of strong movements of activity towards India's largest cities and in regions around them compared to the hinterland. This is particularly acute for manufacturing, but also present for services too. District traits like population levels, infrastructure, and literacy are connected to levels and growth of activity in intuitive ways that differ across sectors. And perhaps most intriguingly, we start to observe a special connection of modern infrastructure like Internet penetration for the development of the services sector and especially its high wage opportunities. This result remains far from causal, and further investigation of it is of first-order importance.

Manufacturing and Services: Friend or Foe?

Finally, we consider whether the development of manufacturing and services complement or crowd each other out at the district level. To examine this hypothesis, we begin with estimating the following two equations using OLS:

$$Y_{i,s} = \gamma_s Y_{i,m} + \sum_u \sum_d \beta_{d,u} \cdot (0,1) R_{i,u,d} + \Phi_i + \varepsilon_{i,s} \quad (2a)$$

$$Y_{i,m} = \gamma_m Y_{i,s} + \sum_u \sum_d \beta_{d,u} \cdot (0,1) R_{i,u,d} + \Phi_i + \varepsilon_{i,m} \quad (2b)$$

where $Y_{i,s}$ and $Y_{i,m}$ refer to the growth in services and manufacturing activity, respectively.

In a conditional setting, where we control for the initial level of the dependent variable, we find that growth in manufacturing activity has positive and statistically significant linkage with the growth in services activity. For instance, a unit SD rise in services employment growth is associated with a 0.08 SD increase in manufacturing employment growth. This represents a modest growth correlation across the sectors. In a

reverse relationship that measures the impact of manufacturing growth on services activity growth, we find a slightly stronger link at a 0.17 SD increase in service employment growth. These results are similar or slightly stronger when estimating models that exclude the district covariates and spatial bands. The cross-sector connections grow when focusing on larger or high wage plants. In these specifications, a unit SD growth in one sector is often associated with a 0.3-0.6 SD growth in the other sector.

These analyses suggest the two sectors may weakly complement each other, and they certainly do not suggest that one sector crowds out the other. The analyses could be biased, however, by both sectors responding to local growth opportunities not otherwise captured in our framework. We investigated this further using a Bartik-style framework (e.g., Bartik, 1991, Katz and Murphy, 1992; Autor and Duggan, 2003; Bertrand et al., 2015; Bartik, 2015). The measure uses average national employment growth by industry with the local initial industry employment shares to form a predicted and arguably exogenous impetus for local growth in each sector (i.e., districts happen to be specialized in industries that show strong expansion or contraction nationally). These Bartik variables are predictive of sector growth, but not strong enough for use as instruments in this context. In reduced form applications, they too confirm that if anything the sectors are modestly growing together. While our evidence is incomplete in this regard, the pieces we have been able to assemble consistently downplay the possibility of a crowding-out phenomenon existing between manufacturing and services activity at the district level.

Section 6: Conclusions

This paper develops a portrait of the spatial patterns of manufacturing and services establishments in India. To this end, we build a large empirical platform for the 2000-2010 period. Spatial movements of the sectors are described in terms of district traits, spatial positions within India vis-à-vis the largest cities and urban/rural levels, and use of technology. Our results suggest: (i) Services are more urbanized than manufacturing and are moving towards the urban core. (ii) Within manufacturing, the organized sector is moving away from the urban core to the rural periphery, while the reverse is true for the unorganized sector. (iii) Manufacturing and services activity are highly correlated in spatial terms and exhibit a high degree of concentration in just a few states and industries.

Our econometric results on average activity during the study period suggest that (i) relative to remote rural areas, manufacturing in urban districts has a stronger tendency to locate closer to larger cities relative to services activity, while when located in rural districts, both manufacturing and services tend to cluster near big cities. (ii) Infrastructure has a significant effect on manufacturing output, while human capital is associated with services activity. (iii) Lastly, technology penetration, measured by the penetration of Internet, matters more for services than for manufacturing. Similar results hold when we measure growth in activity over the study period rather than levels. For instance, we note that services growth is not really tied to being located in urban districts close to the big-3 cities, and local technology infrastructure is very predictive of services growth.

Relative to manufacturing and agriculture, services usually have a lower profile in growth and development narratives. This paper is only a first step towards understanding the role that services can potentially play in driving urbanization and structural transformation in a country like India. Our work suggests that services are overall more urbanized than manufacturing, and yet they are not tied to locating near big cities. This opens up the possibility that services could be more inclusive in driving employment and economic growth

in secondary cities. These spatial distributional consequences driven by the services sector would be very crucial in defining India's growth agenda. Such a link between services, job growth and the rise of mid-ranked cities would strongly be contingent on the penetration of new technology, such as the Internet. The World Development Report 2016 finds that digital gains are distributed unequally across regions of a country. Services have the potential to better spread these gains if complemented by policies such as investment in digital literacy and entrepreneurship skills or better regulation of ICT and ICT-enabled services.

Future research in this area should focus on (i) the channels through which services interact with new technology to promote urbanization, productivity, job growth, entrepreneurship and structural transformation. For instance, research could direct efforts to assess the differential impact of urbanization on services and manufacturing productivity. Although our work follows the pattern of urbanization among industries within services and manufacturing, it would be interesting to do so with regard to productivity as well and to ultimately link the two trends. (ii) A sectoral approach that specifically accounts for differences across services sectors in terms of their productivity, tradability, urbanization and their potential to engender growth would be quite useful here. For example, how city size impacts the location and agglomeration of services firms could be an important aspect of future research, especially with regard to high-tech services. (iii) To unlock a complete policy toolkit for positioning services as a growth escalator, it may be important to conduct similar comparative exercises between manufacturing and services using cross-country data to tease out the special role that India plays.

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Figure 1: State-level manufacturing and services activity vs. 2000 state GDP per capita

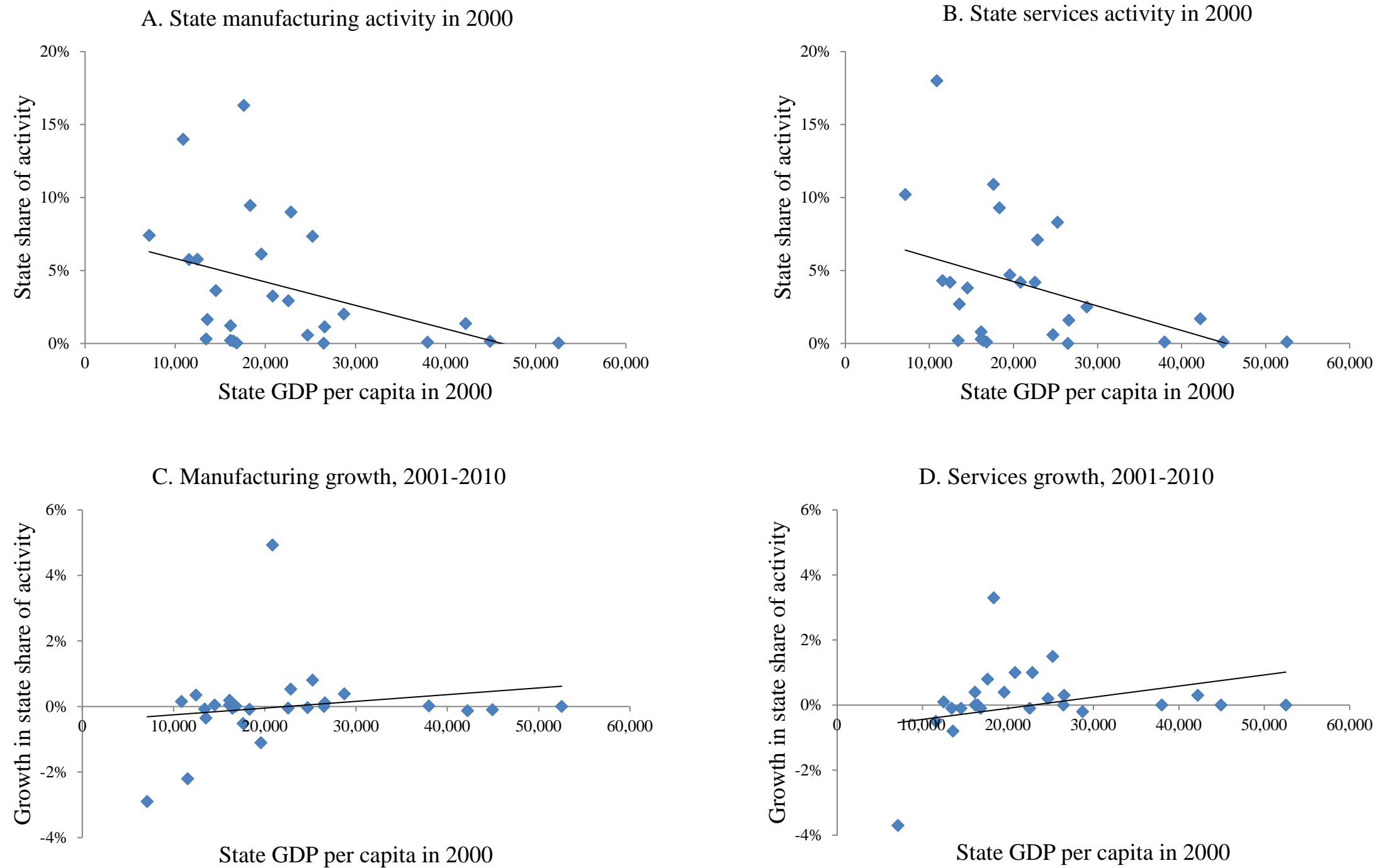
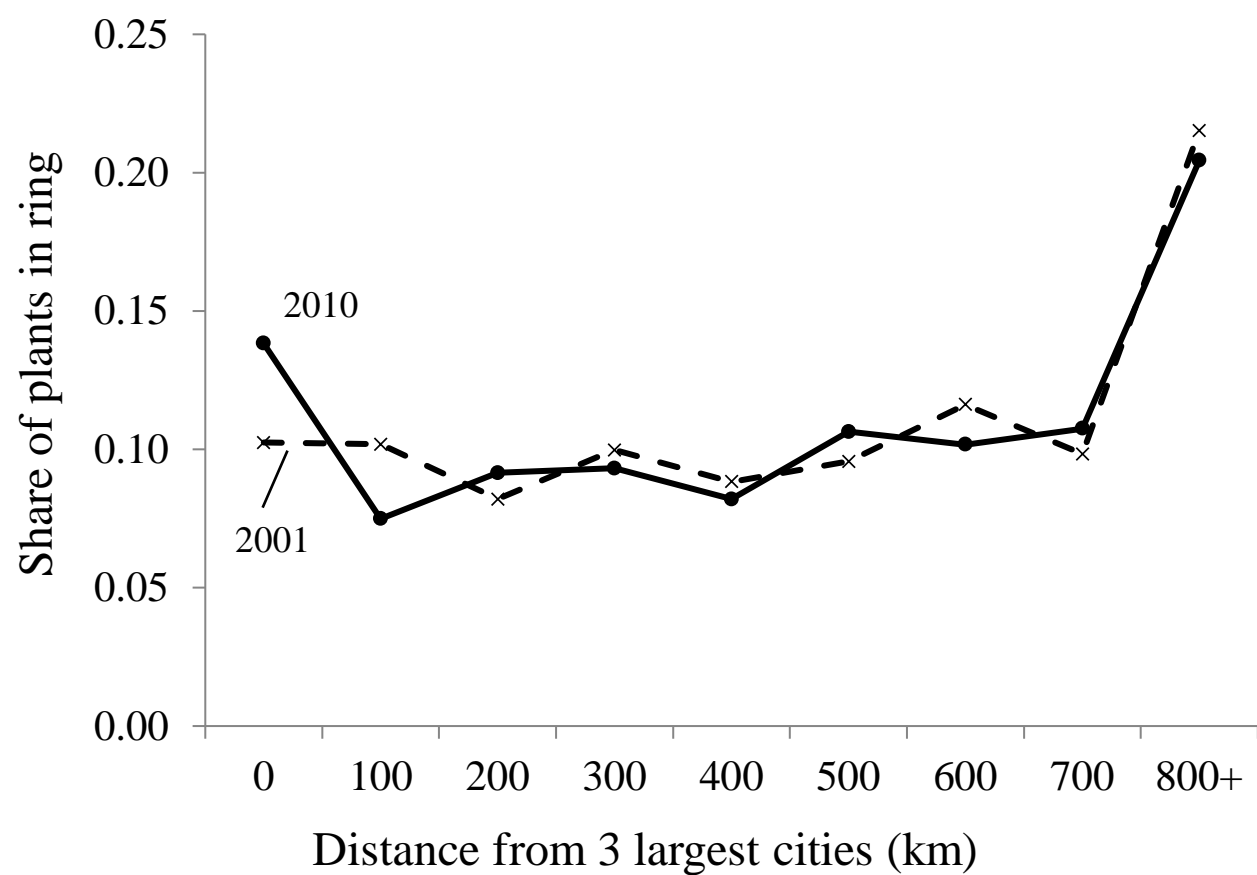
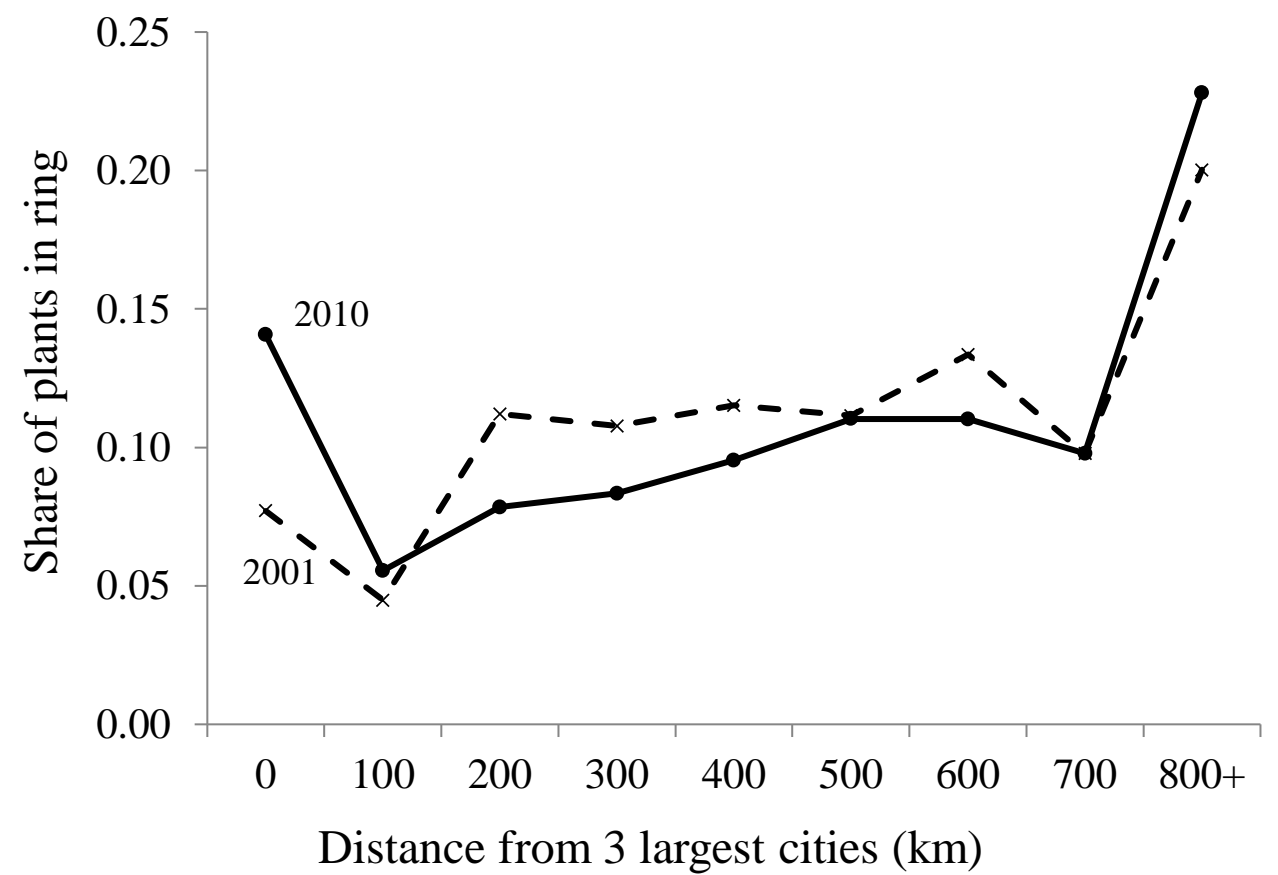


Figure 2: Share of manufacturing and services activity by distance from three largest cities

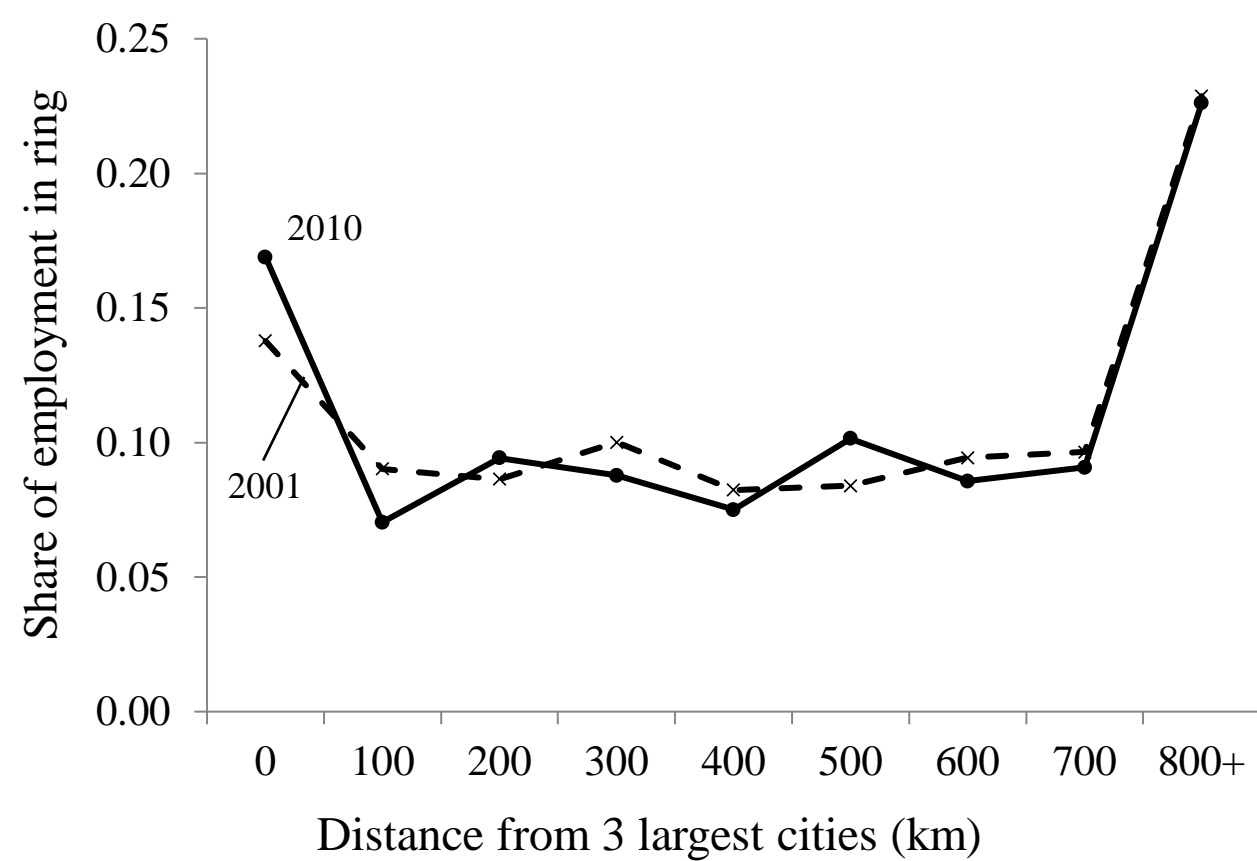
A. Manufacturing plants



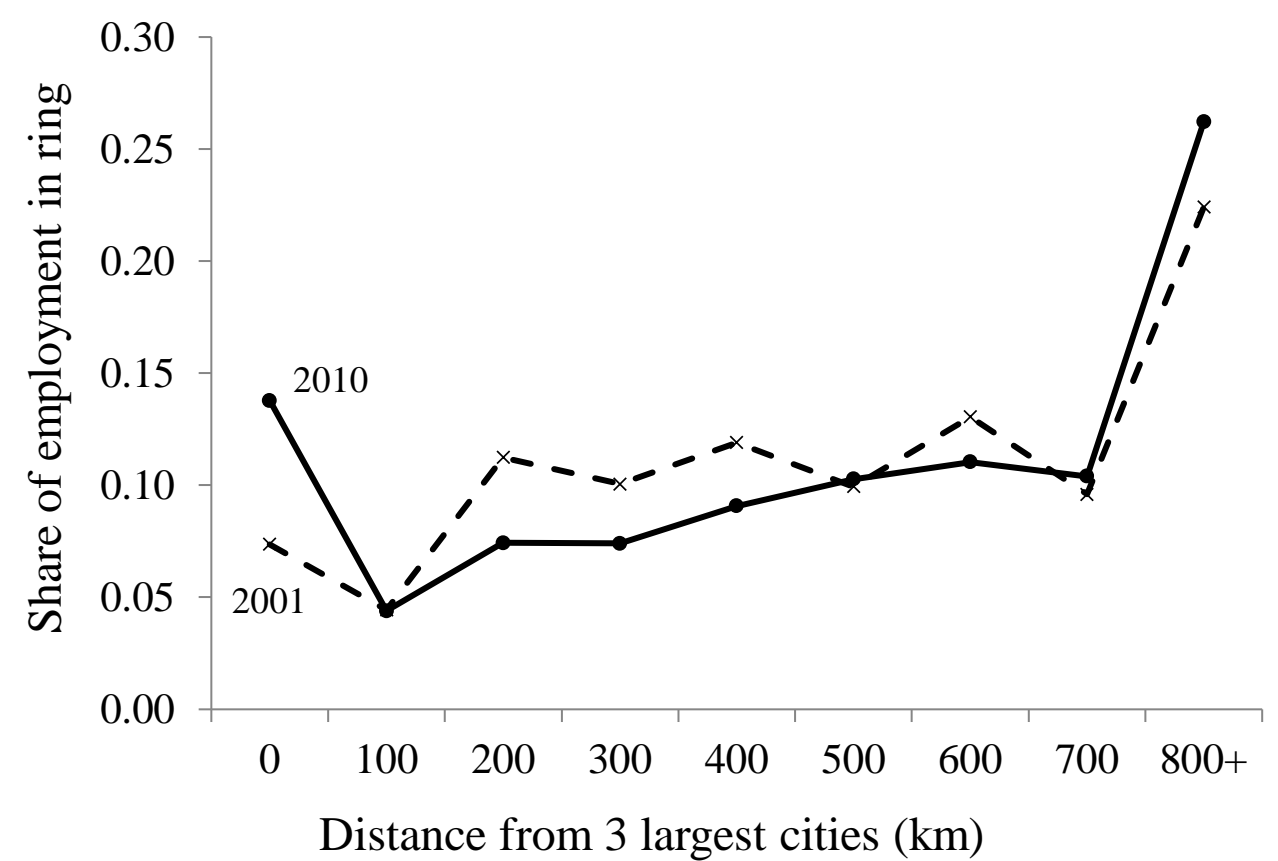
B. Services plants



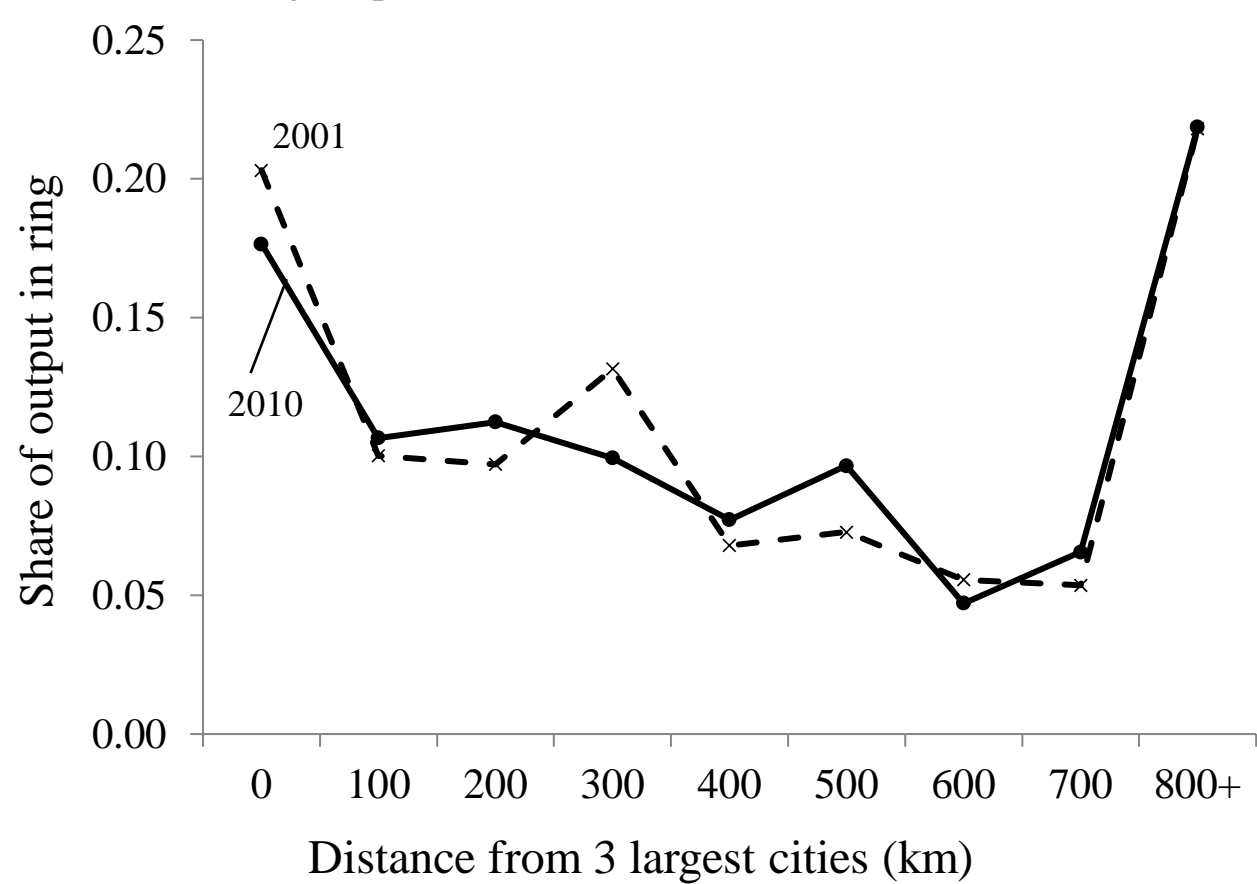
C. Manufacturing employment



D. Services employment



E. Manufacturing output



F. Services output

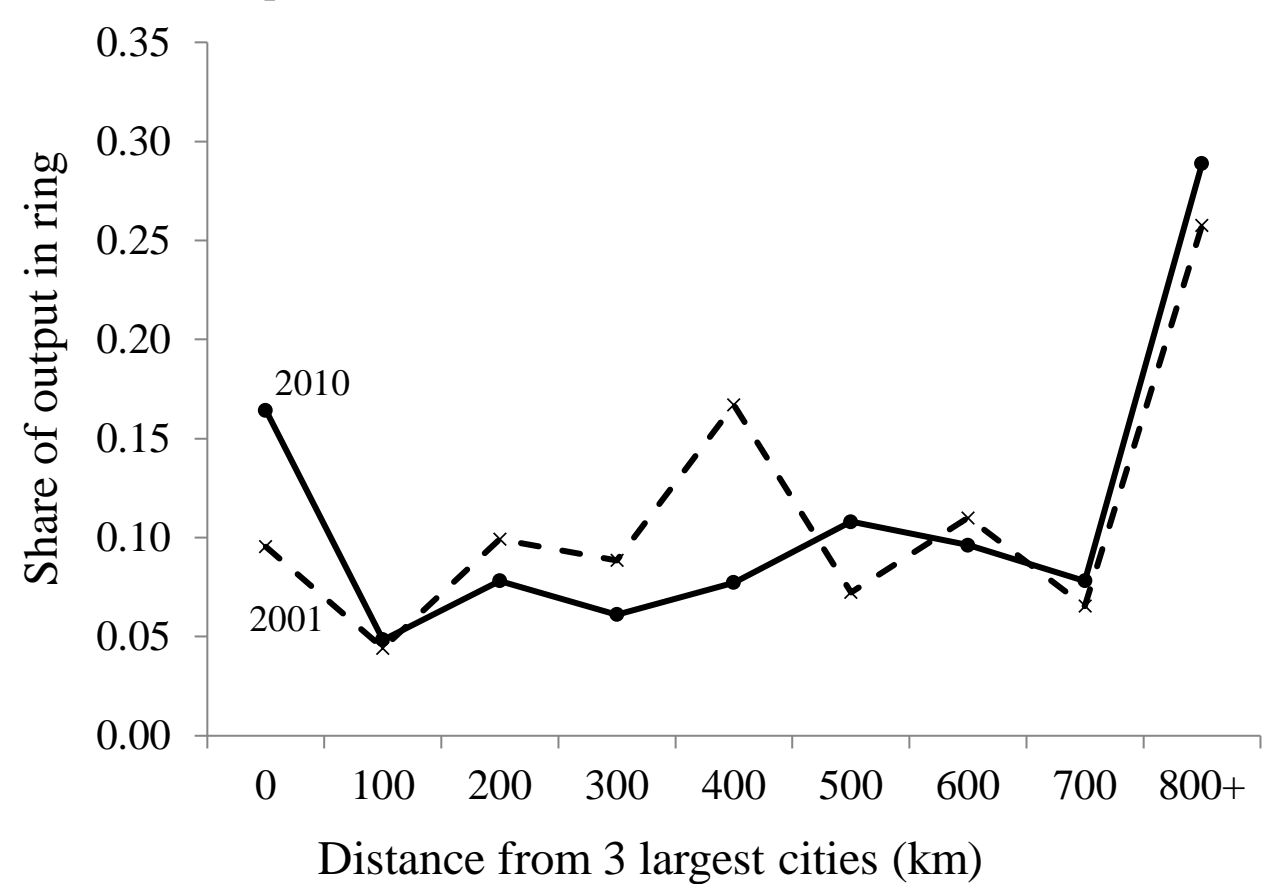
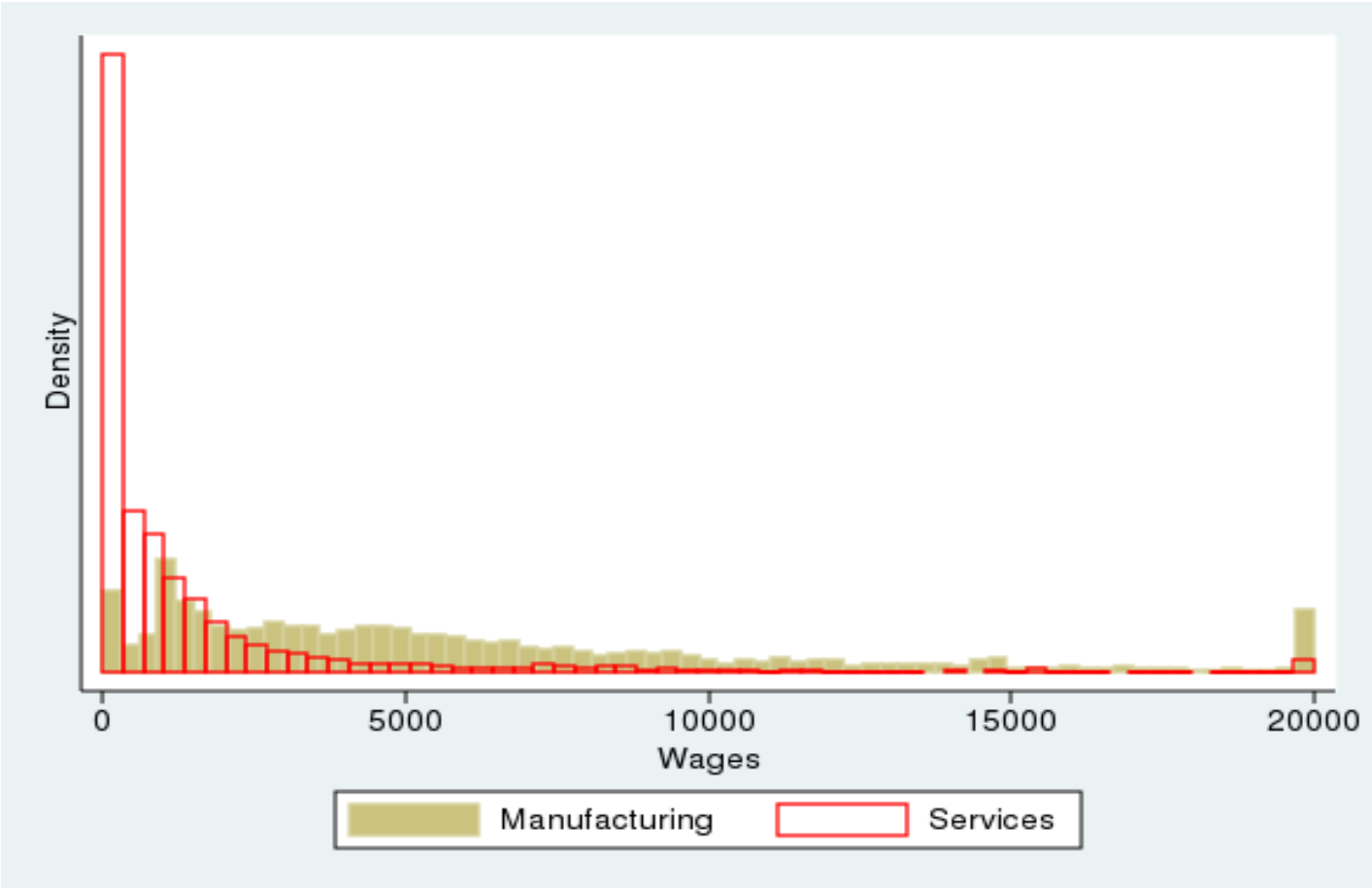
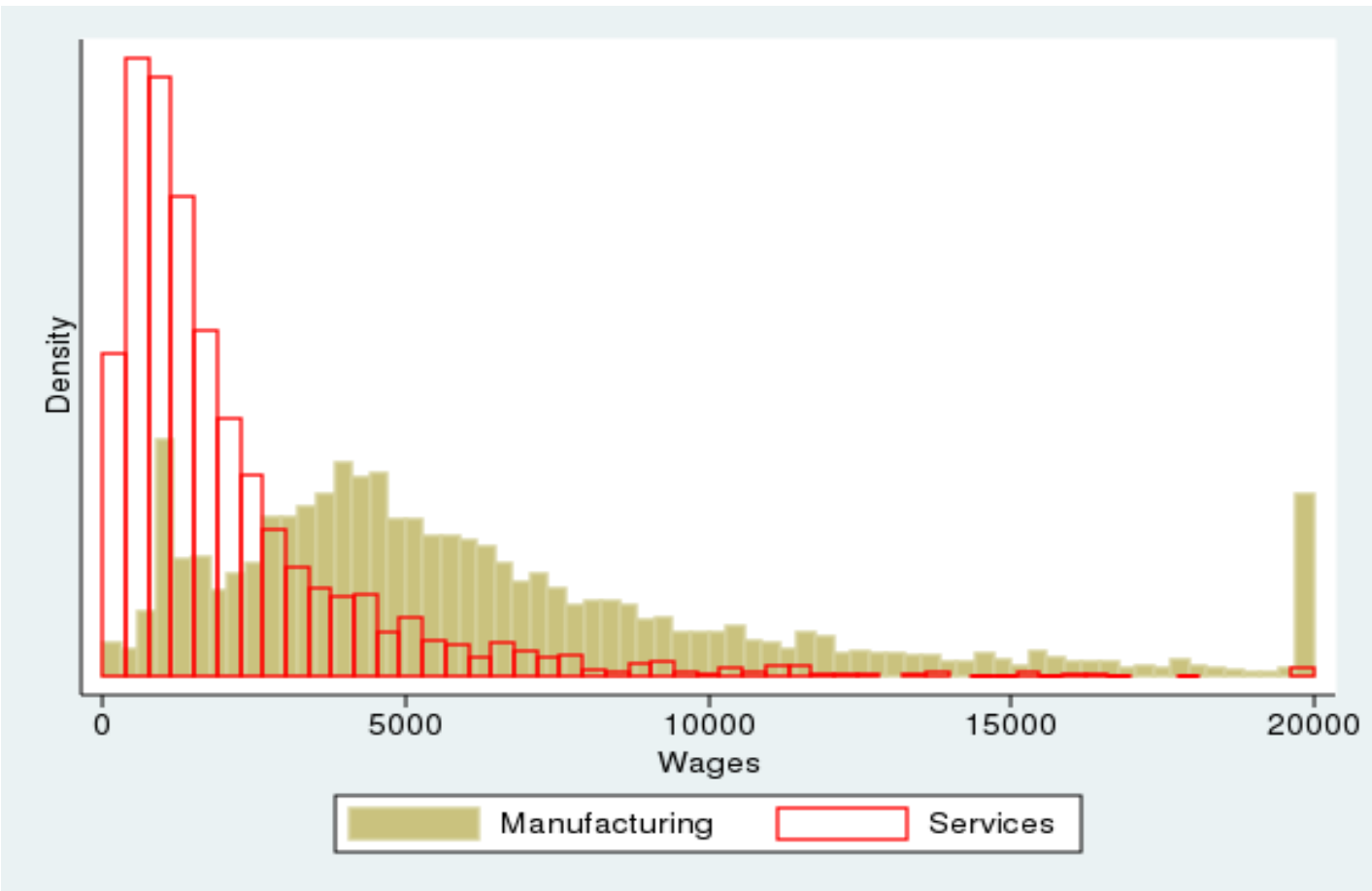


Figure 3: Wage distributions

2001



2010



Notes: Wages are the in constant 2005 real terms.

Table 1: Spatial data for Indian manufacturing and services establishments

	Manufacturing			Services		
	2001	2006	2010	2001	2006	2010
A. Raw count of data observations						
Total	244,339	116,175	135,270	355,702	186,889	110,241
Organized sector	25,571	35,101	33,077	8,138	5,216	3,944
Urban areas	15,296	20,379	19,323	6,634	3,198	2,074
Rural areas	10,275	14,722	13,754	1,504	2,018	1,870
Unorganized sector	218,768	81,074	102,193	347,564	181,673	106,297
Urban areas	131,652	40,062	49,818	213,259	101,669	56,485
Rural areas	87,116	41,012	52,375	134,305	80,004	49,812
B. Estimated number of plants in India using sample weights from Panel A						
Total	16,978,167	16,938,433	17,797,958	14,326,393	16,382,514	17,788,559
Organized sector	99,101	104,581	118,150	148,444	343,013	252,959
Urban areas	62,835	63,044	72,750	99,022	140,560	136,999
Rural areas	36,266	41,537	45,400	49,422	202,453	115,960
Unorganized sector	16,879,067	16,833,852	17,679,808	14,177,949	16,039,501	17,535,600
Urban areas	5,048,512	4,901,061	7,396,214	5,744,527	6,434,361	8,389,758
Rural areas	11,830,554	11,932,791	10,283,594	8,433,422	9,605,140	9,145,842
C. Urban share of activity, by sector and activity type						
Plants	0.301	0.293	0.420	0.408	0.401	0.479
Organized sector	0.634	0.603	0.616	0.667	0.410	0.542
Unorganized sector	0.299	0.291	0.418	0.405	0.401	0.478
Employment	0.406	0.407	0.500	0.472	0.460	0.517
Organized sector	0.613	0.572	0.577	0.680	0.559	0.604
Unorganized sector	0.365	0.369	0.479	0.443	0.434	0.502
Output	0.584	0.555	0.562	0.638	0.827	0.675
Organized sector	0.563	0.531	0.541	0.858	0.968	0.774
Unorganized sector	0.655	0.656	0.657	0.563	0.596	0.654
D. District count where rural/urban data is observed						
Organized sector	356	393	398	375	380	380
Unorganized sector	416	417	420	414	418	420

Notes: Descriptive statistics taken from the Annual Survey of Industries (ASI) and National Sample Survey (NSS).

Table 2: State-level data for Indian manufacturing and services establishments

States/UTs	A. Estimated total count of plants per state						State GDP per capita in 2000-01	B. Distribution of plants over states					
	Manufacturing			Services				Manufacturing			Services		
	2001	2006	2010	2001	2006	2010		2001	2006	2010	2001	2006	2010
A & N Islands	2,764	2,322	2,978	2,457	2,695	5,407	26,469	0.000	0.000	0.000	0.000	0.000	0.000
Andhra Pradesh	1,605,780	1,524,949	1,668,862	1,334,048	1,711,591	2,241,469	18,320	0.095	0.090	0.094	0.093	0.104	0.126
Assam	279,468	341,714	229,903	390,525	594,879	332,956	13,545	0.016	0.020	0.013	0.027	0.036	0.019
Bihar	1,259,552	1,354,722	804,379	1,457,776	1,305,155	1,153,454	7,111	0.074	0.080	0.045	0.102	0.080	0.065
Chandigarh	6,116	1,562	6,859	18,043	24,595	23,713	52,520	0.000	0.000	0.000	0.001	0.002	0.001
Dadra & Nagar Haveli	2,091	1,943	2,669	2,321	1,578	4,357	n.a.	0.000	0.000	0.000	0.000	0.000	0.000
Daman & Diu	2,211	3,858	3,489	2,127	1,907	2,626	n.a.	0.000	0.000	0.000	0.000	0.000	0.000
Delhi	232,313	100,042	220,826	247,121	146,771	362,257	42,220	0.014	0.006	0.012	0.017	0.009	0.020
Goa	25,374	10,727	9,253	13,956	27,460	23,411	44,934	0.001	0.001	0.001	0.001	0.002	0.001
Gujarat	551,911	663,251	1,456,302	598,950	642,864	933,464	20,827	0.033	0.039	0.082	0.042	0.039	0.052
Haryana	194,543	232,187	223,361	222,201	323,913	342,992	26,568	0.011	0.014	0.013	0.016	0.020	0.019
Himachal Pradesh	97,444	107,061	95,911	79,882	113,645	139,759	24,690	0.006	0.006	0.005	0.006	0.007	0.008
Jammu & Kashmir	208,204	172,863	226,153	108,984	138,695	144,787	16,145	0.012	0.010	0.013	0.008	0.008	0.008
Karnataka	1,039,207	966,555	893,389	676,248	802,668	899,944	19,551	0.061	0.057	0.050	0.047	0.049	0.051
Kerala	496,394	629,119	512,247	594,878	941,660	731,060	22,549	0.029	0.037	0.029	0.042	0.057	0.041
Madhya Pradesh	980,064	1,052,051	1,089,871	605,570	641,986	769,593	12,459	0.058	0.062	0.061	0.042	0.039	0.043
Maharashtra	1,248,008	1,136,668	1,451,383	1,185,704	1,483,657	1,744,565	25,228	0.074	0.067	0.082	0.083	0.091	0.098
Manipur	53,809	52,549	42,355	24,534	27,234	24,659	13,422	0.003	0.003	0.002	0.002	0.002	0.001
Meghalaya	28,043	36,972	20,027	27,491	52,093	36,091	16,440	0.002	0.002	0.001	0.002	0.003	0.002
Nagaland	5,807	9,972	7,324	13,013	8,277	7,938	16,805	0.000	0.001	0.000	0.001	0.001	0.000
Orissa	977,099	951,450	631,707	612,152	618,215	684,684	11,543	0.058	0.056	0.035	0.043	0.038	0.038
Pondicherry	13,246	13,969	17,426	18,857	33,027	25,953	37,985	0.001	0.001	0.001	0.001	0.002	0.001
Punjab	341,936	298,384	427,058	358,217	448,764	410,977	28,714	0.020	0.018	0.024	0.025	0.027	0.023
Rajasthan	616,601	639,412	654,684	541,377	597,315	659,374	14,504	0.036	0.038	0.037	0.038	0.036	0.037
Tamil Nadu	1,527,563	1,492,176	1,695,770	1,010,338	1,192,263	1,439,307	22,846	0.090	0.088	0.095	0.071	0.073	0.081
Tripura	35,614	45,528	71,505	44,175	62,031	119,839	16,143	0.002	0.003	0.004	0.003	0.004	0.007
Uttar Pradesh	2,375,625	2,376,602	2,518,569	2,575,406	2,354,711	2,446,499	10,874	0.140	0.140	0.142	0.180	0.144	0.138
West Bengal	2,771,379	2,719,826	2,813,702	1,560,042	2,082,866	2,077,421	17,607	0.163	0.161	0.158	0.109	0.127	0.117
Nationwide	16,978,168	16,938,434	17,797,959	14,326,393	16,382,514	17,788,559		1.000	1.000	1.000	1.000	1.000	1.000

Notes: See Table 1. UTs stands for Union Territories. Of the list presented here, A & N Islands, Chandigarh, Dadra & Nagar Haveli, Daman and Diu, Delhi and Pondicherry are UTs.

Table 2: State-level data for Indian manufacturing and services establishments (continued)

States/UTs	C. Share of plants in urban areas, by state									D. Share of plants in organized sector, by state								
	Manufacturing				Services				Mfg:Serv ratio	Manufacturing				Services				Mfg:Serv ratio
	2001	2006	2010	Average	2001	2006	2010	Average		2001	2006	2010	Average	2001	2006	2010	Average	
A & N Islands	0.273	0.192	0.339	0.268	0.302	0.378	0.485	0.388	0.690	0.005	0.003	0.003	0.004	0.016	0.043	0.026	0.028	0.126
Andhra Pradesh	0.253	0.294	0.387	0.311	0.426	0.371	0.380	0.392	0.793	0.006	0.007	0.007	0.007	0.008	0.023	0.017	0.016	0.413
Assam	0.137	0.111	0.141	0.130	0.166	0.156	0.183	0.168	0.771	0.004	0.004	0.008	0.006	0.003	0.025	0.007	0.012	0.476
Bihar	0.136	0.114	0.155	0.135	0.214	0.210	0.237	0.220	0.612	0.002	0.002	0.004	0.002	0.002	0.003	0.003	0.003	0.887
Chandigarh	0.886	0.549	0.877	0.771	0.840	0.885	0.910	0.878	0.878	0.035	0.155	0.031	0.074	0.024	0.205	0.016	0.082	0.905
Dadra & Nagar Haveli	0.104	0.121	0.289	0.171	0.204	0.481	0.295	0.327	0.525	0.398	0.505	0.342	0.415	0.012	0.017	0.024	0.018	23.505
Daman & Diu	0.173	0.311	0.413	0.299	0.453	0.604	0.405	0.487	0.613	0.531	0.351	0.366	0.416	0.031	0.036	0.042	0.036	11.447
Delhi	0.955	0.963	0.973	0.964	0.955	0.955	0.976	0.962	1.002	0.012	0.024	0.009	0.015	0.018	0.016	0.023	0.019	0.793
Goa	0.260	0.546	0.556	0.454	0.513	0.627	0.496	0.545	0.832	0.018	0.044	0.046	0.036	0.028	0.024	0.012	0.021	1.692
Gujarat	0.550	0.543	0.809	0.634	0.495	0.583	0.717	0.598	1.059	0.020	0.017	0.008	0.015	0.025	0.011	0.013	0.016	0.936
Haryana	0.485	0.484	0.578	0.516	0.548	0.490	0.612	0.550	0.938	0.020	0.016	0.018	0.018	0.019	0.011	0.011	0.014	1.338
Himachal Pradesh	0.079	0.068	0.136	0.095	0.173	0.142	0.180	0.165	0.573	0.005	0.007	0.014	0.009	0.008	0.019	0.010	0.012	0.692
Jammu & Kashmir	0.329	0.189	0.377	0.299	0.289	0.264	0.377	0.310	0.963	0.002	0.003	0.002	0.002	0.009	0.011	0.024	0.015	0.147
Karnataka	0.338	0.313	0.390	0.347	0.553	0.476	0.531	0.520	0.667	0.005	0.006	0.007	0.006	0.011	0.012	0.020	0.014	0.402
Kerala	0.176	0.247	0.335	0.253	0.259	0.298	0.369	0.309	0.819	0.008	0.006	0.008	0.007	0.016	0.028	0.029	0.024	0.293
Madhya Pradesh	0.276	0.309	0.382	0.322	0.538	0.518	0.551	0.536	0.602	0.004	0.003	0.004	0.004	0.016	0.030	0.013	0.020	0.179
Maharashtra	0.463	0.508	0.555	0.509	0.711	0.590	0.648	0.650	0.783	0.011	0.012	0.010	0.011	0.017	0.021	0.017	0.018	0.608
Manipur	0.354	0.318	0.299	0.324	0.364	0.469	0.472	0.435	0.745	0.000	0.001	0.001	0.001	0.021	0.027	0.018	0.022	0.034
Meghalaya	0.067	0.067	0.087	0.074	0.262	0.148	0.147	0.186	0.396	0.001	0.002	0.004	0.002	0.004	0.018	0.002	0.008	0.262
Nagaland	0.420	0.277	0.199	0.299	0.257	0.498	0.377	0.377	0.792	0.013	0.007	0.008	0.009	0.015	0.045	0.034	0.031	0.293
Orissa	0.063	0.091	0.115	0.090	0.199	0.183	0.242	0.208	0.431	0.001	0.002	0.002	0.002	0.007	0.097	0.019	0.041	0.043
Pondicherry	0.767	0.691	0.843	0.767	0.826	0.824	0.881	0.844	0.909	0.032	0.034	0.030	0.032	0.044	0.031	0.027	0.034	0.945
Punjab	0.456	0.493	0.581	0.510	0.529	0.521	0.572	0.541	0.943	0.019	0.025	0.020	0.021	0.014	0.012	0.016	0.014	1.520
Rajasthan	0.377	0.373	0.502	0.417	0.452	0.480	0.484	0.472	0.883	0.007	0.008	0.009	0.008	0.010	0.023	0.020	0.018	0.432
Tamil Nadu	0.448	0.427	0.592	0.489	0.513	0.569	0.632	0.571	0.856	0.008	0.009	0.010	0.009	0.013	0.030	0.015	0.019	0.461
Tripura	0.126	0.142	0.117	0.128	0.356	0.289	0.129	0.258	0.497	0.005	0.005	0.004	0.005	0.001	0.003	0.000	0.001	3.539
Uttar Pradesh	0.285	0.281	0.387	0.317	0.297	0.382	0.464	0.381	0.833	0.004	0.004	0.004	0.004	0.008	0.014	0.014	0.012	0.328
West Bengal	0.234	0.195	0.223	0.217	0.376	0.313	0.416	0.368	0.590	0.002	0.002	0.002	0.002	0.007	0.013	0.005	0.008	0.224
Avg share (unwtd)	0.338	0.329	0.415	0.361	0.431	0.454	0.470	0.452	0.799	0.042	0.045	0.035	0.041	0.015	0.030	0.017	0.021	1.975
Avg share (wtd)	0.328	0.325	0.448	0.367	0.427	0.411	0.484	0.441	0.833	0.008	0.009	0.009	0.009	0.011	0.024	0.015	0.017	0.520

Notes: See Table 2a. The weighted average share across states uses total number of employees in the state as a weight.

Table 3: Industry-level data for Indian manufacturing and services establishments

A. Estimated total count of plants per industry (NIC 2-digit level)								
Manufacturing				Services				
NIC Code/Industry	2001	2006	2010	NIC Code/Industry	2001	2006	2010	
15 Food products and beverages	3,006,614	2,602,934	2,249,958	55 Hotels and restaurants	2,144,240	2,050,219	2,857,016	
16 Tobacco products	2,100,885	2,800,496	2,246,688	60 Land transport; pipelines	4,562,550	4,193,761	5,085,220	
17 Textiles	2,394,290	2,508,744	2,698,467	61 Water transport	18,804	19,477	18,965	
18 Wearing apparel; dressing and dyeing of fur	2,793,818	3,165,819	4,260,522	63 Supporting/auxiliary transport activities; travel agencies	99,314	118,172	171,608	
19 Leather tanning; luggage, handbags, footwear	176,738	144,750	113,765	64 Post and telecommunications	616,763	1,888,992	448,472	
20 Wood and wood products; straw and plating articles	2,793,454	2,121,274	1,582,786	65 Financial intermediation	.	1,264,850	1,283,759	
21 Paper and paper products	91,886	167,624	123,533	66 Insurance and pension funding, except social security	.	61,463	54,878	
22 Publishing, printing and media reproduction	145,408	117,846	170,345	67 Activities auxiliary to financial intermediation	.	166,232	319,839	
23 Coke, refined petroleum and nuclear fuel	7,609	6,516	1,375	70 Real estate activities	94,419	218,489	426,296	
24 Chemicals and chemical products	229,381	427,265	225,209	71 Renting machinery/equipment & personal/household goods	533,015	488,358	461,970	
25 Rubber and plastic products	100,482	77,306	279,245	72 Computers and related activities (for business)	19,251	46,839	108,622	
26 Other non-metallic mineral products	815,093	638,251	590,359	73 Research and development	448	385	274	
27 Basic metals	44,911	40,692	64,530	74 Other business activities	606,062	632,292	912,714	
28 Fabricated metal products, except machinery	646,580	621,768	649,563	80 Education	1,251,754	1,033,763	1,040,690	
29 Machinery and equipment, n.e.c.	172,243	181,088	253,240	85 Health and social work	1,340,037	1,091,858	1,051,284	
30 Office, accounting and computing machinery	321	1,043	1,751	90 Sewage, refuse disposal, sanitation, and similar activities	45,750	49,682	35,334	
31 Electrical machinery and apparatus, n.e.c.	68,737	113,546	32,009	91 Activities of membership organizations n.e.c.	52,822	372,038	370,358	
32 Radio, television, and comm. equipment	7,803	6,029	509,578	92 Recreational, cultural and sporting activities	380,661	253,979	282,472	
33 Medical, precision and optical instruments, watches	9,524	10,461	11,601	93 Other service activities	2,560,504	2,431,666	2,858,785	
34 Motor vehicles, trailers and semi-trailers	24,443	17,794	21,752					
35 Other transport equipment	17,833	26,235	19,888					
36 Furniture, manufacturing n.e.c.	1,330,114	1,140,951	1,691,794					
Total	16,978,167	16,938,434	17,797,958	Total	14,326,393	16,382,514	17,788,559	

Notes: See Table 1.

Table 3: Industry-level data for Indian manufacturing and services establishments (continued)

B. Share of plants per industry								
Manufacturing				Services				
NIC Code/Industry	2001	2006	2010	NIC Code/Industry	2001	2006	2010	
15 Food products and beverages	0.177	0.154	0.126	55 Hotels and restaurants	0.150	0.125	0.161	
16 Tobacco products	0.124	0.165	0.126	60 Land transport; pipelines	0.318	0.256	0.286	
17 Textiles	0.141	0.148	0.152	61 Water transport	0.001	0.001	0.001	
18 Wearing apparel; dressing and dyeing of fur	0.165	0.187	0.239	63 Supporting/auxiliary transport activities; travel agencies	0.007	0.007	0.010	
19 Leather tanning; luggage, handbags, footwear	0.010	0.009	0.006	64 Post and telecommunications	0.043	0.115	0.025	
20 Wood and wood products; straw and plating articles	0.165	0.125	0.089	65 Financial intermediation	.	0.077	0.072	
21 Paper and paper products	0.005	0.010	0.007	66 Insurance and pension funding, except social security	.	0.004	0.003	
22 Publishing, printing and media reproduction	0.009	0.007	0.010	67 Activities auxiliary to financial intermediation	.	0.010	0.018	
23 Coke, refined petroleum and nuclear fuel	0.000	0.000	0.000	70 Real estate activities	0.007	0.013	0.024	
24 Chemicals and chemical products	0.014	0.025	0.013	71 Renting machinery/equipment & personal/household goods	0.037	0.030	0.026	
25 Rubber and plastic products	0.006	0.005	0.016	72 Computers and related activities (for business)	0.001	0.003	0.006	
26 Other non-metallic mineral products	0.048	0.038	0.033	73 Research and development	0.000	0.000	0.000	
27 Basic metals	0.003	0.002	0.004	74 Other business activities	0.042	0.039	0.051	
28 Fabricated metal products, except machinery	0.038	0.037	0.036	80 Education	0.087	0.063	0.059	
29 Machinery and equipment, n.e.c.	0.010	0.011	0.014	85 Health and social work	0.094	0.067	0.059	
30 Office, accounting and computing machinery	0.000	0.000	0.000	90 Sewage, refuse disposal, sanitation, and similar activities	0.003	0.003	0.002	
31 Electrical machinery and apparatus, n.e.c.	0.004	0.007	0.002	91 Activities of membership organizations n.e.c.	0.004	0.023	0.021	
32 Radio, television, and comm. equipment	0.000	0.000	0.029	92 Recreational, cultural and sporting activities	0.027	0.016	0.016	
33 Medical, precision and optical instruments, watches	0.001	0.001	0.001	93 Other service activities	0.179	0.148	0.161	
34 Motor vehicles, trailers and semi-trailers	0.001	0.001	0.001					
35 Other transport equipment	0.001	0.002	0.001					
36 Furniture, manufacturing n.e.c.	0.078	0.067	0.095					
Total	1.000	1.000	1.000	Total	1.000	1.000	1.000	

Notes: See Table 1.

Table 3: Industry-level data for Indian manufacturing and services establishments (continued)

C. Share of plants in urban areas, by industry										
Manufacturing					Services					
NIC Code/Industry	2001	2006	2010	Average	NIC Code/Industry	2001	2006	2010	Average	
15 Food products and beverages	0.218	0.205	0.313	0.245	55 Hotels and restaurants	0.430	0.482	0.524	0.479	
16 Tobacco products	0.217	0.170	0.201	0.196	60 Land transport; pipelines	0.399	0.350	0.441	0.397	
17 Textiles	0.303	0.319	0.473	0.365	61 Water transport	0.169	0.037	0.435	0.214	
18 Wearing apparel; dressing and dyeing of fur	0.406	0.399	0.486	0.430	63 Supporting/auxiliary transport activities; travel agencies	0.866	0.795	0.702	0.788	
19 Leather tanning; luggage, handbags, footwear	0.484	0.737	0.767	0.663	64 Post and telecommunications	0.622	0.500	0.573	0.565	
20 Wood and wood products; straw and plating articles	0.123	0.104	0.214	0.147	65 Financial intermediation	.	0.116	0.161	0.139	
21 Paper and paper products	0.699	0.379	0.723	0.600	66 Insurance and pension funding, except social security	.	0.434	0.457	0.446	
22 Publishing, printing and media reproduction	0.845	0.858	0.882	0.862	67 Activities auxiliary to financial intermediation	.	0.558	0.563	0.561	
23 Coke, refined petroleum and nuclear fuel	0.277	0.199	0.321	0.266	70 Real estate activities	0.798	0.624	0.691	0.704	
24 Chemicals and chemical products	0.516	0.295	0.587	0.466	71 Renting machinery/equipment & personal/household goods	0.353	0.355	0.435	0.381	
25 Rubber and plastic products	0.642	0.655	0.814	0.704	72 Computers and related activities (for business)	0.974	0.920	0.857	0.917	
26 Other non-metallic mineral products	0.166	0.170	0.238	0.191	73 Research and development	0.954	0.102	1.000	0.685	
27 Basic metals	0.644	0.616	0.681	0.647	74 Other business activities	0.750	0.754	0.751	0.752	
28 Fabricated metal products, except machinery	0.427	0.407	0.519	0.451	80 Education	0.478	0.508	0.600	0.529	
29 Machinery and equipment, n.e.c.	0.529	0.619	0.568	0.572	85 Health and social work	0.327	0.396	0.506	0.410	
30 Office, accounting and computing machinery	0.921	0.912	0.892	0.908	90 Sewage, refuse disposal, sanitation, and similar activities	0.199	0.269	0.784	0.417	
31 Electrical machinery and apparatus, n.e.c.	0.665	0.536	0.863	0.688	91 Activities of membership organizations n.e.c.	0.345	0.205	0.240	0.263	
32 Radio, television, and comm. equipment	0.839	0.716	0.597	0.717	92 Recreational, cultural and sporting activities	0.340	0.348	0.518	0.402	
33 Medical, precision and optical instruments, watches	0.821	0.856	0.923	0.867	93 Other service activities	0.273	0.349	0.454	0.359	
34 Motor vehicles, trailers and semi-trailers	0.834	0.602	0.845	0.760						
35 Other transport equipment	0.702	0.779	0.625	0.702						
36 Furniture, manufacturing n.e.c.	0.538	0.539	0.531	0.536						
Average industry share (unweighted)	0.537	0.503	0.594	0.545	Average industry share (unweighted)	0.517	0.426	0.563	0.502	
Average industry share (weighted by industry size)	0.330	0.324	0.452	0.369	Average industry share (weighted by industry size)	0.422	0.400	0.479	0.434	

Notes: The weighted average share across industries uses total number of employees in the industry as a weight.

Table 3: Industry-level data for Indian manufacturing and services establishments (continued)

D. Share of plants in the organized sector, by industry										
Manufacturing					Services					
NIC Code/Industry	2001	2006	2010	Average	NIC Code/Industry	2001	2006	2010	Average	
15 Food products and beverages	0.006	0.007	0.009	0.008	55 Hotels and restaurants	0.009	0.012	0.012	0.011	
16 Tobacco products	0.001	0.001	0.001	0.001	60 Land transport; pipelines	0.001	0.002	0.002	0.002	
17 Textiles	0.004	0.003	0.004	0.004	61 Water transport	0.004	0.005	0.000	0.003	
18 Wearing apparel; dressing and dyeing of fur	0.001	0.001	0.001	0.001	63 Supporting/auxiliary transport activities; travel agencies	0.028	0.038	0.013	0.026	
19 Leather tanning; luggage, handbags, footwear	0.009	0.012	0.013	0.012	64 Post and telecommunications	0.003	0.001	0.002	0.002	
20 Wood and wood products; straw and plating articles	0.001	0.001	0.002	0.001	65 Financial intermediation	.	0.133	0.048	0.091	
21 Paper and paper products	0.034	0.021	0.034	0.030	66 Insurance and pension funding, except social security	.	0.004	0.000	0.002	
22 Publishing, printing and media reproduction	0.014	0.020	0.014	0.016	67 Activities auxiliary to financial intermediation	.	0.011	0.001	0.006	
23 Coke, refined petroleum and nuclear fuel	0.099	0.116	0.323	0.180	70 Real estate activities	0.009	0.011	0.002	0.007	
24 Chemicals and chemical products	0.042	0.023	0.046	0.037	71 Renting machinery/equipment & personal/household goods	0.002	0.004	0.004	0.003	
25 Rubber and plastic products	0.058	0.084	0.026	0.056	72 Computers and related activities (for business)	0.034	0.049	0.022	0.035	
26 Other non-metallic mineral products	0.013	0.019	0.026	0.019	73 Research and development	0.245	0.091	0.000	0.112	
27 Basic metals	0.134	0.151	0.121	0.135	74 Other business activities	0.008	0.008	0.008	0.008	
28 Fabricated metal products, except machinery	0.010	0.010	0.013	0.011	80 Education	0.065	0.084	0.100	0.083	
29 Machinery and equipment, n.e.c.	0.048	0.046	0.034	0.043	85 Health and social work	0.008	0.016	0.016	0.013	
30 Office, accounting and computing machinery	0.492	0.138	0.074	0.235	90 Sewage, refuse disposal, sanitation, and similar activities	0.000	0.001	0.005	0.002	
31 Electrical machinery and apparatus, n.e.c.	0.049	0.031	0.135	0.071	91 Activities of membership organizations n.e.c.	0.004	0.009	0.002	0.005	
32 Radio, television, and comm. equipment	0.125	0.152	0.002	0.093	92 Recreational, cultural and sporting activities	0.043	0.054	0.037	0.045	
33 Medical, precision and optical instruments, watches	0.090	0.086	0.070	0.082	93 Other service activities	0.001	0.000	0.000	0.000	
34 Motor vehicles, trailers and semi-trailers	0.090	0.142	0.154	0.129						
35 Other transport equipment	0.091	0.063	0.080	0.078						
36 Furniture, manufacturing n.e.c.	0.001	0.002	0.001	0.001						
Average industry share (unweighted)	0.064	0.051	0.054	0.056	Average industry share (unweighted)	0.029	0.028	0.014	0.024	
Average industry share (weighted by industry size)	0.012	0.013	0.016	0.014	Average industry share (weighted by industry size)	0.016	0.037	0.025	0.026	

Notes: The weighted average share across industries uses total number of employees in the industry as a weight.

Table 4a: Share of manufacturing activity by distance ring to 3 largest cities

Distance	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A. Share of plants by distance ring												
0-100	0.143	0.174	0.154	0.157	0.102	0.104	0.138	0.115	0.103	0.104	0.138	0.115
100-200	0.075	0.076	0.076	0.076	0.102	0.095	0.075	0.091	0.102	0.095	0.075	0.091
200-300	0.100	0.084	0.089	0.091	0.082	0.077	0.091	0.084	0.082	0.077	0.092	0.084
300-400	0.122	0.088	0.091	0.100	0.100	0.109	0.093	0.100	0.100	0.108	0.093	0.100
400-500	0.097	0.104	0.106	0.102	0.088	0.094	0.082	0.088	0.088	0.094	0.082	0.088
500-600	0.080	0.105	0.098	0.095	0.096	0.090	0.106	0.097	0.096	0.091	0.106	0.098
600-700	0.065	0.051	0.051	0.056	0.117	0.115	0.102	0.111	0.116	0.115	0.102	0.111
700-800	0.057	0.063	0.065	0.062	0.099	0.112	0.108	0.106	0.098	0.111	0.108	0.106
800+	0.258	0.255	0.269	0.261	0.215	0.205	0.203	0.208	0.215	0.205	0.204	0.208
B. Share of employment by distance ring												
0-100	0.151	0.179	0.158	0.163	0.135	0.138	0.172	0.148	0.138	0.146	0.169	0.151
100-200	0.074	0.082	0.092	0.083	0.093	0.090	0.064	0.082	0.090	0.088	0.070	0.083
200-300	0.101	0.081	0.091	0.091	0.083	0.082	0.095	0.087	0.086	0.082	0.094	0.087
300-400	0.123	0.094	0.095	0.104	0.095	0.106	0.086	0.096	0.100	0.104	0.088	0.097
400-500	0.066	0.079	0.076	0.074	0.086	0.085	0.075	0.082	0.082	0.084	0.075	0.080
500-600	0.075	0.091	0.089	0.085	0.086	0.075	0.105	0.088	0.084	0.077	0.101	0.088
600-700	0.048	0.069	0.059	0.059	0.103	0.106	0.093	0.101	0.094	0.099	0.086	0.093
700-800	0.084	0.059	0.056	0.066	0.099	0.105	0.100	0.101	0.096	0.097	0.091	0.095
800+	0.277	0.267	0.285	0.276	0.219	0.214	0.209	0.214	0.229	0.224	0.226	0.226
C. Share of output by distance ring												
0-100	0.163	0.202	0.174	0.179	0.338	0.309	0.190	0.279	0.203	0.222	0.177	0.201
100-200	0.109	0.111	0.118	0.113	0.071	0.082	0.055	0.069	0.100	0.105	0.107	0.104
200-300	0.104	0.090	0.110	0.101	0.075	0.089	0.124	0.096	0.097	0.090	0.112	0.100
300-400	0.143	0.102	0.108	0.118	0.094	0.089	0.061	0.081	0.132	0.100	0.099	0.110
400-500	0.067	0.081	0.076	0.075	0.071	0.069	0.082	0.074	0.068	0.079	0.077	0.075
500-600	0.077	0.091	0.094	0.087	0.060	0.076	0.110	0.082	0.073	0.088	0.097	0.086
600-700	0.052	0.045	0.043	0.047	0.066	0.047	0.063	0.059	0.056	0.046	0.047	0.049
700-800	0.054	0.056	0.063	0.058	0.053	0.066	0.078	0.066	0.054	0.058	0.066	0.059
800+	0.231	0.221	0.215	0.222	0.173	0.173	0.235	0.194	0.218	0.212	0.219	0.216

Notes: See Table 1. Three largest cities are Mumbai, Kolkata, and Delhi. Distances are measured in kilometers from the centroid of a district to the centroid of these big cities.

Table 4b: Share of services activity by distance ring to 3 largest cities

Distance	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A. Share of plants by distance ring												
0-100	0.081	0.078	0.114	0.091	0.077	0.110	0.141	0.109	0.077	0.109	0.141	0.109
100-200	0.046	0.038	0.027	0.037	0.045	0.079	0.056	0.060	0.045	0.078	0.056	0.059
200-300	0.157	0.094	0.088	0.113	0.112	0.082	0.078	0.091	0.112	0.082	0.078	0.091
300-400	0.088	0.085	0.083	0.085	0.108	0.086	0.083	0.092	0.108	0.086	0.083	0.092
400-500	0.113	0.105	0.103	0.107	0.115	0.101	0.095	0.104	0.115	0.101	0.095	0.104
500-600	0.057	0.151	0.084	0.098	0.112	0.107	0.111	0.110	0.112	0.108	0.110	0.110
600-700	0.132	0.078	0.093	0.101	0.134	0.108	0.111	0.117	0.133	0.107	0.110	0.117
700-800	0.070	0.101	0.130	0.100	0.098	0.098	0.097	0.098	0.098	0.098	0.098	0.098
800+	0.255	0.270	0.279	0.268	0.200	0.230	0.227	0.219	0.200	0.230	0.228	0.220
B. Share of employment by distance ring												
0-100	0.080	0.085	0.142	0.102	0.073	0.106	0.137	0.105	0.074	0.102	0.138	0.105
100-200	0.058	0.037	0.021	0.039	0.043	0.072	0.048	0.054	0.044	0.065	0.044	0.051
200-300	0.158	0.100	0.078	0.112	0.106	0.076	0.074	0.085	0.112	0.081	0.074	0.089
300-400	0.079	0.077	0.061	0.072	0.104	0.086	0.076	0.089	0.101	0.084	0.074	0.086
400-500	0.116	0.089	0.087	0.098	0.119	0.099	0.091	0.103	0.119	0.097	0.091	0.102
500-600	0.051	0.134	0.095	0.094	0.106	0.103	0.104	0.104	0.099	0.109	0.103	0.104
600-700	0.139	0.077	0.084	0.100	0.129	0.107	0.115	0.117	0.130	0.101	0.110	0.114
700-800	0.058	0.088	0.129	0.091	0.101	0.102	0.100	0.101	0.096	0.099	0.104	0.100
800+	0.260	0.313	0.303	0.292	0.219	0.248	0.255	0.241	0.224	0.261	0.262	0.249
C. Share of output by distance ring												
0-100	0.165	0.225	0.166	0.186	0.072	0.129	0.164	0.121	0.096	0.170	0.164	0.143
100-200	0.048	0.021	0.025	0.031	0.043	0.062	0.053	0.053	0.044	0.045	0.048	0.046
200-300	0.094	0.200	0.065	0.120	0.101	0.081	0.081	0.088	0.099	0.132	0.078	0.103
300-400	0.057	0.037	0.035	0.043	0.099	0.095	0.067	0.087	0.089	0.070	0.061	0.073
400-500	0.206	0.046	0.055	0.103	0.154	0.110	0.082	0.115	0.167	0.083	0.077	0.109
500-600	0.021	0.100	0.101	0.074	0.090	0.094	0.110	0.098	0.072	0.097	0.108	0.092
600-700	0.083	0.041	0.067	0.064	0.119	0.091	0.103	0.104	0.110	0.070	0.096	0.092
700-800	0.022	0.021	0.096	0.046	0.080	0.071	0.074	0.075	0.065	0.050	0.078	0.064
800+	0.304	0.309	0.389	0.334	0.242	0.265	0.266	0.258	0.258	0.284	0.289	0.277

Notes: See Table 1. Three largest cities are Mumbai, Kolkata, and Delhi. Distances are measured in kilometers from the centroid of a district to the centroid of these big cities.

Table 4c: Share of manufacturing activity by distance ring to 7 largest cities

Distance	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A. Share of plants by distance ring												
0-100	0.270	0.288	0.269	0.275	0.139	0.153	0.212	0.168	0.139	0.154	0.213	0.169
100-200	0.162	0.176	0.176	0.171	0.188	0.190	0.161	0.180	0.188	0.190	0.161	0.180
200-300	0.224	0.177	0.195	0.199	0.166	0.144	0.172	0.161	0.166	0.145	0.172	0.161
300-400	0.185	0.153	0.152	0.164	0.158	0.167	0.149	0.158	0.158	0.167	0.150	0.158
400-500	0.084	0.111	0.112	0.102	0.120	0.126	0.106	0.117	0.120	0.126	0.106	0.117
500-600	0.039	0.053	0.054	0.048	0.100	0.091	0.082	0.091	0.099	0.091	0.082	0.091
600-700	0.023	0.025	0.026	0.025	0.070	0.080	0.056	0.069	0.069	0.079	0.056	0.068
700-800	0.005	0.011	0.010	0.008	0.047	0.036	0.047	0.043	0.046	0.036	0.047	0.043
800+	0.008	0.006	0.006	0.007	0.014	0.012	0.012	0.013	0.014	0.012	0.012	0.013
B. Share of employment by distance ring												
0-100	0.262	0.308	0.307	0.293	0.176	0.196	0.250	0.207	0.190	0.216	0.263	0.223
100-200	0.157	0.197	0.194	0.183	0.185	0.186	0.156	0.176	0.180	0.188	0.165	0.178
200-300	0.209	0.159	0.173	0.180	0.163	0.162	0.178	0.168	0.171	0.161	0.177	0.170
300-400	0.186	0.148	0.148	0.161	0.151	0.148	0.133	0.144	0.157	0.148	0.136	0.147
400-500	0.071	0.096	0.092	0.086	0.110	0.109	0.095	0.105	0.104	0.107	0.094	0.102
500-600	0.077	0.056	0.054	0.062	0.089	0.077	0.076	0.081	0.087	0.073	0.071	0.077
600-700	0.020	0.019	0.017	0.019	0.064	0.075	0.052	0.064	0.057	0.064	0.045	0.055
700-800	0.005	0.009	0.007	0.007	0.047	0.036	0.048	0.044	0.040	0.031	0.039	0.037
800+	0.011	0.009	0.007	0.009	0.014	0.011	0.010	0.012	0.014	0.010	0.009	0.011
C. Share of output by distance ring												
0-100	0.267	0.325	0.306	0.299	0.381	0.385	0.300	0.355	0.293	0.336	0.305	0.311
100-200	0.211	0.206	0.206	0.208	0.145	0.144	0.126	0.139	0.196	0.194	0.192	0.194
200-300	0.190	0.151	0.173	0.171	0.149	0.149	0.224	0.174	0.181	0.151	0.183	0.171
300-400	0.197	0.160	0.161	0.173	0.126	0.134	0.115	0.125	0.181	0.155	0.153	0.163
400-500	0.068	0.080	0.071	0.073	0.079	0.078	0.090	0.082	0.071	0.079	0.074	0.075
500-600	0.036	0.050	0.056	0.047	0.055	0.058	0.076	0.063	0.041	0.052	0.059	0.051
600-700	0.017	0.017	0.018	0.017	0.031	0.029	0.028	0.029	0.020	0.019	0.020	0.020
700-800	0.007	0.007	0.006	0.007	0.026	0.016	0.028	0.023	0.011	0.009	0.010	0.010
800+	0.006	0.003	0.004	0.004	0.007	0.008	0.009	0.008	0.006	0.004	0.005	0.005

Notes: See Table 1. Seven largest cities are Mumbai, Kolkata, Delhi, Bangalore, Chennai, Hyderabad and Ahmedabad. Distances are measured in kilometers from the centroid of a district to the centroid of these big cities.

Table 4d: Share of services activity by distance ring to 7 largest cities

Distance	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A. Share of plants by distance ring												
0-100	0.154	0.169	0.234	0.186	0.155	0.168	0.219	0.181	0.155	0.168	0.219	0.181
100-200	0.108	0.101	0.130	0.113	0.109	0.158	0.137	0.135	0.109	0.157	0.137	0.134
200-300	0.254	0.195	0.181	0.210	0.198	0.172	0.175	0.182	0.198	0.173	0.175	0.182
300-400	0.161	0.135	0.167	0.154	0.166	0.145	0.148	0.153	0.166	0.144	0.148	0.153
400-500	0.128	0.146	0.115	0.130	0.112	0.121	0.108	0.114	0.112	0.122	0.108	0.114
500-600	0.097	0.166	0.080	0.114	0.127	0.116	0.104	0.115	0.127	0.117	0.103	0.116
600-700	0.066	0.053	0.037	0.052	0.082	0.065	0.065	0.071	0.081	0.065	0.064	0.070
700-800	0.023	0.021	0.046	0.030	0.039	0.043	0.037	0.040	0.038	0.042	0.038	0.039
800+	0.009	0.014	0.009	0.011	0.013	0.011	0.009	0.011	0.013	0.012	0.009	0.011
B. Share of employment by distance ring												
0-100	0.169	0.213	0.266	0.216	0.152	0.171	0.215	0.179	0.154	0.179	0.223	0.185
100-200	0.122	0.097	0.120	0.113	0.112	0.155	0.145	0.137	0.113	0.143	0.141	0.133
200-300	0.248	0.205	0.180	0.211	0.200	0.172	0.181	0.184	0.206	0.179	0.181	0.188
300-400	0.148	0.136	0.153	0.146	0.169	0.147	0.143	0.153	0.166	0.145	0.144	0.152
400-500	0.120	0.128	0.103	0.117	0.118	0.122	0.104	0.115	0.119	0.123	0.104	0.115
500-600	0.087	0.143	0.091	0.107	0.123	0.116	0.101	0.113	0.119	0.121	0.100	0.113
600-700	0.080	0.048	0.035	0.054	0.077	0.064	0.065	0.069	0.077	0.061	0.061	0.066
700-800	0.020	0.019	0.044	0.028	0.036	0.042	0.036	0.038	0.034	0.038	0.037	0.036
800+	0.007	0.011	0.008	0.008	0.013	0.012	0.009	0.011	0.012	0.012	0.009	0.011
C. Share of output by distance ring												
0-100	0.311	0.504	0.263	0.359	0.154	0.221	0.274	0.216	0.194	0.342	0.272	0.269
100-200	0.111	0.043	0.120	0.091	0.104	0.137	0.131	0.124	0.106	0.097	0.129	0.111
200-300	0.158	0.257	0.182	0.199	0.215	0.181	0.183	0.193	0.200	0.214	0.183	0.199
300-400	0.136	0.088	0.186	0.136	0.186	0.158	0.133	0.159	0.173	0.128	0.142	0.148
400-500	0.223	0.052	0.074	0.116	0.142	0.130	0.099	0.124	0.163	0.097	0.095	0.118
500-600	0.038	0.039	0.120	0.066	0.101	0.086	0.092	0.093	0.085	0.066	0.097	0.083
600-700	0.015	0.008	0.037	0.020	0.052	0.044	0.055	0.051	0.042	0.029	0.052	0.041
700-800	0.005	0.004	0.013	0.007	0.029	0.029	0.024	0.028	0.023	0.019	0.022	0.021
800+	0.003	0.004	0.004	0.004	0.017	0.013	0.008	0.013	0.013	0.009	0.008	0.010

Notes: See Table 1. Seven largest cities are Mumbai, Kolkata, Delhi, Bangalore, Chennai, Hyderabad and Ahmedabad. Distances are measured in kilometers from the centroid of a district to the centroid of these big cities.

Table 4e: Correlations of sector activity over distance rings by manufacturing and services

Activity	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A. Correlations of activity over distance rings from 3 largest cities												
Plants	0.773	0.778	0.860	0.840	0.765	0.948	0.978	0.945	0.767	0.948	0.978	0.945
Employment	0.698	0.821	0.865	0.870	0.726	0.915	0.918	0.894	0.738	0.898	0.929	0.890
Output	0.667	0.824	0.781	0.840	0.075	0.477	0.925	0.555	0.514	0.823	0.837	0.780
B. Correlations of activity over distance rings from 7 largest cities												
Plants	0.835	0.722	0.972	0.887	0.845	0.940	0.982	0.943	0.846	0.938	0.982	0.942
Employment	0.861	0.794	0.951	0.902	0.848	0.950	0.976	0.944	0.867	0.923	0.975	0.935
Output	0.774	0.832	0.919	0.891	0.591	0.875	0.983	0.888	0.815	0.921	0.964	0.929

Notes: See Tables 4a-4d.

Table 5a: Share of plants using technologies in unorganized manufacturing, 2010

NIC/Industry	All plants	In richest states	In poorest states	Urban	Rural
A. Share using computers					
15 Food products and beverages	0.003	0.007	0.002	0.006	0.002
16 Tobacco products	.	.	.	.	.
17 Textiles	0.010	0.027	0.001	0.020	0.001
18 Wearing apparel; dressing and dyeing of fur	0.002	0.002	0.002	0.004	0.000
19 Leather tanning; luggage, handbags, footwear	0.005	0.006	0.004	0.004	0.007
20 Wood and wood products; straw and plating articles	0.002	0.004	0.001	0.005	0.001
21 Paper and paper products	0.060	0.167	0.010	0.079	0.010
22 Publishing, printing and media reproduction	0.396	0.433	0.350	0.392	0.429
23 Coke, refined petroleum and nuclear fuel	0.000	0.000	0.000	0.000	0.000
24 Chemicals and chemical products	0.011	0.007	0.024	0.011	0.011
25 Rubber and plastic products	0.036	0.048	0.009	0.040	0.017
26 Other non-metallic mineral products	0.003	0.006	0.002	0.006	0.002
27 Basic metals	0.018	0.059	0.002	0.023	0.005
28 Fabricated metal products, except machinery	0.014	0.026	0.003	0.024	0.002
29 Machinery and equipment, n.e.c.	0.072	0.093	0.048	0.108	0.025
30 Office, accounting and computing machinery	0.818	0.785	0.871	0.875	0.203
31 Electrical machinery and apparatus, n.e.c.	0.054	0.097	0.026	0.059	0.017
32 Radio, television, and comm. equipment	0.128	0.163	0.101	0.166	0.073
33 Medical, precision and optical instruments, watches	0.304	0.357	0.192	0.295	0.423
34 Motor vehicles, trailers and semi-trailers	0.101	0.130	0.014	0.109	0.048
35 Other transport equipment	0.055	0.039	0.116	0.082	0.012
36 Furniture, manufacturing n.e.c.	0.005	0.007	0.004	0.010	0.001
B. Share using Internet					
15 Food products and beverages	0.002	0.004	0.001	0.003	0.003
16 Tobacco products	.	.	.	.	.
17 Textiles	0.004	0.010	0.000	0.007	0.000
18 Wearing apparel; dressing and dyeing of fur	0.001	0.001	0.000	0.001	0.000
19 Leather tanning; luggage, handbags, footwear	0.004	0.004	0.004	0.003	0.007
20 Wood and wood products; straw and plating articles	0.001	0.003	0.000	0.004	0.000
21 Paper and paper products	0.013	0.026	0.007	0.015	0.006
22 Publishing, printing and media reproduction	0.167	0.196	0.130	0.180	0.064
23 Coke, refined petroleum and nuclear fuel	0.000	0.000	0.000	0.000	0.000
24 Chemicals and chemical products	0.007	0.006	0.010	0.005	0.010
25 Rubber and plastic products	0.008	0.009	0.005	0.008	0.006
26 Other non-metallic mineral products	0.001	0.002	0.001	0.001	0.001
27 Basic metals	0.008	0.024	0.002	0.009	0.005
28 Fabricated metal products, except machinery	0.010	0.020	0.002	0.018	0.002
29 Machinery and equipment, n.e.c.	0.021	0.028	0.013	0.035	0.003
30 Office, accounting and computing machinery	0.241	0.267	0.199	0.245	0.203
31 Electrical machinery and apparatus, n.e.c.	0.042	0.070	0.025	0.048	0.000
32 Radio, television, and comm. equipment	0.035	0.035	0.035	0.052	0.011
33 Medical, precision and optical instruments, watches	0.149	0.158	0.130	0.129	0.423
34 Motor vehicles, trailers and semi-trailers	0.082	0.108	0.008	0.088	0.045
35 Other transport equipment	0.050	0.034	0.112	0.074	0.012
36 Furniture, manufacturing n.e.c.	0.003	0.004	0.002	0.005	0.000

Notes: Descriptive statistics taken from the National Sample Survey (NSS). Cells with fewer than 10 observations are excluded.

Table 5b: Share of plants using technologies in services, 2010

NIC/Industry		All plants	Organized	Unorganized	In richest states	In poorest states	Urban	Rural
A. Share using computers								
55	Hotels and restaurants	0.009	0.279	0.005	0.016	0.004	0.014	0.003
60	Land transport; pipelines	0.002	0.215	0.001	0.003	0.001	0.003	0.000
61	Water transport	.	.	.	.	.	.	.
63	Supporting/auxiliary transport activities; travel agencies	0.276	0.800	0.269	0.354	0.212	0.356	0.087
64	Post and telecommunications	0.068	0.997	0.067	0.093	0.050	0.096	0.031
65	Financial intermediation	0.009	0.010	0.009	0.013	0.005	0.047	0.001
66	Insurance and pension funding, except social security	0.100	.	0.100	0.168	0.062	0.182	0.032
67	Activities auxiliary to financial intermediation	0.193	1.000	0.192	0.306	0.103	0.309	0.043
70	Real estate activities	0.044	0.733	0.042	0.056	0.027	0.063	0.001
71	Renting machinery/equipment & personal/household goods	0.019	0.308	0.018	0.027	0.014	0.035	0.007
72	Computers and related activities (for business)	0.875	1.000	0.872	0.894	0.853	0.882	0.836
73	Research and development	.	.	.	.	.	.	.
74	Other business activities	0.421	0.748	0.418	0.518	0.351	0.460	0.303
80	Education	0.200	0.713	0.143	0.287	0.145	0.239	0.140
85	Health and social work	0.091	0.778	0.080	0.179	0.041	0.160	0.021
90	Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	.	.	.
91	Activities of membership organizations n.e.c.	0.007	0.254	0.007	0.044	0.001	0.029	0.000
92	Recreational, cultural and sporting activities	0.068	0.150	0.065	0.115	0.034	0.115	0.017
93	Other service activities	0.004	0.010	0.004	0.006	0.002	0.007	0.001
B. Share using Internet								
55	Hotels and restaurants	0.004	0.166	0.002	0.008	0.002	0.007	0.002
60	Land transport; pipelines	0.001	0.091	0.001	0.002	0.000	0.002	0.000
61	Water transport	.	.	.	.	.	.	.
63	Supporting/auxiliary transport activities; travel agencies	0.237	0.581	0.232	0.285	0.198	0.316	0.050
64	Post and telecommunications	0.050	0.852	0.048	0.073	0.033	0.073	0.018
65	Financial intermediation	0.005	0.009	0.004	0.005	0.004	0.024	0.001
66	Insurance and pension funding, except social security	0.080	.	0.080	0.157	0.036	0.143	0.026
67	Activities auxiliary to financial intermediation	0.170	0.590	0.169	0.272	0.089	0.272	0.038
70	Real estate activities	0.029	0.306	0.028	0.036	0.017	0.041	0.001
71	Renting machinery/equipment & personal/household goods	0.009	0.259	0.008	0.012	0.007	0.019	0.002
72	Computers and related activities (for business)	0.656	1.000	0.648	0.682	0.624	0.681	0.500
73	Research and development	.	.	.	.	.	.	.
74	Other business activities	0.216	0.736	0.211	0.263	0.181	0.270	0.050
80	Education	0.102	0.326	0.077	0.159	0.067	0.129	0.062
85	Health and social work	0.047	0.525	0.040	0.099	0.017	0.087	0.006
90	Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	.	.	.
91	Activities of membership organizations n.e.c.	0.003	0.254	0.003	0.014	0.001	0.012	0.000
92	Recreational, cultural and sporting activities	0.032	0.087	0.030	0.059	0.012	0.056	0.006
93	Other service activities	0.002	0.010	0.002	0.004	0.000	0.003	0.001

Notes: Descriptive statistics taken from the National Sample Survey (NSS). Cells with fewer than 10 observations are excluded.

Table 6: Descriptive statistics for spatial rings across manufacturing and services sectors

	District Count	Manufacturing			Services		
		Plants	Employees	Output	Plants	Employees	Output
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	15	0.174	0.298	0.895	1.065	1.132	1.687
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	10	0.835	0.537	0.910	0.500	0.590	0.855
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	37	0.096	0.156	0.846	0.397	0.381	0.714
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	40	0.115	0.083	0.630	0.444	0.494	0.720
(0,1) > 300 km from big 7 x urban (dBin5xUrban)	109	0.173	0.145	0.877	0.844	0.831	1.255
(0,1) < 100 km to big-3 x rural (dBin1xRural)	2	0.646	0.701	1.322	0.438	0.441	0.837
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	6	-0.178	-0.314	0.531	-0.574	-0.506	-0.129
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	20	-0.006	-0.088	0.428	0.081	0.009	0.063
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	17	-0.371	-0.382	0.266	0.359	0.407	1.071
(0,1) > 300 km from big 7 x rural (dBin5xRural)	165	0.000	-0.007	0.839	0.162	0.132	0.355

Notes: Spatial indicator variables are created using an interaction of a distance bin and a district type. Distance bins, as measured from the centroid of a district, are defined as districts located in the following 5 bins: within 100 km from the centroid of the nearest big-3 cities, within 100 km from the centroid of the nearest next four to seven largest cities, within 100-300 km from the centroid of the nearest big-3 cities, within 100-300 km from the centroid of the nearest next four to seven largest cities, greater than 300 km from the centroid of the nearest big-7 cities. District type is defined as urban or rural depending on whether the urban plant share of the district is over or under the national median value.

Table 7a: Regressions of district manufacturing and services activity, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.709*** (0.203)	0.954*** (0.217)	0.955*** (0.224)	0.531*** (0.169)	0.412** (0.165)	0.315** (0.142)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.248 (0.195)	0.438** (0.199)	0.713*** (0.195)	0.235 (0.160)	0.235 (0.162)	0.436*** (0.168)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.386*** (0.133)	0.534*** (0.136)	0.812*** (0.135)	0.277*** (0.104)	0.247** (0.098)	0.260*** (0.089)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.262** (0.110)	0.341*** (0.112)	0.476*** (0.109)	0.240** (0.093)	0.271*** (0.096)	0.249*** (0.079)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.188** (0.084)	0.236*** (0.078)	0.469*** (0.084)	0.064 (0.070)	0.076 (0.069)	0.123** (0.061)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.361*** (0.326)	1.426*** (0.242)	1.161*** (0.126)	0.921*** (0.232)	0.723*** (0.195)	0.505*** (0.140)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.175 (0.133)	-0.036 (0.169)	0.578*** (0.204)	0.246 (0.168)	0.306 (0.212)	0.139 (0.119)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.485** (0.188)	0.537*** (0.172)	0.490*** (0.148)	0.147 (0.116)	0.110 (0.112)	0.036 (0.105)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.089 (0.138)	0.034 (0.150)	0.252 (0.159)	0.051 (0.131)	0.008 (0.137)	0.089 (0.091)
Log district population	0.663*** (0.067)	0.614*** (0.071)	0.420*** (0.059)	0.572*** (0.051)	0.534*** (0.050)	0.340*** (0.042)
Demographic dividend	0.193*** (0.057)	0.253*** (0.062)	0.169*** (0.060)	0.151*** (0.048)	0.176*** (0.049)	0.140*** (0.043)
Female-to-male ratio	0.149*** (0.058)	0.090 (0.062)	-0.061 (0.050)	0.098** (0.043)	0.093** (0.041)	0.015 (0.036)
% of pop. belonging to scheduled caste or tribe	-0.002 (0.043)	-0.020 (0.041)	0.065 (0.050)	-0.080** (0.040)	-0.036 (0.036)	-0.059** (0.027)
Literacy rate	-0.139** (0.055)	-0.164*** (0.056)	0.017 (0.054)	-0.003 (0.044)	0.005 (0.044)	0.080** (0.038)
Composite infrastructure measure	0.008 (0.055)	0.062 (0.055)	0.202*** (0.052)	-0.047 (0.041)	-0.002 (0.039)	0.058* (0.033)
Log distance to national highway	-0.038 (0.035)	-0.055 (0.036)	-0.041 (0.032)	-0.055* (0.029)	-0.049* (0.028)	-0.054** (0.024)
Log distance to state highway	0.054 (0.035)	0.053 (0.037)	0.041 (0.036)	0.052* (0.028)	0.035 (0.028)	0.014 (0.025)
Log distance to railway	-0.005 (0.033)	0.000 (0.034)	0.019 (0.030)	-0.010 (0.028)	0.021 (0.027)	0.039* (0.023)
Prop. of plants in district using Internet	-0.029 (0.044)	0.029 (0.028)	0.080 (0.054)	0.018 (0.024)	0.054** (0.023)	0.107*** (0.023)

Notes: Table regresses log average activity levels over the period 2001-2010 for a cross-section of 421 districts on district-level traits. Regressions are weighted by district population, transform variables to have unit standard deviation, and report robust standard errors. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7b: Regressions of district manufacturing and services activity growth, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	-0.035 (0.184)	0.053 (0.143)	-0.097 (0.177)	0.538* (0.323)	0.686** (0.342)	0.599** (0.254)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.982** (0.483)	0.518* (0.268)	-0.028 (0.119)	-0.238 (0.277)	-0.194 (0.248)	-0.157 (0.228)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.138 (0.151)	-0.106 (0.121)	-0.030 (0.122)	-0.003 (0.211)	0.031 (0.212)	0.072 (0.170)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.113 (0.143)	0.109 (0.130)	-0.028 (0.103)	0.062 (0.168)	0.128 (0.178)	0.107 (0.133)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.001 (0.096)	0.002 (0.083)	-0.026 (0.084)	0.282* (0.152)	0.290* (0.148)	0.234** (0.119)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	0.594*** (0.134)	0.625*** (0.108)	0.208* (0.108)	0.372* (0.201)	0.407** (0.192)	0.304** (0.143)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.138 (0.208)	-0.211 (0.233)	-0.154 (0.236)	-0.760*** (0.208)	-0.612*** (0.218)	-0.276** (0.135)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.164 (0.190)	-0.140 (0.155)	-0.105 (0.113)	-0.065 (0.195)	-0.079 (0.202)	-0.080 (0.162)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.056 (0.143)	-0.115 (0.158)	-0.147 (0.145)	-0.175 (0.191)	-0.115 (0.195)	-0.097 (0.135)
Log district population	0.021 (0.062)	-0.024 (0.049)	-0.017 (0.042)	0.165* (0.087)	0.168* (0.089)	0.055 (0.071)
Demographic dividend	-0.022 (0.058)	-0.047 (0.048)	0.047 (0.043)	-0.023 (0.087)	-0.010 (0.090)	-0.012 (0.068)
Female-to-male ratio	-0.181*** (0.052)	-0.122*** (0.040)	-0.045 (0.038)	-0.048 (0.078)	-0.012 (0.081)	-0.012 (0.070)
% of pop. belonging to scheduled caste or tribe	0.048 (0.048)	0.074* (0.041)	0.059 (0.038)	0.006 (0.072)	-0.016 (0.068)	-0.007 (0.049)
Literacy rate	0.071 (0.066)	0.052 (0.058)	-0.021 (0.042)	0.039 (0.092)	0.008 (0.093)	-0.010 (0.078)
Composite infrastructure measure	0.129** (0.065)	0.150*** (0.055)	0.035 (0.048)	0.038 (0.086)	0.022 (0.083)	0.016 (0.058)
Log distance to national highway	-0.036 (0.039)	-0.024 (0.032)	-0.039 (0.029)	-0.101* (0.055)	-0.110** (0.053)	-0.084** (0.038)
Log distance to state highway	-0.041 (0.036)	-0.019 (0.030)	-0.015 (0.031)	-0.045 (0.054)	-0.044 (0.054)	-0.006 (0.041)
Log distance to railway	0.114*** (0.041)	0.086*** (0.033)	0.070** (0.028)	0.061 (0.047)	0.091* (0.047)	0.018 (0.035)
Prop. of plants in district using Internet	-0.015 (0.029)	0.007 (0.020)	0.008 (0.015)	0.143** (0.060)	0.185*** (0.055)	0.162*** (0.041)

Notes: See Table 7a. Estimations repeat regressions measuring growth in activity at district level.

Table 7c: Regressions of district manufacturing and services activity growth, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.402** (0.166)	0.475*** (0.150)	0.349** (0.171)	0.633*** (0.168)	0.623*** (0.172)	0.457*** (0.125)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.649** (0.326)	0.538** (0.230)	0.327*** (0.123)	0.265 (0.183)	0.327** (0.157)	0.325*** (0.113)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.151 (0.131)	0.173 (0.115)	0.352*** (0.097)	0.245** (0.110)	0.254** (0.112)	0.282*** (0.085)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.247** (0.115)	0.234** (0.109)	0.212*** (0.081)	0.288*** (0.098)	0.349*** (0.112)	0.249*** (0.070)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.155** (0.077)	0.138** (0.068)	0.197*** (0.065)	0.201*** (0.064)	0.231*** (0.064)	0.169*** (0.045)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.196*** (0.219)	1.107*** (0.159)	0.640*** (0.102)	1.135*** (0.239)	1.076*** (0.196)	0.663*** (0.109)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.177 (0.148)	-0.185 (0.192)	0.178 (0.219)	-0.149 (0.128)	-0.052 (0.204)	-0.037 (0.104)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.147 (0.160)	0.128 (0.127)	0.168 (0.117)	0.066 (0.098)	0.032 (0.104)	-0.019 (0.084)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.087 (0.125)	-0.088 (0.131)	0.031 (0.104)	-0.020 (0.125)	0.001 (0.154)	0.007 (0.082)
Log district population	0.367*** (0.078)	0.263*** (0.069)	0.193*** (0.047)	0.546*** (0.054)	0.510*** (0.054)	0.284*** (0.038)
Demographic dividend	0.075 (0.057)	0.065 (0.055)	0.098** (0.043)	0.139*** (0.047)	0.166*** (0.049)	0.129*** (0.034)
Female-to-male ratio	-0.046 (0.046)	-0.053 (0.041)	-0.052 (0.037)	0.065 (0.043)	0.089** (0.044)	0.072** (0.033)
% of pop. belonging to scheduled caste or tribe	0.039 (0.042)	0.055 (0.037)	0.062* (0.033)	-0.055 (0.039)	-0.034 (0.038)	-0.043* (0.025)
Literacy rate	-0.017 (0.051)	-0.026 (0.048)	0.003 (0.037)	-0.030 (0.044)	-0.063 (0.047)	-0.022 (0.031)
Composite infrastructure measure	0.116** (0.051)	0.155*** (0.047)	0.112*** (0.041)	0.013 (0.043)	0.050 (0.043)	0.060** (0.029)
Log distance to national highway	-0.046 (0.034)	-0.042 (0.030)	-0.041* (0.024)	-0.081*** (0.028)	-0.081*** (0.028)	-0.058*** (0.020)
Log distance to state highway	0.004 (0.033)	0.011 (0.029)	0.008 (0.026)	0.016 (0.031)	-0.002 (0.031)	0.011 (0.024)
Log distance to railway	0.071** (0.034)	0.062** (0.030)	0.052** (0.023)	0.017 (0.027)	0.056** (0.027)	0.023 (0.019)
Prop. of plants in district using Internet	-0.023 (0.030)	0.025 (0.020)	0.042 (0.026)	0.047 (0.030)	0.096*** (0.026)	0.116*** (0.021)
Log 2001 plant count	-0.746*** (0.085)			-1.139*** (0.040)		
Log 2001 employment		-0.620*** (0.089)			-1.155*** (0.041)	
Log 2001 output			-0.705*** (0.090)			-1.187*** (0.035)

Notes: See Table 7b.

Table 8a: Regressions of district manufacturing and services activity in large plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	1.013*** (0.306)	0.973*** (0.230)	0.639*** (0.178)	0.298* (0.158)	0.276 (0.188)	0.250 (0.172)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.565** (0.235)	0.599*** (0.215)	0.524*** (0.150)	0.232 (0.179)	0.407** (0.204)	0.574*** (0.206)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.747*** (0.191)	0.740*** (0.159)	0.595*** (0.116)	0.227* (0.132)	0.210 (0.143)	0.189 (0.124)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.516*** (0.147)	0.432*** (0.132)	0.400*** (0.090)	0.194* (0.116)	0.202* (0.123)	0.343*** (0.098)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.305*** (0.101)	0.388*** (0.095)	0.404*** (0.077)	0.140 (0.089)	0.139 (0.092)	0.218*** (0.077)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.734*** (0.269)	1.441*** (0.158)	0.817*** (0.104)	0.316** (0.125)	0.302** (0.151)	0.198 (0.144)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.451 (0.357)	0.434* (0.251)	0.549*** (0.163)	0.530 (0.382)	0.472 (0.330)	0.285** (0.126)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.444** (0.205)	0.414** (0.185)	0.403*** (0.129)	0.147 (0.163)	0.166 (0.174)	-0.025 (0.138)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	0.101 (0.221)	0.180 (0.233)	0.212 (0.140)	-0.319** (0.128)	-0.389*** (0.133)	-0.006 (0.106)
Log district population	0.498*** (0.091)	0.478*** (0.065)	0.289*** (0.046)	0.407*** (0.047)	0.391*** (0.054)	0.242*** (0.050)
Demographic dividend	0.263*** (0.082)	0.265*** (0.072)	0.110** (0.053)	0.048 (0.052)	0.101 (0.062)	0.081 (0.052)
Female-to-male ratio	-0.004 (0.078)	-0.022 (0.058)	-0.080* (0.044)	0.073* (0.040)	0.062 (0.046)	-0.036 (0.038)
% of pop. belonging to scheduled caste or tribe	0.012 (0.061)	0.062 (0.062)	0.144*** (0.051)	0.167*** (0.051)	0.162*** (0.052)	-0.007 (0.042)
Literacy rate	-0.069 (0.072)	-0.078 (0.070)	0.050 (0.048)	0.155*** (0.055)	0.116* (0.059)	0.141*** (0.048)
Composite infrastructure measure	0.279*** (0.068)	0.256*** (0.060)	0.196*** (0.049)	0.165*** (0.055)	0.211*** (0.057)	0.156*** (0.048)
Log distance to national highway	-0.029 (0.045)	-0.039 (0.036)	-0.025 (0.028)	0.006 (0.036)	-0.002 (0.041)	0.016 (0.035)
Log distance to state highway	0.081 (0.051)	0.065 (0.042)	0.036 (0.030)	0.020 (0.033)	0.008 (0.036)	-0.005 (0.028)
Log distance to railway	0.026 (0.044)	0.018 (0.036)	0.007 (0.027)	0.081** (0.034)	0.083** (0.036)	0.026 (0.031)
Prop. of plants in district using Internet	0.066** (0.033)	0.098*** (0.030)	0.060 (0.040)	0.079*** (0.021)	0.105*** (0.024)	0.119*** (0.028)

Notes: See Table 7a. Estimations repeat Table 7a for large plants, considering 408 districts for the manufacturing sector and 418 districts for services.

Table 8b: Regressions of district manufacturing and services activity growth in large plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	-0.011 (0.157)	0.008 (0.157)	-0.105 (0.152)	0.543 (0.423)	0.432 (0.358)	0.489* (0.287)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.096 (0.183)	0.094 (0.123)	-0.078 (0.120)	-0.270 (0.265)	-0.333 (0.248)	-0.421* (0.214)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.171 (0.143)	-0.021 (0.128)	-0.038 (0.137)	0.015 (0.330)	-0.147 (0.303)	-0.219 (0.264)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.022 (0.169)	0.034 (0.114)	-0.028 (0.093)	0.082 (0.255)	-0.036 (0.247)	-0.151 (0.221)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	-0.068 (0.109)	0.004 (0.098)	-0.036 (0.093)	0.005 (0.210)	-0.042 (0.204)	-0.100 (0.184)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.026*** (0.269)	0.547*** (0.128)	0.111 (0.106)	-0.308 (0.297)	-0.103 (0.287)	0.023 (0.260)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.544** (0.272)	-0.281* (0.169)	-0.122 (0.128)	-0.187 (0.328)	-0.124 (0.310)	-0.189 (0.373)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.210 (0.197)	-0.026 (0.136)	-0.033 (0.118)	-0.429 (0.420)	-0.508 (0.416)	-0.453 (0.349)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.187 (0.190)	-0.061 (0.143)	-0.046 (0.120)	-0.286 (0.277)	-0.345 (0.246)	-0.332* (0.201)
Log district population	-0.024 (0.056)	-0.068 (0.046)	-0.062 (0.046)	0.266** (0.108)	0.173* (0.101)	0.081 (0.088)
Demographic dividend	0.039 (0.064)	0.018 (0.054)	0.013 (0.051)	-0.070 (0.125)	-0.038 (0.120)	0.019 (0.107)
Female-to-male ratio	-0.048 (0.042)	-0.043 (0.038)	-0.069* (0.037)	0.053 (0.087)	0.055 (0.081)	0.050 (0.071)
% of pop. belonging to scheduled caste or tribe	0.053 (0.051)	0.028 (0.042)	0.022 (0.046)	0.013 (0.103)	0.010 (0.104)	0.032 (0.097)
Literacy rate	-0.011 (0.071)	-0.038 (0.054)	-0.004 (0.047)	-0.040 (0.131)	-0.066 (0.127)	-0.109 (0.112)
Composite infrastructure measure	0.028 (0.063)	0.033 (0.051)	-0.013 (0.049)	0.104 (0.114)	0.123 (0.113)	0.132 (0.102)
Log distance to national highway	-0.054 (0.040)	-0.053 (0.038)	-0.041 (0.039)	-0.157** (0.077)	-0.122* (0.073)	-0.079 (0.066)
Log distance to state highway	0.003 (0.034)	-0.010 (0.031)	-0.033 (0.032)	-0.044 (0.068)	-0.043 (0.062)	-0.020 (0.053)
Log distance to railway	0.056 (0.040)	0.074** (0.030)	0.078*** (0.027)	0.182** (0.079)	0.151** (0.074)	0.092 (0.063)
Prop. of plants in district using Internet	-0.017 (0.019)	-0.011 (0.016)	-0.011 (0.014)	0.134** (0.053)	0.120** (0.047)	0.115*** (0.041)

Notes: See Table 7b.

Table 8c: Regressions of district manufacturing and services activity growth in large plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.509*** (0.168)	0.386*** (0.141)	0.204* (0.109)	0.408** (0.178)	0.318* (0.172)	0.221 (0.149)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.358** (0.166)	0.330*** (0.112)	0.220*** (0.080)	0.372* (0.192)	0.301* (0.170)	0.124 (0.141)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.280** (0.123)	0.325*** (0.084)	0.272*** (0.069)	0.145 (0.216)	0.044 (0.215)	0.042 (0.201)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.278** (0.130)	0.227*** (0.078)	0.196*** (0.055)	0.235 (0.170)	0.166 (0.167)	0.129 (0.154)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.171* (0.091)	0.216*** (0.066)	0.208*** (0.054)	0.141 (0.137)	0.086 (0.139)	0.043 (0.130)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.371*** (0.246)	0.863*** (0.106)	0.376*** (0.079)	0.654*** (0.192)	0.639*** (0.194)	0.525*** (0.178)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.182 (0.212)	0.051 (0.146)	0.227** (0.104)	0.161 (0.411)	0.098 (0.314)	-0.027 (0.172)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.075 (0.143)	0.196* (0.101)	0.228*** (0.082)	-0.344 (0.265)	-0.354 (0.266)	-0.261 (0.251)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.021 (0.117)	0.093 (0.105)	0.131* (0.070)	-0.021 (0.165)	-0.044 (0.147)	0.068 (0.117)
Log district population	0.219*** (0.069)	0.189*** (0.041)	0.127*** (0.032)	0.328*** (0.057)	0.241*** (0.055)	0.133*** (0.049)
Demographic dividend	0.146** (0.062)	0.117** (0.047)	0.061 (0.042)	0.133* (0.079)	0.148* (0.078)	0.146** (0.071)
Female-to-male ratio	-0.031 (0.047)	-0.037 (0.034)	-0.057** (0.026)	0.051 (0.050)	0.035 (0.049)	0.024 (0.044)
% of pop. belonging to scheduled caste or tribe	0.055 (0.042)	0.055* (0.033)	0.061** (0.028)	0.086 (0.065)	0.084 (0.061)	0.046 (0.054)
Literacy rate	-0.033 (0.052)	-0.049 (0.039)	0.013 (0.034)	-0.028 (0.085)	-0.059 (0.085)	-0.061 (0.078)
Composite infrastructure measure	0.139*** (0.050)	0.137*** (0.038)	0.094*** (0.032)	0.222*** (0.070)	0.229*** (0.069)	0.185*** (0.064)
Log distance to national highway	-0.048 (0.034)	-0.028 (0.027)	-0.003 (0.026)	-0.055 (0.053)	-0.059 (0.054)	-0.060 (0.051)
Log distance to state highway	0.038 (0.031)	0.023 (0.022)	0.004 (0.016)	-0.044 (0.040)	-0.042 (0.038)	-0.026 (0.034)
Log distance to railway	0.027 (0.032)	0.029 (0.020)	0.018 (0.015)	0.088* (0.052)	0.072 (0.050)	0.030 (0.047)
Prop. of plants in district using Internet	0.029 (0.020)	0.041** (0.017)	0.024 (0.017)	0.099*** (0.035)	0.094*** (0.030)	0.094*** (0.031)
Log 2001 plant count	-0.579*** (0.059)			-0.968*** (0.049)		
Log 2001 employment		-0.689*** (0.041)			-0.976*** (0.044)	
Log 2001 output			-0.767*** (0.030)			-0.990*** (0.036)

Notes: See Table 7b.

Table 9a: Regressions of district manufacturing and services activity in high wage plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.929*** (0.190)	1.384*** (0.263)	0.880*** (0.223)	0.057 (0.135)	0.068 (0.233)	0.077 (0.214)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.710*** (0.184)	1.048*** (0.262)	0.719*** (0.205)	0.252* (0.143)	0.500** (0.239)	0.497** (0.205)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.568*** (0.144)	0.909*** (0.217)	0.602*** (0.187)	0.191* (0.109)	0.252 (0.177)	0.232 (0.149)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.171 (0.123)	0.410** (0.182)	0.257 (0.163)	0.123 (0.104)	0.271* (0.150)	0.289** (0.126)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.180* (0.099)	0.430*** (0.124)	0.265** (0.114)	0.011 (0.083)	0.141 (0.120)	0.139 (0.099)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.629*** (0.194)	1.740*** (0.174)	1.020*** (0.153)	0.138 (0.107)	0.168 (0.183)	0.149 (0.172)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.473** (0.189)	0.750*** (0.243)	0.569*** (0.202)	0.000 (0.185)	0.056 (0.218)	0.139 (0.147)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.336** (0.159)	0.413* (0.242)	0.352 (0.220)	-0.182 (0.190)	-0.232 (0.309)	-0.162 (0.254)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	0.053 (0.179)	0.299 (0.225)	0.307* (0.182)	0.172 (0.109)	0.105 (0.154)	0.123 (0.126)
Log district population	0.203*** (0.057)	0.342*** (0.077)	0.294*** (0.059)	0.154*** (0.038)	0.256*** (0.062)	0.205*** (0.058)
Demographic dividend	0.149*** (0.055)	0.237*** (0.089)	0.167** (0.076)	0.117*** (0.044)	0.155** (0.071)	0.116* (0.059)
Female-to-male ratio	-0.005 (0.044)	0.034 (0.063)	-0.003 (0.049)	-0.012 (0.033)	-0.051 (0.050)	-0.059 (0.044)
% of pop. belonging to scheduled caste or tribe	-0.004 (0.060)	0.072 (0.099)	0.069 (0.097)	0.026 (0.044)	0.063 (0.067)	0.063 (0.053)
Literacy rate	0.083 (0.058)	-0.049 (0.086)	-0.008 (0.076)	0.169*** (0.052)	0.214*** (0.078)	0.253*** (0.065)
Composite infrastructure measure	0.027 (0.052)	0.038 (0.074)	0.031 (0.066)	0.095** (0.044)	0.244*** (0.069)	0.182*** (0.056)
Log distance to national highway	-0.047 (0.042)	-0.044 (0.055)	-0.014 (0.048)	-0.015 (0.030)	-0.013 (0.048)	-0.043 (0.044)
Log distance to state highway	-0.013 (0.037)	0.059 (0.050)	0.033 (0.042)	-0.011 (0.027)	-0.027 (0.043)	-0.015 (0.037)
Log distance to railway	0.045 (0.033)	0.043 (0.049)	0.039 (0.043)	0.072*** (0.028)	0.102** (0.043)	0.092** (0.038)
Prop. of plants in district using Internet	0.109* (0.055)	0.154** (0.071)	0.112** (0.056)	0.118*** (0.016)	0.173*** (0.027)	0.148*** (0.030)

Notes: See Table 7a. Estimations repeat Table 7a for high wage plants, considering 336 districts for the manufacturing sector and 417 districts for services.

Table 9b: Regressions of district manufacturing and services activity growth in high wage plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.171 (0.344)	0.036 (0.531)	-0.000 (0.528)	1.482*** (0.507)	1.163*** (0.393)	0.859*** (0.265)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.129 (0.183)	-0.029 (0.294)	-0.114 (0.324)	0.164 (0.308)	0.139 (0.243)	0.158 (0.200)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.013 (0.159)	0.018 (0.246)	0.059 (0.270)	0.532* (0.301)	0.394 (0.253)	0.394* (0.214)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.050 (0.150)	-0.092 (0.204)	-0.161 (0.215)	0.248 (0.252)	0.216 (0.212)	0.179 (0.174)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.020 (0.099)	-0.194 (0.167)	-0.208 (0.189)	0.305* (0.180)	0.249 (0.156)	0.231* (0.135)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	-0.835*** (0.264)	-0.471* (0.262)	-0.278 (0.277)	1.343*** (0.297)	1.056*** (0.247)	0.826*** (0.202)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.453 (0.299)	-0.188 (0.249)	-0.359 (0.231)	-0.138 (0.290)	-0.123 (0.274)	-0.065 (0.284)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.080 (0.190)	-0.213 (0.360)	-0.356 (0.386)	0.152 (0.369)	-0.007 (0.328)	0.038 (0.291)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.107 (0.237)	0.021 (0.324)	0.088 (0.342)	-0.010 (0.264)	-0.030 (0.234)	-0.054 (0.215)
Log district population	0.020 (0.075)	0.047 (0.119)	0.012 (0.125)	0.084 (0.117)	0.047 (0.100)	-0.023 (0.080)
Demographic dividend	-0.114* (0.062)	-0.193** (0.094)	-0.177* (0.101)	0.178 (0.118)	0.169* (0.101)	0.126 (0.083)
Female-to-male ratio	-0.011 (0.058)	0.022 (0.087)	0.074 (0.096)	0.149 (0.103)	0.114 (0.090)	0.104 (0.072)
% of pop. belonging to scheduled caste or tribe	-0.017 (0.057)	0.009 (0.103)	0.003 (0.119)	-0.067 (0.088)	-0.025 (0.076)	0.038 (0.070)
Literacy rate	0.107 (0.066)	0.074 (0.119)	0.006 (0.130)	-0.186 (0.117)	-0.141 (0.103)	-0.068 (0.089)
Composite infrastructure measure	0.061 (0.059)	0.013 (0.097)	0.013 (0.099)	0.033 (0.100)	0.059 (0.090)	0.112 (0.081)
Log distance to national highway	0.022 (0.046)	-0.037 (0.074)	-0.073 (0.079)	-0.053 (0.071)	-0.030 (0.059)	-0.003 (0.050)
Log distance to state highway	0.047 (0.052)	0.054 (0.075)	0.045 (0.080)	0.017 (0.070)	0.013 (0.061)	0.034 (0.053)
Log distance to railway	-0.003 (0.039)	0.061 (0.058)	0.088 (0.062)	0.019 (0.067)	0.019 (0.056)	-0.000 (0.047)
Prop. of plants in district using Internet	0.090*** (0.026)	0.108** (0.051)	0.113** (0.051)	0.310*** (0.050)	0.224*** (0.042)	0.157*** (0.038)

Notes: See Table 7b.

Table 9c: Regressions of district manufacturing and services activity growth in high wage plants, 2001-2010

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.489*	0.479	0.310	0.835***	0.610**	0.518**
	(0.281)	(0.349)	(0.338)	(0.278)	(0.241)	(0.202)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.524***	0.620***	0.443***	0.734***	0.602***	0.401**
	(0.151)	(0.157)	(0.147)	(0.215)	(0.183)	(0.160)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.294**	0.522***	0.421***	0.704***	0.527***	0.451**
	(0.135)	(0.140)	(0.133)	(0.228)	(0.197)	(0.178)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.121	0.354***	0.361***	0.349*	0.333*	0.233
	(0.122)	(0.113)	(0.107)	(0.195)	(0.171)	(0.155)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.093	0.175*	0.172*	0.269**	0.248**	0.180
	(0.088)	(0.096)	(0.096)	(0.137)	(0.124)	(0.118)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	0.391**	0.802***	0.616***	1.290***	1.005***	0.733***
	(0.189)	(0.159)	(0.156)	(0.238)	(0.194)	(0.175)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.561**	0.495***	0.409***	0.059	0.024	0.006
	(0.234)	(0.170)	(0.130)	(0.387)	(0.354)	(0.336)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.043	0.014	-0.035	-0.084	-0.085	-0.081
	(0.153)	(0.249)	(0.267)	(0.254)	(0.234)	(0.245)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.041	0.209	0.267**	0.191	0.109	0.023
	(0.189)	(0.134)	(0.109)	(0.243)	(0.216)	(0.199)
Log district population	0.107*	0.111	0.046	0.111	0.074	0.026
	(0.060)	(0.078)	(0.078)	(0.087)	(0.077)	(0.071)
Demographic dividend	-0.006	-0.029	-0.040	0.257***	0.222***	0.161**
	(0.059)	(0.068)	(0.065)	(0.090)	(0.081)	(0.073)
Female-to-male ratio	-0.025	0.019	0.042	0.193***	0.156**	0.142**
	(0.055)	(0.074)	(0.073)	(0.074)	(0.067)	(0.060)
% of pop. belonging to scheduled caste or tribe	-0.007	0.052	0.044	-0.019	0.024	0.060
	(0.051)	(0.071)	(0.073)	(0.068)	(0.059)	(0.058)
Literacy rate	0.127**	0.066	0.035	-0.027	-0.044	-0.016
	(0.056)	(0.066)	(0.067)	(0.090)	(0.083)	(0.081)
Composite infrastructure measure	0.063	0.064	0.066	0.184**	0.198**	0.161**
	(0.052)	(0.065)	(0.065)	(0.090)	(0.083)	(0.078)
Log distance to national highway	-0.018	-0.064	-0.073*	-0.011	0.008	0.010
	(0.039)	(0.042)	(0.040)	(0.053)	(0.047)	(0.044)
Log distance to state highway	0.027	0.042	0.029	0.056	0.049	0.064
	(0.039)	(0.044)	(0.045)	(0.057)	(0.051)	(0.046)
Log distance to railway	0.033	0.074*	0.066*	0.019	0.000	-0.010
	(0.034)	(0.040)	(0.038)	(0.053)	(0.045)	(0.042)
Prop. of plants in district using Internet	0.115***	0.092**	0.056	0.268***	0.197***	0.145***
	(0.040)	(0.043)	(0.039)	(0.053)	(0.044)	(0.038)
Log 2001 plant count	-0.634***			-1.037***		
	(0.066)			(0.071)		
Log 2001 employment		-0.677***			-0.825***	
		(0.029)			(0.059)	
Log 2001 output			-0.673***			-0.796***
			(0.021)			(0.054)

Notes: See Table 7b.

Appendix Tables

Table A1: Distributions for large plants with more than 10 employees

States/UTs	A. Raw plant count per state						B. Distribution of plants over states					
	Manufacturing			Services			Manufacturing			Services		
	2001	2006	2010	2001	2006	2010	2001	2006	2010	2001	2006	2010
A & N Islands	24	8	9	15	19	19	0.000	0.000	0.000	0.000	0.000	0.001
Andhra Pradesh	1,919	2,322	2,374	733	687	738	0.066	0.128	0.079	0.073	0.114	0.154
Assam	543	646	641	121	176	58	0.006	0.012	0.007	0.008	0.043	0.009
Bihar	681	841	674	363	70	90	0.014	0.011	0.013	0.020	0.011	0.015
Chandigarh	96	122	82	54	14	8	0.002	0.001	0.000	0.003	0.015	0.002
Dadra & Nagar Haveli	271	398	306	18	7	10	0.003	0.003	0.003	0.000	0.000	0.000
Daman & Diu	277	431	384	34	15	74	0.005	0.005	0.004	0.000	0.000	0.000
Delhi	720	741	587	147	80	110	0.044	0.026	0.034	0.029	0.007	0.033
Goa	270	313	220	21	17	4	0.003	0.003	0.001	0.003	0.002	0.001
Gujarat	2,314	2,686	3,030	195	171	157	0.091	0.100	0.131	0.101	0.020	0.047
Haryana	1,116	1,529	1,373	194	64	116	0.022	0.023	0.018	0.029	0.011	0.015
Himachal Pradesh	253	488	566	136	65	77	0.006	0.004	0.006	0.004	0.006	0.006
Jammu & Kashmir	248	362	225	194	58	84	0.004	0.004	0.004	0.007	0.005	0.013
Karnataka	1,555	1,757	1,595	289	179	169	0.062	0.041	0.040	0.050	0.029	0.072
Kerala	1,102	983	851	621	396	248	0.040	0.041	0.028	0.063	0.078	0.083
Madhya Pradesh	1,148	1,370	1,166	689	255	208	0.033	0.029	0.032	0.066	0.056	0.040
Maharashtra	3,359	4,040	3,555	1,038	768	204	0.136	0.176	0.168	0.135	0.090	0.118
Manipur	37	34	51	94	48	32	0.001	0.000	0.001	0.003	0.002	0.002
Meghalaya	46	73	82	34	29	6	0.001	0.002	0.001	0.001	0.003	0.000
Nagaland	65	50	44	38	28	59	0.000	0.000	0.000	0.001	0.001	0.001
Orissa	420	523	445	186	461	117	0.010	0.010	0.017	0.028	0.175	0.051
Pondicherry	261	313	242	73	34	36	0.004	0.002	0.002	0.006	0.003	0.003
Punjab	1,319	2,190	1,833	286	104	102	0.032	0.027	0.030	0.034	0.015	0.025
Rajasthan	970	1,531	1,374	249	152	177	0.025	0.035	0.038	0.035	0.041	0.051
Tamil Nadu	3,794	4,100	4,104	534	601	416	0.167	0.139	0.147	0.090	0.103	0.086
Tripura	135	226	290	34	15	2	0.001	0.001	0.001	0.000	0.001	0.000
Uttar Pradesh	2,623	3,022	3,320	1,057	329	480	0.140	0.099	0.087	0.134	0.094	0.131
West Bengal	1,614	1,641	1,790	691	374	143	0.083	0.076	0.109	0.077	0.076	0.039
Nationwide	27,180	32,740	31,213	8,138	5,216	3,944	1.000	1.000	1.000	1.000	1.000	1.000

Notes: See Tables 1-3.

Table A1: Distributions for large plants (continued)

States/UTs	C. Share of plants in urban areas, by state					
	Manufacturing			Services		
	2001	2006	2010	2001	2006	2010
A & N Islands	0.234	0.574	0.912	0.622	0.674	0.830
Andhra Pradesh	0.430	0.174	0.378	0.813	0.354	0.440
Assam	0.295	0.434	0.277	0.831	0.196	0.256
Bihar	0.317	0.444	0.351	0.771	0.872	0.783
Chandigarh	0.996	0.965	1.000	1.000	0.998	1.000
Dadra & Nagar Haveli	0.054	0.067	0.117	0.580	1.000	0.961
Daman & Diu	0.036	0.018	0.005	0.200	0.797	0.504
Delhi	0.991	0.977	0.956	1.000	0.911	0.999
Goa	0.245	0.215	0.518	0.950	0.949	0.970
Gujarat	0.549	0.660	0.784	0.220	0.791	0.793
Haryana	0.682	0.601	0.681	0.590	0.540	0.585
Himachal Pradesh	0.206	0.385	0.376	0.558	0.199	0.370
Jammu & Kashmir	0.404	0.549	0.415	0.516	0.471	0.568
Karnataka	0.473	0.535	0.679	0.822	0.606	0.701
Kerala	0.276	0.286	0.334	0.485	0.335	0.406
Madhya Pradesh	0.453	0.438	0.346	0.810	0.546	0.650
Maharashtra	0.668	0.780	0.777	0.853	0.638	0.446
Manipur	0.396	0.467	0.408	0.440	0.360	0.451
Meghalaya	0.134	0.079	0.161	1.000	0.203	0.827
Nagaland	0.396	0.340	0.610	0.381	0.288	0.444
Orissa	0.375	0.531	0.201	0.297	0.036	0.195
Pondicherry	0.630	0.312	0.450	0.910	0.722	0.849
Punjab	0.735	0.715	0.648	0.692	0.797	0.353
Rajasthan	0.611	0.606	0.668	0.685	0.669	0.606
Tamil Nadu	0.576	0.539	0.684	0.864	0.511	0.762
Tripura	0.235	0.065	0.115	0.966	0.220	1.000
Uttar Pradesh	0.343	0.386	0.409	0.542	0.556	0.439
West Bengal	0.538	0.518	0.308	0.670	0.224	0.699
Avg share (unwtd)	0.439	0.452	0.485	0.681	0.552	0.639
Avg share (wtd)	0.493	0.499	0.525	0.682	0.489	0.565

Notes: See Tables 1-3.

Table A1: Distributions for large plants (continued)

D. Raw plant count per industry									
Manufacturing					Services				
NIC Code/Industry		2001	2006	2010	NIC Code/Industry		2001	2006	2010
15	Food products and beverages	4,820	5,740	5,056	55	Hotels and restaurants	1,888	604	667
16	Tobacco products	642	498	450	60	Land transport; pipelines	487	190	151
17	Textiles	3,919	3,338	3,248	61	Water transport	9	7	1
18	Wearing apparel; dressing and dyeing of fur	1,045	1,149	1,244	63	Supporting/auxiliary transport activities; travel agencies	247	182	31
19	Leather tanning; luggage, handbags, footwear	451	632	507	64	Post and telecommunications	130	57	16
20	Wood and wood products; straw and plating articles	413	480	486	65	Financial intermediation	.	1,669	272
21	Paper and paper products	687	969	921	66	Insurance and pension funding, except social security	.	21	0
22	Publishing, printing and media reproduction	532	707	565	67	Activities auxiliary to financial intermediation	.	119	6
23	Coke, refined petroleum and nuclear fuel	187	259	86	70	Real estate activities	40	34	13
24	Chemicals and chemical products	2,489	3,054	2,818	71	Renting machinery/equipment & personal/household goods	53	24	31
25	Rubber and plastic products	1,065	1,562	1,475	72	Computers and related activities (for business)	77	107	15
26	Other non-metallic mineral products	2,878	3,794	4,029	73	Research and development	10	3	0
27	Basic metals	1,246	1,991	1,972	74	Other business activities	319	162	88
28	Fabricated metal products, except machinery	1,218	1,675	1,762	80	Education	3,341	1,395	2,166
29	Machinery and equipment, n.e.c.	1,719	2,366	2,083	85	Health and social work	767	363	272
30	Office, accounting and computing machinery	52	82	56	90	Sewage, refuse disposal, sanitation, and similar activities	1	4	3
31	Electrical machinery and apparatus, n.e.c.	927	1,214	1,148	91	Activities of membership organizations n.e.c.	20	43	16
32	Radio, television, and comm. equipment	334	394	344	92	Recreational, cultural and sporting activities	706	211	184
33	Medical, precision and optical instruments, watches	341	435	291	93	Other service activities	43	21	12
34	Motor vehicles, trailers and semi-trailers	689	910	1,141					
35	Other transport equipment	482	612	498					
36	Furniture, manufacturing n.e.c.	1,044	879	1,033					
Total		27,180	32,740	31,213	Total		8,138	5,216	3,944

Notes: See Tables 1-3.

Table A1: Distributions for large plants (continued)

E. Distribution of plants over industries								
Manufacturing				Services				
NIC Code/Industry	2001	2006	2010	NIC Code/Industry	2001	2006	2010	
15 Food products and beverages	0.147	0.222	0.117	55 Hotels and restaurants	0.128	0.073	0.133	
16 Tobacco products	0.039	0.008	0.017	60 Land transport; pipelines	0.043	0.022	0.035	
17 Textiles	0.195	0.179	0.151	61 Water transport	0.000	0.000	0.000	
18 Wearing apparel; dressing and dyeing of fur	0.058	0.052	0.071	63 Supporting/auxiliary transport activities; travel agencies	0.019	0.013	0.009	
19 Leather tanning; luggage, handbags, footwear	0.016	0.022	0.010	64 Post and telecommunications	0.011	0.005	0.003	
20 Wood and wood products; straw and plating articles	0.014	0.011	0.016	65 Financial intermediation	.	0.490	0.244	
21 Paper and paper products	0.017	0.015	0.024	66 Insurance and pension funding, except social security	.	0.001	0.000	
22 Publishing, printing and media reproduction	0.016	0.031	0.025	67 Activities auxiliary to financial intermediation	.	0.005	0.002	
23 Coke, refined petroleum and nuclear fuel	0.002	0.003	0.001	70 Real estate activities	0.006	0.007	0.004	
24 Chemicals and chemical products	0.079	0.064	0.040	71 Renting machinery/equipment & personal/household goods	0.008	0.006	0.007	
25 Rubber and plastic products	0.034	0.030	0.051	72 Computers and related activities (for business)	0.004	0.007	0.009	
26 Other non-metallic mineral products	0.167	0.116	0.166	73 Research and development	0.001	0.000	0.000	
27 Basic metals	0.027	0.024	0.025	74 Other business activities	0.034	0.014	0.028	
28 Fabricated metal products, except machinery	0.035	0.045	0.098	80 Education	0.545	0.254	0.412	
29 Machinery and equipment, n.e.c.	0.034	0.036	0.042	85 Health and social work	0.073	0.050	0.066	
30 Office, accounting and computing machinery	0.001	0.001	0.001	90 Sewage, refuse disposal, sanitation, and similar activities	0.000	0.000	0.001	
31 Electrical machinery and apparatus, n.e.c.	0.019	0.016	0.015	91 Activities of membership organizations n.e.c.	0.001	0.009	0.003	
32 Radio, television, and comm. equipment	0.007	0.005	0.007	92 Recreational, cultural and sporting activities	0.110	0.040	0.042	
33 Medical, precision and optical instruments, watches	0.004	0.004	0.003	93 Other service activities	0.016	0.003	0.004	
34 Motor vehicles, trailers and semi-trailers	0.013	0.014	0.014					
35 Other transport equipment	0.007	0.007	0.005					
36 Furniture, manufacturing n.e.c.	0.068	0.096	0.099					
Total	1.000	1.000	1.000	Total	1.000	1.000	1.000	

Notes: See Tables 1-3.

Table A1: Distributions for large plants (continued)

F. Share of plants in urban areas, by industry								
Manufacturing				Services				
NIC Code/Industry	2001	2006	2010	NIC Code/Industry	2001	2006	2010	
15 Food products and beverages	0.359	0.224	0.419	55 Hotels and restaurants	0.864	0.895	0.807	
16 Tobacco products	0.152	0.527	0.198	60 Land transport; pipelines	0.759	0.856	0.772	
17 Textiles	0.588	0.683	0.739	61 Water transport	0.986	0.421	1.000	
18 Wearing apparel; dressing and dyeing of fur	0.972	0.915	0.877	63 Supporting/auxiliary transport activities; travel agencies	0.947	0.978	0.972	
19 Leather tanning; luggage, handbags, footwear	0.837	0.610	0.811	64 Post and telecommunications	1.000	0.920	1.000	
20 Wood and wood products; straw and plating articles	0.554	0.393	0.496	65 Financial intermediation	.	0.081	0.096	
21 Paper and paper products	0.605	0.519	0.520	66 Insurance and pension funding, except social security	.	1.000	.	
22 Publishing, printing and media reproduction	0.938	0.792	0.899	67 Activities auxiliary to financial intermediation	.	1.000	1.000	
23 Coke, refined petroleum and nuclear fuel	0.366	0.295	0.187	70 Real estate activities	0.982	0.921	0.789	
24 Chemicals and chemical products	0.439	0.388	0.590	71 Renting machinery/equipment & personal/household goods	0.603	0.154	0.626	
25 Rubber and plastic products	0.664	0.613	0.822	72 Computers and related activities (for business)	0.998	1.000	0.986	
26 Other non-metallic mineral products	0.217	0.163	0.162	73 Research and development	0.931	0.959	.	
27 Basic metals	0.674	0.638	0.617	74 Other business activities	0.976	0.988	0.948	
28 Fabricated metal products, except machinery	0.831	0.892	0.914	80 Education	0.578	0.637	0.585	
29 Machinery and equipment, n.e.c.	0.806	0.850	0.827	85 Health and social work	0.765	0.886	0.882	
30 Office, accounting and computing machinery	0.889	0.919	0.755	90 Sewage, refuse disposal, sanitation, and similar activities	1.000	0.790	1.000	
31 Electrical machinery and apparatus, n.e.c.	0.806	0.779	0.755	91 Activities of membership organizations n.e.c.	0.766	0.482	0.354	
32 Radio, television, and comm. equipment	0.854	0.513	0.849	92 Recreational, cultural and sporting activities	0.555	0.528	0.554	
33 Medical, precision and optical instruments, watches	0.806	0.833	0.852	93 Other service activities	0.784	0.867	1.000	
34 Motor vehicles, trailers and semi-trailers	0.810	0.567	0.786					
35 Other transport equipment	0.819	0.764	0.710					
36 Furniture, manufacturing n.e.c.	0.641	0.746	0.416					
Average industry share (unweighted)	0.665	0.619	0.646	Average industry share (unweighted)	0.843	0.756	0.787	
Average industry share (weighted by industry size)	0.548	0.559	0.599	Average industry share (weighted by industry size)	0.766	0.703	0.354	

Notes: See Tables 1-3.

Table A2: Urbanization shares by state and sector

States/UTs	A. Plant shares within manufacturing											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	.	.	.	.	0.273	0.192	0.338	0.268	0.273	0.192	0.339	0.268
Andhra Pradesh	0.512	0.487	0.416	0.472	0.251	0.293	0.387	0.310	0.253	0.294	0.387	0.311
Assam	0.295	0.295	0.258	0.283	0.136	0.111	0.140	0.129	0.137	0.111	0.141	0.130
Bihar	0.500	0.413	0.359	0.424	0.135	0.114	0.154	0.134	0.136	0.114	0.155	0.135
Chandigarh	0.991	0.978	1.000	0.990	0.883	0.470	0.874	0.742	0.886	0.549	0.877	0.771
Dadra & Nagar Haveli	0.050	0.071	0.137	0.086	0.140	0.172	0.368	0.227	0.104	0.121	0.289	0.171
Daman & Diu	0.041	0.019	.	0.030	0.322	0.469	0.648	0.480	0.173	0.311	0.413	0.299
Delhi	0.994	0.993	1.000	0.996	0.955	0.963	0.973	0.964	0.955	0.963	0.973	0.964
Goa	0.187	0.205	0.523	0.305	0.261	0.562	0.558	0.460	0.260	0.546	0.556	0.454
Gujarat	0.671	0.649	0.677	0.666	0.547	0.541	0.810	0.633	0.550	0.543	0.809	0.634
Haryana	0.757	0.674	0.794	0.742	0.480	0.481	0.574	0.512	0.485	0.484	0.578	0.516
Himachal Pradesh	0.577	0.492	0.337	0.469	0.077	0.065	0.133	0.092	0.079	0.068	0.136	0.095
Jammu & Kashmir	0.462	0.604	0.824	0.630	0.329	0.188	0.376	0.298	0.329	0.189	0.377	0.299
Karnataka	0.763	0.736	0.950	0.816	0.336	0.310	0.386	0.344	0.338	0.313	0.390	0.347
Kerala	0.281	0.352	0.202	0.278	0.175	0.246	0.336	0.252	0.176	0.247	0.335	0.253
Madhya Pradesh	0.698	0.762	0.773	0.744	0.274	0.307	0.381	0.321	0.276	0.309	0.382	0.322
Maharashtra	0.706	0.674	0.737	0.706	0.460	0.506	0.553	0.506	0.463	0.508	0.555	0.509
Manipur	0.478	0.286	0.300	0.355	0.354	0.318	0.299	0.324	0.354	0.318	0.299	0.324
Meghalaya	.	.	.	.	0.066	0.067	0.087	0.073	0.067	0.067	0.087	0.074
Nagaland	0.423	0.364	0.382	0.390	0.420	0.276	0.198	0.298	0.420	0.277	0.199	0.299
Orissa	0.554	0.418	0.406	0.459	0.063	0.090	0.114	0.089	0.063	0.091	0.115	0.090
Pondicherry	0.447	0.414	0.495	0.452	0.778	0.700	0.854	0.777	0.767	0.691	0.843	0.767
Punjab	0.832	0.725	0.636	0.731	0.449	0.487	0.580	0.505	0.456	0.493	0.581	0.510
Rajasthan	0.715	0.704	0.721	0.713	0.375	0.370	0.500	0.415	0.377	0.373	0.502	0.417
Tamil Nadu	0.522	0.508	0.670	0.567	0.448	0.426	0.591	0.488	0.448	0.427	0.592	0.489
Tripura	0.248	0.100	0.087	0.145	0.125	0.142	0.117	0.128	0.126	0.142	0.117	0.128
Uttar Pradesh	0.678	0.674	0.515	0.622	0.283	0.279	0.386	0.316	0.285	0.281	0.387	0.317
West Bengal	0.748	0.656	0.669	0.691	0.234	0.194	0.222	0.217	0.234	0.195	0.223	0.217

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A2: Urbanization shares by state and sector (continued)

States/UTs	B. Employment shares within manufacturing											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	.	.	.	.	0.434	0.314	0.574	0.441	0.346	0.309	0.562	0.406
Andhra Pradesh	0.665	0.606	0.546	0.606	0.281	0.310	0.406	0.332	0.360	0.379	0.439	0.393
Assam	0.138	0.173	0.174	0.162	0.186	0.173	0.192	0.184	0.177	0.173	0.188	0.179
Bihar	0.608	0.465	0.458	0.510	0.148	0.150	0.182	0.160	0.176	0.169	0.212	0.185
Chandigarh	0.994	0.991	1.000	0.995	0.933	0.459	0.846	0.746	0.950	0.874	0.920	0.915
Dadra & Nagar Haveli	0.046	0.087	0.062	0.065	0.152	0.296	0.311	0.253	0.053	0.094	0.074	0.074
Daman & Diu	0.028	0.011	.	0.020	0.181	0.291	0.422	0.298	0.041	0.032	0.018	0.030
Delhi	0.991	0.986	1.000	0.992	0.974	0.964	0.977	0.972	0.976	0.969	0.979	0.975
Goa	0.227	0.157	0.573	0.319	0.294	0.539	0.593	0.475	0.271	0.323	0.579	0.391
Gujarat	0.593	0.559	0.564	0.572	0.631	0.654	0.794	0.693	0.620	0.627	0.742	0.663
Haryana	0.738	0.697	0.811	0.749	0.582	0.600	0.541	0.574	0.646	0.640	0.675	0.654
Himachal Pradesh	0.368	0.356	0.328	0.351	0.118	0.123	0.210	0.150	0.172	0.185	0.262	0.206
Jammu & Kashmir	0.697	0.709	0.826	0.744	0.361	0.206	0.374	0.314	0.377	0.262	0.434	0.357
Karnataka	0.712	0.685	0.935	0.777	0.373	0.350	0.459	0.394	0.428	0.417	0.613	0.486
Kerala	0.320	0.328	0.115	0.254	0.212	0.270	0.383	0.288	0.234	0.280	0.321	0.279
Madhya Pradesh	0.622	0.631	0.674	0.642	0.314	0.332	0.391	0.346	0.354	0.366	0.436	0.385
Maharashtra	0.619	0.560	0.570	0.583	0.602	0.677	0.668	0.649	0.607	0.644	0.640	0.630
Manipur	0.218	0.244	0.102	0.188	0.395	0.352	0.326	0.358	0.393	0.350	0.315	0.353
Meghalaya	.	.	.	.	0.100	0.095	0.120	0.105	0.100	0.091	0.107	0.099
Nagaland	0.245	0.172	0.140	0.186	0.516	0.369	0.326	0.404	0.450	0.336	0.281	0.356
Orissa	0.551	0.419	0.373	0.448	0.072	0.105	0.123	0.100	0.099	0.124	0.154	0.126
Pondicherry	0.394	0.411	0.409	0.405	0.757	0.665	0.796	0.739	0.581	0.546	0.580	0.569
Punjab	0.727	0.647	0.565	0.646	0.573	0.622	0.691	0.629	0.623	0.633	0.640	0.632
Rajasthan	0.619	0.667	0.651	0.646	0.430	0.435	0.578	0.481	0.461	0.477	0.594	0.511
Tamil Nadu	0.494	0.491	0.580	0.522	0.519	0.471	0.640	0.543	0.514	0.476	0.622	0.537
Tripura	0.268	0.016	0.026	0.103	0.144	0.090	0.130	0.121	0.157	0.082	0.110	0.116
Uttar Pradesh	0.624	0.620	0.453	0.566	0.323	0.344	0.423	0.363	0.351	0.377	0.427	0.385
West Bengal	0.840	0.748	0.726	0.771	0.251	0.251	0.275	0.259	0.303	0.293	0.319	0.305

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A2: Urbanization shares by state and sector (continued)

States/UTs	C. Output shares within manufacturing											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	.	.	.	.	0.481	0.313	0.698	0.497	0.363	0.300	0.677	0.447
Andhra Pradesh	0.461	0.432	0.386	0.426	0.476	0.475	0.609	0.520	0.464	0.437	0.422	0.441
Assam	0.413	0.347	0.285	0.348	0.326	0.309	0.315	0.317	0.395	0.337	0.295	0.342
Bihar	0.669	0.651	0.660	0.660	0.295	0.329	0.375	0.333	0.534	0.567	0.580	0.561
Chandigarh	0.998	0.995	1.000	0.998	0.970	0.839	0.772	0.860	0.983	0.981	0.985	0.983
Dadra & Nagar Haveli	0.031	0.070	0.053	0.051	0.112	0.632	0.200	0.315	0.031	0.071	0.054	0.052
Daman & Diu	0.026	0.008	.	0.017	0.076	0.110	0.276	0.154	0.027	0.010	0.006	0.014
Delhi	0.961	0.983	1.000	0.981	0.985	0.838	0.978	0.934	0.973	0.935	0.990	0.966
Goa	0.134	0.112	0.538	0.261	0.444	0.338	0.640	0.474	0.153	0.122	0.543	0.273
Gujarat	0.547	0.519	0.541	0.536	0.760	0.845	0.811	0.805	0.578	0.564	0.598	0.580
Haryana	0.736	0.645	0.794	0.725	0.771	0.745	0.756	0.757	0.740	0.665	0.790	0.732
Himachal Pradesh	0.425	0.342	0.307	0.358	0.093	0.514	0.242	0.283	0.339	0.359	0.302	0.334
Jammu & Kashmir	0.703	0.747	0.837	0.762	0.551	0.487	0.486	0.508	0.609	0.663	0.724	0.665
Karnataka	0.635	0.647	0.925	0.736	0.633	0.712	0.736	0.694	0.634	0.657	0.893	0.728
Kerala	0.437	0.451	0.116	0.335	0.327	0.295	0.382	0.335	0.410	0.405	0.209	0.341
Madhya Pradesh	0.541	0.597	0.599	0.579	0.673	0.477	0.448	0.533	0.560	0.576	0.577	0.571
Maharashtra	0.583	0.520	0.526	0.543	0.897	0.920	0.813	0.877	0.672	0.606	0.563	0.614
Manipur	0.823	0.739	0.335	0.632	0.533	0.424	0.371	0.443	0.555	0.456	0.364	0.458
Meghalaya	.	.	.	.	0.174	0.126	0.303	0.201	0.140	0.069	0.064	0.091
Nagaland	0.278	0.247	0.156	0.227	0.641	0.487	0.572	0.567	0.395	0.360	0.284	0.346
Orissa	0.495	0.370	0.371	0.412	0.224	0.437	0.395	0.352	0.436	0.385	0.376	0.399
Pondicherry	0.238	0.204	0.310	0.251	0.510	0.474	0.583	0.522	0.263	0.237	0.322	0.274
Punjab	0.692	0.656	0.582	0.643	0.739	0.810	0.748	0.766	0.700	0.675	0.601	0.659
Rajasthan	0.600	0.670	0.670	0.647	0.571	0.543	0.608	0.574	0.594	0.646	0.656	0.632
Tamil Nadu	0.485	0.456	0.574	0.505	0.747	0.554	0.746	0.682	0.534	0.469	0.605	0.536
Tripura	0.545	0.027	0.144	0.239	0.377	0.220	0.153	0.250	0.451	0.154	0.150	0.252
Uttar Pradesh	0.594	0.570	0.428	0.531	0.503	0.612	0.587	0.567	0.572	0.580	0.458	0.537
West Bengal	0.790	0.736	0.664	0.730	0.395	0.454	0.546	0.465	0.611	0.626	0.625	0.621

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A2: Urbanization shares by state and sector (continued)

States/UTs	D. Plant shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	0.622	0.674	0.830	0.709	0.296	0.365	0.475	0.379	0.302	0.378	0.485	0.388
Andhra Pradesh	0.813	0.354	0.440	0.536	0.423	0.371	0.379	0.391	0.426	0.371	0.380	0.392
Assam	0.831	0.196	0.256	0.428	0.164	0.155	0.182	0.167	0.166	0.156	0.183	0.168
Bihar	0.771	0.872	0.783	0.809	0.213	0.208	0.235	0.219	0.214	0.210	0.237	0.220
Chandigarh	1.000	0.998	.	0.999	0.836	0.855	0.909	0.867	0.840	0.885	0.910	0.878
Dadra & Nagar Haveli	0.580	.	.	0.580	0.199	0.472	0.279	0.317	0.204	0.481	0.295	0.327
Daman & Diu	.	.	.	.	0.462	0.597	0.401	0.487	0.453	0.604	0.405	0.488
Delhi	1.000	0.911	0.999	0.970	0.954	0.956	0.976	0.962	0.955	0.955	0.976	0.962
Goa	0.950	0.949	.	0.950	0.500	0.619	0.491	0.537	0.513	0.627	0.496	0.545
Gujarat	0.220	0.791	0.793	0.601	0.502	0.581	0.716	0.600	0.495	0.583	0.717	0.599
Haryana	0.590	0.540	0.585	0.572	0.547	0.490	0.612	0.550	0.548	0.490	0.612	0.550
Himachal Pradesh	0.558	0.199	0.370	0.376	0.170	0.141	0.178	0.163	0.173	0.142	0.180	0.165
Jammu & Kashmir	0.516	0.471	0.568	0.518	0.287	0.261	0.373	0.307	0.289	0.264	0.377	0.310
Karnataka	0.822	0.606	0.701	0.710	0.550	0.474	0.527	0.517	0.553	0.476	0.531	0.520
Kerala	0.485	0.335	0.406	0.409	0.256	0.297	0.368	0.307	0.259	0.298	0.369	0.309
Madhya Pradesh	0.810	0.546	0.650	0.669	0.534	0.517	0.549	0.533	0.538	0.518	0.551	0.536
Maharashtra	0.853	0.638	0.446	0.646	0.709	0.589	0.652	0.650	0.711	0.590	0.648	0.650
Manipur	0.440	0.360	0.451	0.417	0.362	0.472	0.473	0.436	0.364	0.469	0.472	0.435
Meghalaya	1.000	0.203	.	0.602	0.258	0.147	0.145	0.183	0.262	0.148	0.147	0.185
Nagaland	0.381	0.288	.	0.335	0.255	0.508	0.375	0.379	0.257	0.498	0.377	0.378
Orissa	0.297	0.036	0.195	0.176	0.198	0.199	0.243	0.213	0.199	0.183	0.242	0.208
Pondicherry	0.910	0.722	0.849	0.827	0.822	0.827	0.882	0.844	0.826	0.824	0.881	0.844
Punjab	0.692	0.797	0.353	0.614	0.527	0.518	0.575	0.540	0.529	0.521	0.572	0.541
Rajasthan	0.685	0.669	0.606	0.653	0.450	0.476	0.482	0.469	0.452	0.480	0.484	0.472
Tamil Nadu	0.864	0.511	0.762	0.712	0.508	0.571	0.630	0.570	0.513	0.569	0.632	0.571
Tripura	0.966	.	.	0.966	0.355	0.289	0.129	0.258	0.356	0.289	0.129	0.258
Uttar Pradesh	0.542	0.556	0.439	0.512	0.295	0.379	0.465	0.380	0.297	0.382	0.464	0.381
West Bengal	0.670	0.224	0.699	0.531	0.374	0.314	0.414	0.367	0.376	0.313	0.416	0.368

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A2: Urbanization shares by state and sector (continued)

States/UTs	E. Employment shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	0.599	0.746	0.829	0.725	0.358	0.415	0.477	0.417	0.386	0.507	0.557	0.483
Andhra Pradesh	0.824	0.498	0.466	0.596	0.411	0.376	0.339	0.375	0.446	0.401	0.356	0.401
Assam	0.839	0.260	0.346	0.482	0.200	0.184	0.203	0.196	0.220	0.202	0.213	0.212
Bihar	0.782	0.892	0.768	0.814	0.252	0.253	0.284	0.263	0.263	0.274	0.302	0.280
Chandigarh	1.000	0.999	.	1.000	0.888	0.892	0.926	0.902	0.909	0.981	0.935	0.942
Dadra & Nagar Haveli	0.678	.	.	0.678	0.266	0.502	0.298	0.355	0.304	0.600	0.431	0.445
Daman & Diu	.	.	.	.	0.424	0.664	0.396	0.495	0.357	0.646	0.434	0.479
Delhi	1.000	0.916	0.999	0.972	0.966	0.967	0.979	0.971	0.972	0.960	0.982	0.972
Goa	0.958	0.865	.	0.912	0.583	0.647	0.542	0.591	0.664	0.707	0.582	0.651
Gujarat	0.212	0.894	0.782	0.629	0.553	0.651	0.740	0.648	0.464	0.693	0.746	0.634
Haryana	0.613	0.671	0.578	0.621	0.569	0.523	0.647	0.580	0.577	0.542	0.639	0.586
Himachal Pradesh	0.515	0.275	0.405	0.398	0.222	0.184	0.216	0.207	0.248	0.199	0.237	0.228
Jammu & Kashmir	0.559	0.528	0.613	0.567	0.337	0.293	0.382	0.337	0.357	0.323	0.427	0.369
Karnataka	0.884	0.878	0.762	0.841	0.575	0.493	0.616	0.561	0.613	0.605	0.647	0.622
Kerala	0.548	0.438	0.467	0.484	0.287	0.316	0.396	0.333	0.330	0.351	0.414	0.365
Madhya Pradesh	0.819	0.646	0.685	0.717	0.547	0.565	0.559	0.557	0.589	0.584	0.575	0.583
Maharashtra	0.897	0.807	0.519	0.741	0.728	0.620	0.673	0.674	0.755	0.664	0.653	0.691
Manipur	0.406	0.457	0.486	0.450	0.371	0.462	0.485	0.439	0.378	0.461	0.485	0.441
Meghalaya	1.000	0.250	.	0.625	0.312	0.175	0.167	0.218	0.341	0.185	0.183	0.236
Nagaland	0.477	0.418	.	0.448	0.318	0.503	0.389	0.403	0.338	0.480	0.386	0.401
Orissa	0.151	0.053	0.243	0.149	0.208	0.187	0.226	0.207	0.200	0.129	0.228	0.186
Pondicherry	0.847	0.780	0.745	0.791	0.828	0.841	0.849	0.839	0.833	0.826	0.820	0.827
Punjab	0.782	0.607	0.480	0.623	0.553	0.550	0.593	0.565	0.596	0.561	0.570	0.576
Rajasthan	0.732	0.673	0.612	0.672	0.480	0.516	0.494	0.497	0.503	0.546	0.514	0.521
Tamil Nadu	0.849	0.608	0.750	0.736	0.495	0.587	0.647	0.576	0.550	0.592	0.667	0.603
Tripura	0.971	.	.	0.971	0.366	0.306	0.132	0.268	0.372	0.303	0.134	0.270
Uttar Pradesh	0.571	0.635	0.471	0.559	0.341	0.411	0.531	0.428	0.359	0.439	0.522	0.440
West Bengal	0.748	0.418	0.870	0.679	0.414	0.327	0.456	0.399	0.454	0.339	0.505	0.433

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A2: Urbanization shares by state and sector (continued)

States/UTs	F. Output shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
A & N Islands	0.763	0.827	0.940	0.843	0.463	0.537	0.545	0.515	0.527	0.631	0.654	0.604
Andhra Pradesh	0.906	0.949	0.648	0.834	0.561	0.594	0.633	0.596	0.614	0.804	0.636	0.685
Assam	0.932	0.921	0.831	0.895	0.249	0.390	0.280	0.306	0.273	0.517	0.303	0.364
Bihar	0.823	0.988	0.950	0.920	0.332	0.405	0.349	0.362	0.349	0.467	0.370	0.395
Chandigarh	1.000	1.000	.	1.000	0.930	0.928	0.932	0.930	0.951	0.998	0.941	0.964
Dadra & Nagar Haveli	0.723	.	.	0.723	0.339	0.484	0.318	0.380	0.397	0.643	0.435	0.492
Daman & Diu	.	.	.	.	0.387	0.629	0.359	0.458	0.303	0.528	0.422	0.418
Delhi	1.000	0.984	1.000	0.995	0.976	0.979	0.986	0.980	0.990	0.980	0.989	0.987
Goa	0.958	0.800	.	0.879	0.591	0.628	0.606	0.608	0.701	0.708	0.645	0.685
Gujarat	0.347	0.982	0.728	0.686	0.605	0.712	0.801	0.706	0.529	0.852	0.792	0.724
Haryana	0.777	0.956	0.618	0.784	0.614	0.574	0.741	0.643	0.662	0.708	0.730	0.700
Himachal Pradesh	0.659	0.644	0.514	0.606	0.243	0.177	0.244	0.221	0.307	0.258	0.280	0.282
Jammu & Kashmir	0.736	0.772	0.929	0.812	0.389	0.416	0.391	0.399	0.405	0.445	0.557	0.469
Karnataka	0.981	0.996	0.900	0.959	0.707	0.694	0.749	0.717	0.812	0.956	0.787	0.852
Kerala	0.640	0.781	0.646	0.689	0.333	0.368	0.447	0.383	0.411	0.535	0.505	0.483
Madhya Pradesh	0.593	0.956	0.826	0.792	0.617	0.728	0.696	0.680	0.613	0.790	0.713	0.705
Maharashtra	0.980	0.994	0.931	0.968	0.798	0.744	0.802	0.781	0.863	0.938	0.819	0.873
Manipur	0.399	0.550	0.561	0.503	0.415	0.447	0.490	0.451	0.413	0.470	0.496	0.460
Meghalaya	1.000	0.511	.	0.756	0.330	0.226	0.187	0.248	0.361	0.247	0.192	0.267
Nagaland	0.610	0.576	.	0.593	0.355	0.687	0.351	0.464	0.384	0.660	0.338	0.461
Orissa	0.559	0.513	0.300	0.457	0.340	0.323	0.413	0.359	0.354	0.334	0.395	0.361
Pondicherry	0.720	0.979	0.682	0.794	0.877	0.884	0.859	0.873	0.812	0.911	0.793	0.839
Punjab	0.915	0.533	0.661	0.703	0.558	0.531	0.581	0.557	0.645	0.531	0.594	0.590
Rajasthan	0.855	0.681	0.613	0.716	0.520	0.599	0.481	0.533	0.552	0.614	0.499	0.555
Tamil Nadu	0.889	0.923	0.772	0.861	0.605	0.724	0.757	0.695	0.687	0.815	0.761	0.754
Tripura	0.959	.	.	0.959	0.394	0.332	0.153	0.293	0.403	0.332	0.154	0.296
Uttar Pradesh	0.682	0.913	0.721	0.772	0.441	0.547	0.656	0.548	0.467	0.637	0.668	0.591
West Bengal	0.932	0.980	0.947	0.953	0.543	0.507	0.580	0.543	0.616	0.865	0.630	0.704

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector

NIC Code/Industry	A. Plant shares within manufacturing											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
15 Food products and beverages	0.503	0.484	0.491	0.493	0.216	0.203	0.311	0.243	0.218	0.205	0.313	0.245
16 Tobacco products	0.567	0.592	0.536	0.565	0.216	0.170	0.201	0.196	0.217	0.170	0.201	0.196
17 Textiles	0.578	0.567	0.676	0.607	0.302	0.318	0.472	0.364	0.303	0.319	0.473	0.365
18 Wearing apparel; dressing and dyeing of fur	0.923	0.906	0.841	0.890	0.405	0.399	0.486	0.430	0.406	0.399	0.486	0.430
19 Leather tanning; luggage, handbags, footwear	0.789	0.784	0.742	0.772	0.481	0.737	0.768	0.662	0.484	0.737	0.767	0.663
20 Wood and wood products; straw and plating articles	0.519	0.502	0.568	0.530	0.123	0.104	0.213	0.147	0.123	0.104	0.214	0.147
21 Paper and paper products	0.547	0.562	0.604	0.571	0.704	0.375	0.727	0.602	0.699	0.379	0.723	0.600
22 Publishing, printing and media reproduction	0.891	0.886	0.842	0.873	0.844	0.857	0.883	0.861	0.845	0.858	0.882	0.862
23 Coke, refined petroleum and nuclear fuel	0.420	0.342	0.239	0.334	0.261	0.180	.	0.221	0.277	0.199	0.321	0.266
24 Chemicals and chemical products	0.598	0.574	0.587	0.586	0.513	0.289	0.587	0.463	0.516	0.295	0.587	0.466
25 Rubber and plastic products	0.643	0.585	0.614	0.614	0.642	0.661	0.820	0.708	0.642	0.655	0.814	0.704
26 Other non-metallic mineral products	0.409	0.322	0.335	0.355	0.163	0.167	0.235	0.188	0.166	0.170	0.238	0.191
27 Basic metals	0.723	0.652	0.643	0.673	0.632	0.610	0.686	0.643	0.644	0.616	0.681	0.647
28 Fabricated metal products, except machinery	0.828	0.802	0.814	0.815	0.423	0.402	0.515	0.447	0.427	0.407	0.519	0.451
29 Machinery and equipment, n.e.c.	0.824	0.819	0.818	0.820	0.514	0.609	0.559	0.561	0.529	0.619	0.568	0.572
30 Office, accounting and computing machinery	0.839	0.760	0.607	0.735	1.000	0.936	0.915	0.950	0.921	0.912	0.892	0.908
31 Electrical machinery and apparatus, n.e.c.	0.773	0.760	0.768	0.767	0.660	0.529	0.878	0.689	0.665	0.536	0.863	0.688
32 Radio, television, and comm. equipment	0.748	0.774	0.785	0.769	0.852	0.706	0.596	0.718	0.839	0.716	0.597	0.717
33 Medical, precision and optical instruments, watches	0.795	0.803	0.807	0.802	0.824	0.861	0.932	0.872	0.821	0.856	0.923	0.867
34 Motor vehicles, trailers and semi-trailers	0.799	0.723	0.733	0.752	0.837	0.581	0.866	0.761	0.834	0.602	0.845	0.760
35 Other transport equipment	0.806	0.800	0.795	0.800	0.692	0.778	0.611	0.694	0.702	0.779	0.625	0.702
36 Furniture, manufacturing n.e.c.	0.764	0.790	0.822	0.792	0.538	0.539	0.531	0.536	0.538	0.539	0.531	0.536

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector (continued)

NIC Code/Industry	B. Employment shares within manufacturing											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
15 Food products and beverages	0.376	0.357	0.374	0.369	0.253	0.225	0.363	0.280	0.273	0.249	0.365	0.296
16 Tobacco products	0.875	0.831	0.863	0.856	0.183	0.183	0.208	0.191	0.272	0.248	0.284	0.268
17 Textiles	0.610	0.577	0.587	0.591	0.386	0.428	0.544	0.453	0.422	0.453	0.552	0.475
18 Wearing apparel; dressing and dyeing of fur	0.841	0.876	0.831	0.849	0.507	0.488	0.559	0.518	0.525	0.520	0.582	0.543
19 Leather tanning; luggage, handbags, footwear	0.726	0.725	0.647	0.699	0.668	0.812	0.813	0.764	0.681	0.790	0.747	0.740
20 Wood and wood products; straw and plating articles	0.454	0.430	0.465	0.450	0.157	0.138	0.248	0.181	0.160	0.142	0.253	0.185
21 Paper and paper products	0.491	0.462	0.495	0.483	0.796	0.478	0.761	0.678	0.664	0.473	0.654	0.597
22 Publishing, printing and media reproduction	0.890	0.871	0.821	0.861	0.885	0.871	0.905	0.887	0.886	0.871	0.888	0.882
23 Coke, refined petroleum and nuclear fuel	0.500	0.419	0.426	0.448	0.301	0.196	.	0.249	0.434	0.346	0.408	0.396
24 Chemicals and chemical products	0.572	0.519	0.504	0.532	0.462	0.316	0.674	0.484	0.525	0.415	0.562	0.501
25 Rubber and plastic products	0.596	0.504	0.535	0.545	0.735	0.702	0.855	0.764	0.676	0.597	0.733	0.669
26 Other non-metallic mineral products	0.403	0.317	0.315	0.345	0.162	0.163	0.182	0.169	0.194	0.195	0.211	0.200
27 Basic metals	0.672	0.535	0.517	0.575	0.700	0.699	0.700	0.700	0.679	0.567	0.545	0.597
28 Fabricated metal products, except machinery	0.757	0.713	0.718	0.729	0.587	0.588	0.689	0.621	0.611	0.608	0.695	0.638
29 Machinery and equipment, n.e.c.	0.764	0.733	0.725	0.741	0.701	0.790	0.701	0.731	0.730	0.766	0.712	0.736
30 Office, accounting and computing machinery	0.866	0.846	0.719	0.810	1.000	0.994	0.853	0.949	0.874	0.896	0.755	0.842
31 Electrical machinery and apparatus, n.e.c.	0.753	0.654	0.648	0.685	0.809	0.678	0.885	0.791	0.783	0.667	0.697	0.715
32 Radio, television, and comm. equipment	0.729	0.715	0.635	0.693	0.934	0.686	0.654	0.758	0.787	0.710	0.651	0.716
33 Medical, precision and optical instruments, watches	0.777	0.749	0.926	0.817	0.829	0.834	0.924	0.862	0.795	0.776	0.926	0.832
34 Motor vehicles, trailers and semi-trailers	0.710	0.596	0.613	0.640	0.898	0.468	0.863	0.743	0.772	0.564	0.653	0.663
35 Other transport equipment	0.765	0.675	0.691	0.710	0.796	0.890	0.667	0.784	0.774	0.760	0.685	0.740
36 Furniture, manufacturing n.e.c.	0.738	0.793	0.790	0.774	0.600	0.622	0.566	0.596	0.604	0.631	0.576	0.604

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector (continued)

C. Output shares within manufacturing													
NIC Code/Industry	2001	Organized			Average	Unorganized				Total			
		2006	2010			2001	2006	2010	Average	2001	2006	2010	Average
15 Food products and beverages	0.457	0.442	0.461	0.453	0.457	0.469	0.554	0.493	0.457	0.448	0.481	0.462	
16 Tobacco products	0.783	0.762	0.558	0.701	0.196	0.245	0.222	0.221	0.613	0.604	0.454	0.557	
17 Textiles	0.473	0.460	0.482	0.472	0.714	0.640	0.763	0.706	0.527	0.495	0.549	0.524	
18 Wearing apparel; dressing and dyeing of fur	0.910	0.880	0.804	0.865	0.700	0.682	0.683	0.688	0.811	0.803	0.749	0.788	
19 Leather tanning; luggage, handbags, footwear	0.691	0.751	0.753	0.732	0.806	0.887	0.753	0.815	0.716	0.776	0.753	0.748	
20 Wood and wood products; straw and plating articles	0.518	0.363	0.411	0.431	0.431	0.384	0.487	0.434	0.445	0.378	0.465	0.430	
21 Paper and paper products	0.441	0.386	0.457	0.428	0.896	0.770	0.757	0.808	0.486	0.420	0.492	0.466	
22 Publishing, printing and media reproduction	0.834	0.851	0.755	0.813	0.923	0.838	0.948	0.903	0.872	0.845	0.852	0.856	
23 Coke, refined petroleum and nuclear fuel	0.586	0.466	0.377	0.476	0.411	0.252	.	0.332	0.580	0.461	0.378	0.473	
24 Chemicals and chemical products	0.565	0.517	0.497	0.526	0.708	0.691	0.756	0.718	0.571	0.524	0.506	0.534	
25 Rubber and plastic products	0.490	0.441	0.460	0.464	0.777	0.759	0.784	0.773	0.536	0.478	0.498	0.504	
26 Other non-metallic mineral products	0.370	0.356	0.414	0.380	0.248	0.253	0.223	0.241	0.334	0.335	0.371	0.347	
27 Basic metals	0.590	0.496	0.511	0.532	0.692	0.589	0.833	0.705	0.595	0.501	0.515	0.537	
28 Fabricated metal products, except machinery	0.640	0.612	0.673	0.642	0.771	0.840	0.765	0.792	0.690	0.701	0.703	0.698	
29 Machinery and equipment, n.e.c.	0.705	0.695	0.683	0.694	0.865	0.945	0.851	0.887	0.726	0.730	0.701	0.719	
30 Office, accounting and computing machinery	0.834	0.760	0.694	0.763	1.000	0.993	0.531	0.841	0.837	0.773	0.680	0.763	
31 Electrical machinery and apparatus, n.e.c.	0.732	0.641	0.629	0.667	0.989	0.813	0.923	0.908	0.874	0.657	0.636	0.722	
32 Radio, television, and comm. equipment	0.667	0.612	0.618	0.632	0.915	0.314	0.771	0.667	0.674	0.601	0.649	0.641	
33 Medical, precision and optical instruments, watches	0.704	0.753	0.763	0.740	0.867	0.867	0.954	0.896	0.718	0.762	0.780	0.753	
34 Motor vehicles, trailers and semi-trailers	0.643	0.523	0.583	0.583	0.940	0.742	0.908	0.863	0.657	0.530	0.594	0.593	
35 Other transport equipment	0.602	0.525	0.651	0.593	0.797	0.959	0.798	0.851	0.613	0.557	0.660	0.610	
36 Furniture, manufacturing n.e.c.	0.818	0.868	0.861	0.849	0.744	0.809	0.693	0.749	0.775	0.830	0.756	0.787	

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector (continued)

NIC Code/Industry	D. Plant shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
55 Hotels and restaurants	0.864	0.895	0.807	0.855	0.426	0.477	0.521	0.475	0.430	0.482	0.524	0.479
60 Land transport; pipelines	0.759	0.856	0.772	0.796	0.398	0.349	0.440	0.396	0.399	0.350	0.441	0.396
61 Water transport	.	.	.	.	0.166	0.035	0.435	0.212	0.169	0.037	0.435	0.214
63 Supporting/auxiliary transport activities; travel agencies	0.947	0.978	0.972	0.966	0.864	0.788	0.698	0.783	0.866	0.795	0.702	0.788
64 Post and telecommunications	1.000	0.920	1.000	0.973	0.621	0.500	0.573	0.565	0.622	0.500	0.573	0.565
65 Financial intermediation	.	0.081	0.096	0.089	.	0.121	0.164	0.143	.	0.116	0.161	0.138
66 Insurance and pension funding, except social security	.	1.000	.	1.000	.	0.431	0.457	0.444	.	0.434	0.457	0.446
67 Activities auxiliary to financial intermediation	.	1.000	.	1.000	.	0.553	0.563	0.558	.	0.558	0.563	0.560
70 Real estate activities	0.982	0.921	0.789	0.897	0.797	0.620	0.691	0.703	0.798	0.624	0.691	0.704
71 Renting machinery/equipment & personal/household goods	0.603	0.154	0.626	0.461	0.353	0.356	0.434	0.381	0.353	0.355	0.435	0.381
72 Computers and related activities (for business)	0.998	1.000	0.986	0.995	0.973	0.916	0.854	0.914	0.974	0.920	0.857	0.917
73 Research and development	.	.	.	.	0.961	.	.	0.961	0.954	.	.	0.954
74 Other business activities	0.976	0.988	0.948	0.971	0.748	0.752	0.749	0.750	0.750	0.754	0.751	0.751
80 Education	0.578	0.637	0.585	0.600	0.471	0.496	0.602	0.523	0.478	0.508	0.600	0.529
85 Health and social work	0.765	0.886	0.882	0.844	0.324	0.388	0.500	0.404	0.327	0.396	0.506	0.410
90 Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	0.199	0.269	0.782	0.417	0.199	0.269	0.784	0.417
91 Activities of membership organizations n.e.c.	0.766	0.482	.	0.624	0.344	0.203	0.240	0.262	0.345	0.205	0.240	0.264
92 Recreational, cultural and sporting activities	0.555	0.528	0.554	0.546	0.330	0.338	0.517	0.395	0.340	0.348	0.518	0.402
93 Other service activities	0.784	0.867	1.000	0.884	0.273	0.349	0.453	0.358	0.273	0.349	0.454	0.359

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector (continued)

NIC Code/Industry	E. Employment shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
55 Hotels and restaurants	0.884	0.922	0.82	0.875	0.499	0.543	0.586	0.543	0.526	0.584	0.606	0.572
60 Land transport; pipelines	0.781	0.884	0.775	0.813	0.374	0.338	0.426	0.379	0.382	0.354	0.433	0.390
61 Water transport	.	.	.	.	0.113	0.050	0.398	0.187	0.168	0.136	0.399	0.234
63 Supporting/auxiliary transport activities; travel agencies	0.949	0.979	0.975	0.968	0.872	0.837	0.790	0.833	0.887	0.881	0.810	0.859
64 Post and telecommunications	1.000	0.955	1.000	0.985	0.655	0.515	0.632	0.601	0.664	0.526	0.638	0.609
65 Financial intermediation	.	0.119	0.097	0.108	.	0.117	0.145	0.131	.	0.118	0.136	0.127
66 Insurance and pension funding, except social security	.	1.000	.	1.000	.	0.477	0.508	0.493	.	0.740	0.508	0.624
67 Activities auxiliary to financial intermediation	.	1.000	.	1.000	.	0.642	0.628	0.635	.	0.709	0.634	0.671
70 Real estate activities	0.986	0.948	0.840	0.925	0.796	0.699	0.740	0.745	0.809	0.731	0.742	0.761
71 Renting machinery/equipment & personal/household goods	0.582	0.176	0.563	0.440	0.385	0.396	0.483	0.421	0.389	0.389	0.485	0.421
72 Computers and related activities (for business)	0.996	1.000	0.977	0.991	0.974	0.915	0.916	0.935	0.987	0.986	0.923	0.965
73 Research and development	.	.	.	.	0.991	.	.	0.991	0.984	.	.	0.984
74 Other business activities	0.987	0.990	0.979	0.985	0.803	0.806	0.829	0.813	0.829	0.827	0.855	0.837
80 Education	0.602	0.684	0.602	0.629	0.474	0.526	0.595	0.532	0.524	0.602	0.599	0.575
85 Health and social work	0.732	0.879	0.868	0.826	0.446	0.529	0.624	0.533	0.484	0.615	0.666	0.588
90 Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	0.182	0.318	0.813	0.438	0.182	0.328	0.859	0.456
91 Activities of membership organizations n.e.c.	0.816	0.444	.	0.630	0.371	0.231	0.265	0.289	0.395	0.259	0.280	0.311
92 Recreational, cultural and sporting activities	0.636	0.531	0.598	0.588	0.353	0.345	0.464	0.387	0.434	0.401	0.495	0.443
93 Other service activities	0.217	0.869	1.000	0.695	0.300	0.380	0.496	0.392	0.298	0.384	0.498	0.393

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A3: Urbanization shares by industry and sector (continued)

NIC Code/Industry	F. Output shares within services											
	Organized				Unorganized				Total			
	2001	2006	2010	Average	2001	2006	2010	Average	2001	2006	2010	Average
55 Hotels and restaurants	0.91	0.978	0.821	0.903	0.595	0.614	0.677	0.629	0.656	0.810	0.698	0.722
60 Land transport; pipelines	0.861	0.961	0.737	0.853	0.421	0.414	0.468	0.434	0.457	0.513	0.484	0.484
61 Water transport	.	.	.	.	0.160	0.252	0.218	0.210	0.287	0.923	0.240	0.483
63 Supporting/auxiliary transport activities; travel agencies	0.975	0.995	0.986	0.985	0.905	0.942	0.896	0.914	0.932	0.979	0.916	0.942
64 Post and telecommunications	1.000	0.999	1.000	1.000	0.718	0.612	0.799	0.710	0.744	0.739	0.802	0.762
65 Financial intermediation	.	0.897	0.337	0.617	.	0.664	0.609	0.637	.	0.813	0.596	0.705
66 Insurance and pension funding, except social security	.	1.000	.	1.000	.	0.602	0.893	0.748	.	0.994	0.893	0.943
67 Activities auxiliary to financial intermediation	.	1.000	.	1.000	.	0.810	0.722	0.766	.	0.944	0.727	0.835
70 Real estate activities	0.983	0.998	0.991	0.991	0.834	0.829	0.902	0.855	0.851	0.899	0.914	0.888
71 Renting machinery/equipment & personal/household goods	0.962	0.922	0.876	0.920	0.511	0.416	0.571	0.499	0.533	0.440	0.582	0.518
72 Computers and related activities (for business)	0.995	1.000	0.990	0.995	0.992	0.950	0.924	0.955	0.995	0.999	0.947	0.980
73 Research and development	.	.	.	.	0.999	.	.	0.999	0.996	.	.	0.996
74 Other business activities	0.997	0.999	0.994	0.997	0.882	0.897	0.907	0.895	0.902	0.941	0.924	0.922
80 Education	0.568	0.870	0.620	0.686	0.608	0.692	0.728	0.676	0.585	0.837	0.651	0.691
85 Health and social work	0.862	0.939	0.914	0.905	0.597	0.661	0.701	0.653	0.681	0.827	0.757	0.755
90 Sewage, refuse disposal, sanitation, and similar activities	1.000	0.987	1.000	0.996	0.367	0.559	0.958	0.628	0.367	0.683	0.961	0.670
91 Activities of membership organizations n.e.c.	0.919	0.603	0.979	0.834	0.617	0.375	0.399	0.464	0.649	0.445	0.542	0.545
92 Recreational, cultural and sporting activities	0.961	0.899	0.893	0.918	0.636	0.711	0.685	0.677	0.853	0.819	0.759	0.811
93 Other service activities	0.996	0.945	1.000	0.980	0.473	0.558	0.650	0.560	0.485	0.580	0.654	0.573

Notes: See Tables 1-3. Cells with fewer than 10 observations are excluded.

Table A4a: Detailed use of technologies for unorganized manufacturing

NIC Code/Industry	1301 Computers	1302 Internet	1303 Web presence	1304 Intranet	1305 Internet sales	1306 Internet purchases	1307 Narrowband	1308 Fixed broadband	1309 Mobile broadband	1311 Local area network (LAN)	1312 Extranet
15 Food products and beverages	0.003	0.002	0.001	.	0.001	.	.	0.002	.	0.001	.
16 Tobacco products	.	.	.	.	.	.	.	.	.	.	.
17 Textiles	0.010	0.004	0.000	.	0.001	0.000	.	0.002	0.002	.	.
18 Wearing apparel; dressing and dyeing of fur	0.002	0.001	0.001	0.000	0.000	.	.	0.000	.	.	.
19 Leather tanning; luggage, handbags, footwear	0.005	0.004	.	.	.	.	.	.	.	.	.
20 Wood and wood products; straw and plating articles	0.002	0.001	.	.	.	.	.	0.001	.	.	.
21 Paper and paper products	0.060	0.013	.	.	0.003	.	.	0.009	.	.	.
22 Publishing, printing and media reproduction	0.396	0.167	0.061	0.065	0.046	0.034	0.012	0.109	0.025	0.039	0.003
23 Coke, refined petroleum and nuclear fuel	0.000	0.000	.	.	.	.	.	.	.	.	.
24 Chemicals and chemical products	0.011	0.007	.	.	0.002	.	.	0.006	.	.	.
25 Rubber and plastic products	0.036	0.008	0.003	0.002	.	.	.	0.006	0.001	.	.
26 Other non-metallic mineral products	0.003	0.001	.	.	.	.	.	0.000	.	.	.
27 Basic metals	0.018	0.008	.	.	.	.	.	0.007	.	.	.
28 Fabricated metal products, except machinery	0.014	0.010	0.003	0.003	0.003	.	0.002	0.007	0.002	.	.
29 Machinery and equipment, n.e.c.	0.072	0.021	0.005	0.006	0.008	0.006	.	0.019	.	0.005	.
30 Office, accounting and computing machinery	0.818	0.241	.	.	.	.	.	.	.	.	.
31 Electrical machinery and apparatus, n.e.c.	0.054	0.042	.	.	.	.	.	.	.	.	.
32 Radio, television, and comm. equipment	0.128	0.035	0.007	0.009	0.004	0.003	0.006	0.016	0.010	0.003	.
33 Medical, precision and optical instruments, watches	0.304	0.149	.	.	.	.	.	0.108	.	.	.
34 Motor vehicles, trailers and semi-trailers	0.101	0.082	.	.	0.045	.	.	0.065	.	.	.
35 Other transport equipment	0.055	0.050	.	.	.	.	.	0.048	.	.	.
36 Furniture, manufacturing n.e.c.	0.005	0.003	0.001	.	0.000	.	.	0.002	0.000	0.001	.
NIC/Industry	1313 E-mail	1314 Telephone or VoIP	1315 Find info. on goods & services	1316 Info. from gov. org.	1317 Interact w/ gov. org.	1318 Internet banking	1319 Other financial services	1321 Customer services	1322 Delivering online products	1323 Recruitment (internal/external)	1324 Staff training
15 Food products and beverages	0.002	.	0.000	0.000	.	0.001	.	.	.	.	.
16 Tobacco products	.	.	.	.	.	.	.	.	.	.	.
17 Textiles	0.003	.	0.001	0.001	0.000	0.002	0.000	.	.	.	.
18 Wearing apparel; dressing and dyeing of fur	0.000	.	0.000	0.000	.	0.000	.	.	.	.	.
19 Leather tanning; luggage, handbags, footwear	0.004	.	.	.	.	.	.	.	.	.	.
20 Wood and wood products; straw and plating articles	0.001	.	.	.	.	.	.	.	.	.	.
21 Paper and paper products	0.011	.	0.006	.	.	.	.	.	.	.	.
22 Publishing, printing and media reproduction	0.126	0.022	0.069	0.024	0.008	0.033	0.016	0.027	0.011	.	0.010
23 Coke, refined petroleum and nuclear fuel	.	.	.	.	.	.	.	.	.	.	.
24 Chemicals and chemical products	0.006	.	0.003	0.004	.	0.002	.	.	.	.	.
25 Rubber and plastic products	0.007	.	0.004	0.002	.	0.002	.	.	.	.	.
26 Other non-metallic mineral products	0.001	.	.	.	.	.	.	.	.	.	.
27 Basic metals	0.007	.	0.005	.	.	.	.	.	.	.	.
28 Fabricated metal products, except machinery	0.008	.	0.004	.	.	0.001	.	.	.	.	.
29 Machinery and equipment, n.e.c.	0.020	.	0.015	0.004	.	0.006	.	0.009	.	.	.
30 Office, accounting and computing machinery	.	.	.	.	.	.	.	.	.	.	.
31 Electrical machinery and apparatus, n.e.c.	0.029	.	.	.	.	.	.	.	.	.	.
32 Radio, television, and comm. equipment	0.017	0.003	0.014	0.003	.	0.002	.	0.007	.	.	0.002
33 Medical, precision and optical instruments, watches	0.142	.	.	.	.	.	.	.	.	.	.
34 Motor vehicles, trailers and semi-trailers	0.069	.	0.040	0.033	.	.	.	.	.	.	.
35 Other transport equipment	0.039	.	.	.	.	.	.	.	.	.	.
36 Furniture, manufacturing n.e.c.	0.002	.	0.001	.	.	.	.	.	.	.	.

Notes: Descriptive statistics taken from the 67th round of the National Sample Survey (NSS). The survey asks unorganized manufacturing establishments to provide a categorical response to a given task described in the column heading. Industry cells with less than 10 observations are dropped.

Table A4b: Detailed use of technologies for services

NIC Code/Industry	1301 Computers	1302 Internet	1303 Web presence	1304 Intranet	1305 Internet sales	1306 Internet purchases	1307 Narrowband	1308 Fixed broadband	1309 Mobile broadband	1311 Local area network (LAN)	1312 Extranet
55 Hotels and restaurants	0.009	0.004	0.002	0.001	0.001	0.001	0.000	0.004	0.001	0.001	.
60 Land transport; pipelines	0.002	0.001	0.000	0.000	.	.	.	0.001	.	0.000	.
61 Water transport	.	.	.	.	.	.	.	.	.	.	.
63 Supporting/auxiliary transport activities; travel agencies	0.276	0.237	0.043	0.042	0.102	0.111	0.010	0.198	0.052	0.043	0.013
64 Post and telecommunications	0.068	0.050	0.020	0.017	0.006	0.009	0.008	0.031	0.012	0.016	0.007
65 Financial intermediation	0.009	0.005	0.002	0.002	0.001	0.001	.	0.003	0.000	0.002	.
66 Insurance and pension funding, except social security	0.100	0.080	0.041	0.028	.	.	.	0.054	.	.	.
67 Activities auxiliary to financial intermediation	0.193	0.170	0.042	0.055	0.049	0.038	0.009	0.112	0.026	0.031	0.005
70 Real estate activities	0.044	0.029	0.007	0.007	0.009	0.008	.	0.018	0.011	0.004	.
71 Renting machinery/equipment & personal/household goods	0.019	0.009	.	.	.	.	.	.	.	.	.
72 Computers and related activities (for business)	0.875	0.656	0.302	0.282	0.138	0.120	0.091	0.532	0.092	0.320	0.057
73 Research and development	.	.	.	.	.	.	.	.	.	.	.
74 Other business activities	0.421	0.216	0.072	0.062	0.067	0.052	0.015	0.158	0.054	0.055	0.027
80 Education	0.200	0.102	0.040	0.036	0.007	0.005	0.009	0.071	0.014	0.033	0.005
85 Health and social work	0.091	0.047	0.018	0.014	0.006	0.005	0.002	0.036	0.008	0.008	0.002
90 Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	.	.	.	.	.	.	.
91 Activities of membership organizations n.e.c.	0.007	0.003	.	.	.	.	.	0.003	.	.	.
92 Recreational, cultural and sporting activities	0.068	0.032	0.010	0.009	0.003	0.003	.	0.023	0.004	0.007	.
93 Other service activities	0.004	0.002	0.000	.	.	.	.	0.001	.	.	.
NIC/Industry	1313 E-mail	1314 Telephone or VoIP	1315 Find info. on goods & services	1316 Info. from gov. org.	1317 Interact w/ gov. org.	1318 Internet banking	1319 Other financial services	1321 Customer services	1322 Delivering online products	1323 Recruitment (internal/external)	1324 Staff training
55 Hotels and restaurants	0.004	0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.001
60 Land transport; pipelines	0.001	.	0.000	0.000	.	0.000	.	0.000	.	.	.
61 Water transport	.	.	.	.	.	.	.	.	.	.	.
63 Supporting/auxiliary transport activities; travel agencies	0.210	0.015	0.155	0.068	0.031	0.110	0.085	0.112	0.086	0.034	0.042
64 Post and telecommunications	0.041	0.005	0.019	0.010	0.001	0.003	0.004	0.017	0.005	0.002	0.004
65 Financial intermediation	0.003	.	0.002	0.001	0.001	0.002	0.002	0.001	.	.	.
66 Insurance and pension funding, except social security	0.064	.	0.049	0.027	.	0.020	0.033	0.021	.	.	.
67 Activities auxiliary to financial intermediation	0.157	0.017	0.096	0.042	0.021	0.058	0.059	0.060	0.024	0.010	0.017
70 Real estate activities	0.025	.	0.015	0.011	.	0.006	0.003	0.004	.	.	.
71 Renting machinery/equipment & personal/household goods	0.007	.	0.006	.	.	.	.	.	.	.	.
72 Computers and related activities (for business)	0.573	0.133	0.254	0.192	0.116	0.155	0.080	0.283	0.085	0.039	0.096
73 Research and development	.	.	.	.	.	.	.	.	.	.	.
74 Other business activities	0.185	0.029	0.115	0.098	0.045	0.065	0.055	0.068	0.021	0.026	0.030
80 Education	0.073	0.008	0.028	0.027	0.013	0.010	0.006	0.011	0.001	0.005	0.018
85 Health and social work	0.039	0.007	0.023	0.014	0.009	0.016	0.008	0.005	0.001	0.002	0.004
90 Sewage, refuse disposal, sanitation, and similar activities	.	.	.	.	.	.	.	.	.	.	.
91 Activities of membership organizations n.e.c.	0.003	.	.	.	.	.	.	.	.	.	.
92 Recreational, cultural and sporting activities	0.022	.	0.011	0.004	0.004	0.006	.	0.004	.	.	.
93 Other service activities	0.001	.	0.001	.	.	.	.	.	.	.	.

Notes: Descriptive statistics taken from the 67th round of the National Sample Survey (NSS). The survey asks services establishments to provide a categorical response to a given task described in the column heading. Industry cells with less than 10 observations are dropped.

Table A5a: Table 7a using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.718*** (0.199)	0.953*** (0.217)	0.942*** (0.215)	0.531*** (0.169)	0.408** (0.166)	0.301** (0.144)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.275 (0.191)	0.448** (0.199)	0.692*** (0.191)	0.246 (0.161)	0.242 (0.164)	0.428** (0.168)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.402*** (0.132)	0.535*** (0.135)	0.793*** (0.135)	0.280*** (0.103)	0.245** (0.097)	0.244*** (0.089)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.277** (0.109)	0.342*** (0.111)	0.458*** (0.108)	0.243*** (0.093)	0.269*** (0.095)	0.234*** (0.080)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.195** (0.083)	0.239*** (0.078)	0.464*** (0.083)	0.067 (0.070)	0.077 (0.069)	0.121** (0.061)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.347*** (0.320)	1.422*** (0.244)	1.172*** (0.124)	0.916*** (0.233)	0.721*** (0.199)	0.511*** (0.151)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.182 (0.132)	-0.041 (0.170)	0.580*** (0.202)	0.241 (0.169)	0.300 (0.214)	0.135 (0.122)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.474** (0.186)	0.529*** (0.171)	0.494*** (0.147)	0.140 (0.116)	0.102 (0.112)	0.030 (0.105)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.084 (0.139)	0.037 (0.150)	0.251 (0.157)	0.055 (0.131)	0.011 (0.136)	0.091 (0.088)
Log district population	0.656*** (0.067)	0.614*** (0.071)	0.428*** (0.058)	0.570*** (0.051)	0.535*** (0.050)	0.346*** (0.043)
Demographic dividend	0.192*** (0.056)	0.259*** (0.060)	0.179*** (0.058)	0.155*** (0.047)	0.185*** (0.048)	0.156*** (0.042)
Female-to-male ratio	0.142** (0.058)	0.088 (0.063)	-0.056 (0.050)	0.095** (0.043)	0.090** (0.042)	0.015 (0.037)
% of pop. belonging to scheduled caste or tribe	-0.004 (0.043)	-0.020 (0.041)	0.066 (0.050)	-0.080** (0.040)	-0.036 (0.036)	-0.059** (0.027)
Literacy rate	-0.128** (0.056)	-0.160*** (0.056)	0.008 (0.054)	0.001 (0.045)	0.008 (0.045)	0.077** (0.038)
Composite infrastructure measure	0.012 (0.053)	0.060 (0.053)	0.193*** (0.051)	-0.048 (0.040)	-0.007 (0.038)	0.047 (0.032)
Log distance to national highway	-0.041 (0.035)	-0.056 (0.036)	-0.040 (0.032)	-0.057* (0.029)	-0.051* (0.028)	-0.056** (0.025)
Log distance to state highway	0.049 (0.035)	0.049 (0.037)	0.042 (0.036)	0.048* (0.028)	0.029 (0.028)	0.009 (0.025)
Log distance to railway	-0.004 (0.032)	0.001 (0.034)	0.020 (0.029)	-0.009 (0.028)	0.022 (0.027)	0.040* (0.024)
Prop. of plants in district using computers	-0.068 (0.049)	0.009 (0.035)	0.101** (0.047)	-0.004 (0.031)	0.033 (0.032)	0.101*** (0.020)

Notes: See Table 7a.

Table A5b: Table 7b using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	-0.036 (0.183)	0.048 (0.139)	-0.103 (0.175)	0.520 (0.323)	0.660* (0.340)	0.576** (0.252)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.970** (0.485)	0.496* (0.268)	-0.051 (0.120)	-0.247 (0.283)	-0.221 (0.258)	-0.182 (0.242)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.143 (0.151)	-0.118 (0.121)	-0.043 (0.122)	-0.024 (0.213)	-0.003 (0.213)	0.041 (0.172)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.109 (0.143)	0.098 (0.130)	-0.039 (0.103)	0.042 (0.170)	0.096 (0.180)	0.078 (0.137)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	-0.002 (0.096)	-0.004 (0.083)	-0.032 (0.083)	0.280* (0.153)	0.283* (0.150)	0.228* (0.119)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	0.600*** (0.134)	0.636*** (0.108)	0.220** (0.105)	0.379* (0.213)	0.423** (0.205)	0.320** (0.151)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.133 (0.207)	-0.204 (0.231)	-0.147 (0.235)	-0.765*** (0.207)	-0.614*** (0.218)	-0.276** (0.134)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.157 (0.188)	-0.129 (0.153)	-0.094 (0.113)	-0.072 (0.196)	-0.082 (0.203)	-0.081 (0.162)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.059 (0.143)	-0.120 (0.157)	-0.151 (0.142)	-0.172 (0.193)	-0.114 (0.198)	-0.097 (0.140)
Log district population	0.022 (0.061)	-0.019 (0.048)	-0.011 (0.042)	0.173* (0.088)	0.181** (0.089)	0.067 (0.071)
Demographic dividend	-0.025 (0.058)	-0.048 (0.047)	0.046 (0.042)	-0.001 (0.086)	0.017 (0.090)	0.012 (0.068)
Female-to-male ratio	-0.178*** (0.052)	-0.117*** (0.040)	-0.039 (0.037)	-0.047 (0.078)	-0.007 (0.081)	-0.008 (0.069)
% of pop. belonging to scheduled caste or tribe	0.049 (0.048)	0.075* (0.041)	0.060 (0.038)	0.007 (0.073)	-0.014 (0.068)	-0.006 (0.050)
Literacy rate	0.066 (0.066)	0.043 (0.058)	-0.030 (0.042)	0.035 (0.092)	-0.004 (0.092)	-0.021 (0.076)
Composite infrastructure measure	0.130** (0.065)	0.148*** (0.055)	0.033 (0.048)	0.024 (0.087)	0.003 (0.084)	-0.001 (0.059)
Log distance to national highway	-0.034 (0.039)	-0.022 (0.031)	-0.036 (0.028)	-0.103* (0.055)	-0.110** (0.052)	-0.084** (0.038)
Log distance to state highway	-0.036 (0.036)	-0.014 (0.030)	-0.010 (0.030)	-0.052 (0.055)	-0.049 (0.055)	-0.010 (0.042)
Log distance to railway	0.113*** (0.041)	0.085*** (0.033)	0.069** (0.028)	0.063 (0.047)	0.093* (0.047)	0.020 (0.035)
Prop. of plants in district using computers	0.008 (0.035)	0.042 (0.028)	0.044** (0.021)	0.134* (0.074)	0.198*** (0.069)	0.176*** (0.053)

Notes: See Table 7b.

Table A5c: Table 7c using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.409** (0.165)	0.467*** (0.146)	0.342** (0.165)	0.630*** (0.169)	0.611*** (0.173)	0.441*** (0.124)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.654** (0.326)	0.525** (0.229)	0.305** (0.121)	0.275 (0.184)	0.322** (0.159)	0.310*** (0.114)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.159 (0.130)	0.162 (0.115)	0.337*** (0.097)	0.245** (0.110)	0.241** (0.111)	0.262*** (0.085)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.254** (0.115)	0.225** (0.109)	0.198** (0.079)	0.288*** (0.098)	0.336*** (0.112)	0.229*** (0.070)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.158** (0.078)	0.134** (0.068)	0.192*** (0.064)	0.203*** (0.064)	0.229*** (0.065)	0.165*** (0.045)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.196*** (0.217)	1.110*** (0.162)	0.654*** (0.100)	1.134*** (0.244)	1.081*** (0.206)	0.672*** (0.119)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.178 (0.149)	-0.182 (0.190)	0.185 (0.217)	-0.153 (0.127)	-0.055 (0.205)	-0.039 (0.107)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.147 (0.159)	0.130 (0.127)	0.178 (0.117)	0.057 (0.099)	0.027 (0.104)	-0.022 (0.084)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.087 (0.126)	-0.090 (0.130)	0.028 (0.101)	-0.016 (0.124)	0.003 (0.151)	0.007 (0.078)
Log district population	0.367*** (0.078)	0.265*** (0.068)	0.201*** (0.046)	0.547*** (0.054)	0.515*** (0.054)	0.292*** (0.038)
Demographic dividend	0.073 (0.057)	0.067 (0.053)	0.103** (0.042)	0.148*** (0.046)	0.181*** (0.048)	0.146*** (0.033)
Female-to-male ratio	-0.047 (0.046)	-0.050 (0.040)	-0.046 (0.037)	0.062 (0.044)	0.089** (0.045)	0.074** (0.033)
% of pop. belonging to scheduled caste or tribe	0.039 (0.042)	0.056 (0.037)	0.063* (0.033)	-0.056 (0.039)	-0.034 (0.038)	-0.042* (0.025)
Literacy rate	-0.015 (0.051)	-0.031 (0.048)	-0.006 (0.037)	-0.026 (0.045)	-0.066 (0.048)	-0.028 (0.031)
Composite infrastructure measure	0.118** (0.051)	0.152*** (0.046)	0.107*** (0.040)	0.009 (0.043)	0.041 (0.043)	0.048* (0.028)
Log distance to national highway	-0.046 (0.034)	-0.041 (0.030)	-0.039* (0.023)	-0.083*** (0.028)	-0.082*** (0.029)	-0.058*** (0.020)
Log distance to state highway	0.004 (0.033)	0.012 (0.028)	0.012 (0.025)	0.011 (0.031)	-0.007 (0.031)	0.007 (0.023)
Log distance to railway	0.070** (0.034)	0.062** (0.030)	0.052** (0.023)	0.018 (0.027)	0.057** (0.027)	0.024 (0.019)
Prop. of plants in district using computers	-0.031 (0.032)	0.041* (0.023)	0.074** (0.029)	0.024 (0.039)	0.089** (0.035)	0.121*** (0.020)
Log 2001 plant count	-0.751*** (0.087)			-1.143*** (0.040)		
Log 2001 employment		-0.616*** (0.089)			-1.155*** (0.039)	
Log 2001 output			-0.708*** (0.089)			-1.185*** (0.032)

Notes: See Table 7c.

Table A6a: Table 8a using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	1.004*** (0.301)	0.959*** (0.224)	0.628*** (0.171)	0.288* (0.159)	0.263 (0.190)	0.235 (0.174)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.558** (0.232)	0.583*** (0.210)	0.505*** (0.146)	0.227 (0.181)	0.402* (0.205)	0.566*** (0.205)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.736*** (0.189)	0.721*** (0.160)	0.579*** (0.116)	0.216* (0.131)	0.196 (0.142)	0.172 (0.125)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.506*** (0.145)	0.414*** (0.132)	0.385*** (0.090)	0.183 (0.117)	0.189 (0.124)	0.326*** (0.099)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.304*** (0.101)	0.385*** (0.094)	0.400*** (0.076)	0.138 (0.089)	0.138 (0.092)	0.216*** (0.077)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.739*** (0.276)	1.451*** (0.164)	0.828*** (0.101)	0.321** (0.129)	0.307* (0.158)	0.204 (0.153)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.450 (0.356)	0.435* (0.249)	0.552*** (0.162)	0.527 (0.385)	0.468 (0.333)	0.280** (0.123)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.442** (0.204)	0.414** (0.184)	0.408*** (0.129)	0.143 (0.163)	0.160 (0.175)	-0.031 (0.139)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	0.102 (0.220)	0.180 (0.233)	0.210 (0.139)	-0.318** (0.127)	-0.386*** (0.132)	-0.003 (0.108)
Log district population	0.503*** (0.090)	0.485*** (0.065)	0.295*** (0.046)	0.411*** (0.047)	0.396*** (0.054)	0.248*** (0.050)
Demographic dividend	0.273*** (0.079)	0.279*** (0.071)	0.117** (0.051)	0.060 (0.051)	0.118* (0.060)	0.099* (0.051)
Female-to-male ratio	-0.003 (0.079)	-0.019 (0.058)	-0.076* (0.043)	0.073* (0.040)	0.062 (0.046)	-0.035 (0.039)
% of pop. belonging to scheduled caste or tribe	0.012 (0.061)	0.063 (0.062)	0.145*** (0.051)	0.167*** (0.051)	0.162*** (0.052)	-0.006 (0.042)
Literacy rate	-0.072 (0.072)	-0.085 (0.070)	0.042 (0.048)	0.153*** (0.055)	0.114* (0.060)	0.137*** (0.048)
Composite infrastructure measure	0.272*** (0.066)	0.246*** (0.059)	0.189*** (0.048)	0.157*** (0.055)	0.200*** (0.057)	0.145*** (0.048)
Log distance to national highway	-0.030 (0.045)	-0.039 (0.036)	-0.024 (0.028)	0.005 (0.036)	-0.003 (0.041)	0.015 (0.036)
Log distance to state highway	0.079 (0.050)	0.063 (0.042)	0.038 (0.030)	0.016 (0.033)	0.002 (0.036)	-0.011 (0.028)
Log distance to railway	0.026 (0.044)	0.018 (0.036)	0.007 (0.026)	0.082** (0.034)	0.084** (0.037)	0.027 (0.032)
Prop. of plants in district using computers	0.067* (0.039)	0.108*** (0.031)	0.082** (0.037)	0.075*** (0.024)	0.095*** (0.028)	0.113*** (0.024)

Notes: See Table 8a.

Table A6b: Table 8b using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	-0.014 (0.156)	0.003 (0.155)	-0.108 (0.151)	0.516 (0.418)	0.408 (0.356)	0.469 (0.286)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.076 (0.187)	0.069 (0.124)	-0.100 (0.122)	-0.321 (0.272)	-0.377 (0.256)	-0.454** (0.223)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.179 (0.143)	-0.033 (0.127)	-0.048 (0.137)	-0.026 (0.326)	-0.183 (0.300)	-0.249 (0.262)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.015 (0.170)	0.023 (0.114)	-0.038 (0.093)	0.044 (0.253)	-0.070 (0.247)	-0.179 (0.221)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	-0.073 (0.109)	-0.002 (0.098)	-0.041 (0.093)	-0.007 (0.209)	-0.053 (0.203)	-0.108 (0.183)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.035*** (0.270)	0.559*** (0.130)	0.122 (0.107)	-0.283 (0.294)	-0.081 (0.287)	0.040 (0.260)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.536** (0.271)	-0.271 (0.169)	-0.113 (0.128)	-0.177 (0.325)	-0.115 (0.306)	-0.185 (0.367)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.198 (0.196)	-0.011 (0.135)	-0.020 (0.120)	-0.417 (0.418)	-0.497 (0.415)	-0.448 (0.348)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.192 (0.192)	-0.067 (0.143)	-0.051 (0.118)	-0.292 (0.280)	-0.350 (0.248)	-0.335 (0.205)
Log district population	-0.020 (0.055)	-0.063 (0.045)	-0.058 (0.045)	0.283*** (0.107)	0.189* (0.100)	0.094 (0.088)
Demographic dividend	0.034 (0.064)	0.014 (0.054)	0.009 (0.050)	-0.054 (0.124)	-0.023 (0.119)	0.034 (0.107)
Female-to-male ratio	-0.043 (0.041)	-0.036 (0.038)	-0.063* (0.037)	0.064 (0.087)	0.065 (0.082)	0.057 (0.071)
% of pop. belonging to scheduled caste or tribe	0.053 (0.051)	0.028 (0.042)	0.023 (0.046)	0.015 (0.103)	0.011 (0.104)	0.033 (0.097)
Literacy rate	-0.019 (0.070)	-0.048 (0.054)	-0.013 (0.047)	-0.060 (0.130)	-0.084 (0.126)	-0.122 (0.112)
Composite infrastructure measure	0.029 (0.062)	0.033 (0.050)	-0.013 (0.048)	0.087 (0.115)	0.108 (0.114)	0.118 (0.102)
Log distance to national highway	-0.052 (0.039)	-0.050 (0.038)	-0.038 (0.038)	-0.153** (0.077)	-0.119 (0.073)	-0.077 (0.066)
Log distance to state highway	0.010 (0.033)	-0.003 (0.030)	-0.026 (0.032)	-0.040 (0.067)	-0.039 (0.062)	-0.019 (0.052)
Log distance to railway	0.055 (0.040)	0.073** (0.030)	0.077*** (0.027)	0.182** (0.079)	0.152** (0.073)	0.093 (0.063)
Prop. of plants in district using computers	0.020 (0.028)	0.033 (0.030)	0.027 (0.025)	0.194*** (0.063)	0.172*** (0.058)	0.149*** (0.049)

Notes: See Table 8b.

Table A6c: Table 8c using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.502*** (0.163)	0.377*** (0.134)	0.198* (0.104)	0.390** (0.177)	0.302* (0.172)	0.206 (0.148)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.342** (0.167)	0.311*** (0.109)	0.205*** (0.078)	0.338* (0.192)	0.273 (0.172)	0.102 (0.144)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.269** (0.122)	0.311*** (0.083)	0.261*** (0.068)	0.118 (0.215)	0.019 (0.214)	0.021 (0.201)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.267** (0.130)	0.214*** (0.078)	0.187*** (0.054)	0.210 (0.170)	0.143 (0.167)	0.109 (0.155)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.167* (0.091)	0.211*** (0.065)	0.204*** (0.054)	0.132 (0.136)	0.079 (0.138)	0.038 (0.130)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.379*** (0.251)	0.872*** (0.109)	0.384*** (0.078)	0.665*** (0.191)	0.648*** (0.196)	0.534*** (0.180)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	-0.178 (0.211)	0.055 (0.145)	0.231** (0.103)	0.164 (0.413)	0.100 (0.317)	-0.026 (0.174)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.081 (0.142)	0.203** (0.100)	0.234*** (0.082)	-0.339 (0.263)	-0.351 (0.265)	-0.261 (0.251)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.023 (0.119)	0.090 (0.105)	0.129* (0.069)	-0.025 (0.163)	-0.047 (0.145)	0.066 (0.118)
Log district population	0.223*** (0.068)	0.195*** (0.040)	0.131*** (0.031)	0.339*** (0.056)	0.251*** (0.054)	0.141*** (0.048)
Demographic dividend	0.149** (0.061)	0.122*** (0.046)	0.063 (0.042)	0.145* (0.076)	0.160** (0.076)	0.158** (0.070)
Female-to-male ratio	-0.027 (0.047)	-0.032 (0.033)	-0.053** (0.025)	0.057 (0.050)	0.041 (0.049)	0.028 (0.044)
% of pop. belonging to scheduled caste or tribe	0.055 (0.042)	0.056* (0.033)	0.061** (0.028)	0.087 (0.064)	0.084 (0.061)	0.047 (0.054)
Literacy rate	-0.039 (0.052)	-0.057 (0.039)	0.007 (0.035)	-0.040 (0.083)	-0.069 (0.084)	-0.070 (0.077)
Composite infrastructure measure	0.135*** (0.049)	0.132*** (0.037)	0.091*** (0.032)	0.209*** (0.070)	0.217*** (0.068)	0.174*** (0.064)
Log distance to national highway	-0.046 (0.034)	-0.026 (0.027)	-0.001 (0.026)	-0.053 (0.054)	-0.058 (0.054)	-0.060 (0.051)
Log distance to state highway	0.041 (0.031)	0.026 (0.022)	0.007 (0.016)	-0.042 (0.039)	-0.042 (0.038)	-0.027 (0.034)
Log distance to railway	0.027 (0.032)	0.028 (0.020)	0.017 (0.014)	0.089* (0.052)	0.073 (0.050)	0.031 (0.047)
Prop. of plants in district using computers	0.051** (0.025)	0.066*** (0.020)	0.045** (0.020)	0.132*** (0.041)	0.119*** (0.037)	0.110*** (0.035)
Log 2001 plant count	-0.580*** (0.059)			-0.963*** (0.049)		
Log 2001 employment		-0.689*** (0.040)			-0.971*** (0.044)	
Log 2001 output			-0.767*** (0.030)			-0.988*** (0.036)

Notes: See Table 8c.

Table A7a: Table 9a using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.911*** (0.184)	1.359*** (0.253)	0.861*** (0.213)	0.040 (0.133)	0.041 (0.230)	0.056 (0.214)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.692*** (0.183)	1.018*** (0.258)	0.694*** (0.202)	0.232 (0.144)	0.470** (0.238)	0.479** (0.204)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.547*** (0.143)	0.878*** (0.217)	0.577*** (0.186)	0.168 (0.108)	0.217 (0.176)	0.207 (0.150)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.153 (0.123)	0.384** (0.184)	0.236 (0.164)	0.102 (0.104)	0.239 (0.151)	0.265** (0.126)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.175* (0.100)	0.422*** (0.125)	0.258** (0.115)	0.006 (0.083)	0.133 (0.120)	0.134 (0.100)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	1.643*** (0.205)	1.762*** (0.177)	1.038*** (0.149)	0.150 (0.110)	0.186 (0.194)	0.160 (0.183)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.477** (0.186)	0.757*** (0.243)	0.575*** (0.200)	0.000 (0.190)	0.056 (0.221)	0.136 (0.144)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.338** (0.157)	0.418* (0.240)	0.359 (0.218)	-0.182 (0.187)	-0.232 (0.306)	-0.167 (0.251)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	0.054 (0.179)	0.299 (0.223)	0.307* (0.182)	0.172 (0.107)	0.105 (0.152)	0.125 (0.125)
Log district population	0.210*** (0.057)	0.352*** (0.076)	0.302*** (0.059)	0.163*** (0.038)	0.270*** (0.062)	0.215*** (0.058)
Demographic dividend	0.165*** (0.053)	0.259*** (0.086)	0.183** (0.074)	0.134*** (0.044)	0.179** (0.070)	0.137** (0.059)
Female-to-male ratio	-0.002 (0.044)	0.038 (0.063)	0.001 (0.049)	-0.008 (0.032)	-0.046 (0.049)	-0.056 (0.044)
% of pop. belonging to scheduled caste or tribe	-0.002 (0.060)	0.075 (0.099)	0.071 (0.097)	0.027 (0.043)	0.065 (0.066)	0.064 (0.054)
Literacy rate	0.077 (0.058)	-0.058 (0.086)	-0.017 (0.076)	0.161*** (0.051)	0.202** (0.078)	0.246*** (0.065)
Composite infrastructure measure	0.013 (0.052)	0.019 (0.074)	0.017 (0.066)	0.083* (0.043)	0.226*** (0.068)	0.167*** (0.056)
Log distance to national highway	-0.048 (0.041)	-0.045 (0.054)	-0.014 (0.047)	-0.015 (0.030)	-0.013 (0.048)	-0.044 (0.045)
Log distance to state highway	-0.017 (0.036)	0.055 (0.050)	0.031 (0.041)	-0.014 (0.026)	-0.030 (0.042)	-0.020 (0.036)
Log distance to railway	0.047 (0.032)	0.046 (0.048)	0.042 (0.042)	0.073*** (0.028)	0.103** (0.043)	0.093** (0.039)
Prop. of plants in district using computers	0.121*** (0.044)	0.176*** (0.058)	0.136*** (0.049)	0.130*** (0.017)	0.192*** (0.029)	0.151*** (0.026)

Notes: See Table 9a.

Table A7b: Table 9b using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.156 (0.344)	0.020 (0.533)	-0.016 (0.531)	1.438*** (0.499)	1.130*** (0.387)	0.837*** (0.262)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.107 (0.183)	-0.043 (0.295)	-0.123 (0.324)	0.124 (0.321)	0.103 (0.251)	0.134 (0.204)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	-0.034 (0.158)	-0.001 (0.247)	0.042 (0.271)	0.478 (0.301)	0.351 (0.251)	0.365* (0.212)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.031 (0.149)	-0.108 (0.205)	-0.175 (0.216)	0.196 (0.254)	0.175 (0.214)	0.151 (0.175)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.014 (0.098)	-0.199 (0.168)	-0.212 (0.190)	0.295 (0.183)	0.240 (0.158)	0.225* (0.136)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	-0.820*** (0.254)	-0.460* (0.261)	-0.269 (0.279)	1.369*** (0.317)	1.077*** (0.258)	0.841*** (0.208)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.457 (0.294)	-0.188 (0.248)	-0.360 (0.231)	-0.142 (0.298)	-0.124 (0.280)	-0.066 (0.290)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	-0.075 (0.191)	-0.215 (0.360)	-0.362 (0.386)	0.146 (0.368)	-0.008 (0.326)	0.037 (0.289)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.109 (0.229)	0.021 (0.316)	0.090 (0.334)	-0.007 (0.264)	-0.029 (0.232)	-0.053 (0.213)
Log district population	0.027 (0.074)	0.052 (0.119)	0.016 (0.126)	0.106 (0.117)	0.064 (0.099)	-0.011 (0.080)
Demographic dividend	-0.100* (0.060)	-0.176* (0.092)	-0.158 (0.100)	0.224* (0.118)	0.201** (0.100)	0.149* (0.083)
Female-to-male ratio	-0.007 (0.057)	0.023 (0.087)	0.073 (0.096)	0.155 (0.104)	0.120 (0.091)	0.109 (0.072)
% of pop. belonging to scheduled caste or tribe	-0.014 (0.056)	0.011 (0.103)	0.005 (0.118)	-0.065 (0.088)	-0.023 (0.076)	0.039 (0.070)
Literacy rate	0.099 (0.066)	0.070 (0.120)	0.005 (0.131)	-0.204* (0.116)	-0.156 (0.102)	-0.078 (0.089)
Composite infrastructure measure	0.050 (0.058)	-0.001 (0.095)	-0.001 (0.097)	0.001 (0.100)	0.035 (0.089)	0.095 (0.080)
Log distance to national highway	0.023 (0.046)	-0.038 (0.074)	-0.076 (0.079)	-0.054 (0.071)	-0.030 (0.058)	-0.003 (0.050)
Log distance to state highway	0.045 (0.051)	0.048 (0.074)	0.037 (0.080)	0.007 (0.070)	0.008 (0.060)	0.030 (0.052)
Log distance to railway	-0.002 (0.038)	0.063 (0.058)	0.090 (0.062)	0.022 (0.067)	0.020 (0.055)	0.001 (0.047)
Prop. of plants in district using computers	0.110*** (0.032)	0.109* (0.064)	0.105 (0.068)	0.324*** (0.068)	0.245*** (0.053)	0.170*** (0.040)

Notes: See Table 9b.

Table A7c: Table 9c using computer penetration

	Manufacturing			Services		
	Log no. of plants	Log employment	Log output	Log no. of plants	Log employment	Log output
	(1)	(2)	(3)	(4)	(5)	(6)
(0,1) < 100 km to big-3 x urban (dBin1xUrban)	0.472*	0.465	0.301	0.784***	0.575**	0.493**
	(0.274)	(0.343)	(0.333)	(0.266)	(0.232)	(0.196)
(0,1) < 100 km to 4-7 x urban (dBin2xUrban)	0.500***	0.600***	0.429***	0.691***	0.565***	0.374**
	(0.150)	(0.156)	(0.146)	(0.212)	(0.178)	(0.157)
(0,1) 100-300 km to big-3 x urban (dBin3xUrban)	0.269**	0.502***	0.408***	0.651***	0.486**	0.421**
	(0.132)	(0.139)	(0.132)	(0.221)	(0.192)	(0.175)
(0,1) 100-300 km to 4-7 x urban (dBin4xUrban)	0.097	0.336***	0.349***	0.298	0.295*	0.204
	(0.120)	(0.113)	(0.107)	(0.195)	(0.171)	(0.155)
(0,1) > 300 km from big-7 x urban (dBin5xUrban)	0.086	0.170*	0.169*	0.255*	0.238*	0.172
	(0.087)	(0.096)	(0.096)	(0.136)	(0.123)	(0.118)
(0,1) < 100 km to big-3 x rural (dBin1xRural)	0.419**	0.823***	0.628***	1.319***	1.028***	0.749***
	(0.181)	(0.160)	(0.158)	(0.255)	(0.202)	(0.178)
(0,1) < 100 km to 4-7 x rural (dBin2xRural)	0.566**	0.502***	0.413***	0.065	0.028	0.008
	(0.228)	(0.172)	(0.131)	(0.401)	(0.363)	(0.343)
(0,1) 100-300 km to big-3 x rural (dBin3xRural)	0.051	0.021	-0.031	-0.083	-0.081	-0.080
	(0.152)	(0.247)	(0.266)	(0.249)	(0.230)	(0.243)
(0,1) 100-300 km to 4-7 x rural (dBin4xRural)	-0.043	0.208	0.266**	0.193	0.109	0.023
	(0.182)	(0.133)	(0.111)	(0.234)	(0.210)	(0.194)
Log district population	0.117**	0.119	0.051	0.134	0.091	0.039
	(0.059)	(0.076)	(0.077)	(0.085)	(0.076)	(0.070)
Demographic dividend	0.012	-0.014	-0.031	0.296***	0.250***	0.181**
	(0.056)	(0.064)	(0.061)	(0.086)	(0.079)	(0.072)
Female-to-male ratio	-0.020	0.023	0.045	0.204***	0.164**	0.148**
	(0.054)	(0.073)	(0.072)	(0.073)	(0.067)	(0.060)
% of pop. belonging to scheduled caste or tribe	-0.004	0.055	0.046	-0.016	0.026	0.061
	(0.050)	(0.071)	(0.072)	(0.067)	(0.058)	(0.058)
Literacy rate	0.117**	0.057	0.029	-0.047	-0.061	-0.028
	(0.055)	(0.067)	(0.067)	(0.087)	(0.081)	(0.080)
Composite infrastructure measure	0.049	0.053	0.060	0.158*	0.178**	0.146*
	(0.051)	(0.063)	(0.062)	(0.088)	(0.081)	(0.077)
Log distance to national highway	-0.018	-0.064	-0.073*	-0.010	0.009	0.011
	(0.039)	(0.041)	(0.040)	(0.053)	(0.047)	(0.044)
Log distance to state highway	0.024	0.040	0.028	0.054	0.047	0.062
	(0.038)	(0.043)	(0.044)	(0.056)	(0.049)	(0.045)
Log distance to railway	0.035	0.076*	0.067*	0.021	0.001	-0.009
	(0.033)	(0.039)	(0.037)	(0.053)	(0.045)	(0.042)
Prop. of plants in district using computers	0.140***	0.113***	0.070*	0.308***	0.230***	0.167***
	(0.036)	(0.042)	(0.039)	(0.046)	(0.040)	(0.035)
Log 2001 plant count	-0.639***			-1.052***		
	(0.064)			(0.069)		
Log 2001 employment		-0.680***			-0.831***	
		(0.028)			(0.057)	
Log 2001 output			-0.674***			-0.803***
			(0.021)			(0.052)

Notes: See Table 9c.