



ISSN: 0272-3638 (Print) 1938-2847 (Online) Journal homepage: <http://www.tandfonline.com/loi/rurb20>

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To cite this article: H. Jacob Carlson (2018) Model employers and model cities?: Bangalore's public sector and the rise of the neoliberal city, Urban Geography, 39:5, 726-745, DOI: [10.1080/02723638.2017.1388734](https://doi.org/10.1080/02723638.2017.1388734)

To link to this article: <https://doi.org/10.1080/02723638.2017.1388734>



Published online: 31 Oct 2017.



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Model employers and model cities?: Bangalore's public sector and the rise of the neoliberal city

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ABSTRACT

Bangalore is held up as a model for how cities, particularly in the global south, should develop in the globalized information age, in which entrepreneurs with new access to international capital fuel service-sector-driven development. Expanding market forces cultivate cities of skilled middle-class workers whose increased consumption generates broad developmental benefits. Now known as the “Silicon Valley of India,” Bangalore was previously the capital of India’s public sector enterprises (PSEs), which laid important groundwork for the city of today, including the IT sector. I show how, by providing access to homeownership along with high wages and benefits tied to secure employment, Bangalore’s PSEs created the foundation for the city today and its middle-class character. The skilled workforce that PSEs created helped the IT sector emerge in the city. By examining this erased history, we see the role of the state in development projects, and consider alternative models for urban change.

ARTICLE HISTORY

Received 1 September 2016
Accepted 22 September 2017

KEYWORDS

Development; public sector;
Bangalore; capabilities;
neoliberalism

Urban denizens now represent over 50% – and counting – of the world’s population, with most of this growth in the Global South. But rather than magnets for future impoverished slum dwellers, huddled into megacities, urban areas are now being celebrated as centers of opportunity for a development model that creates economic growth and a growing new middle class. In this view, developing countries – particularly if they can harness the power of a globalized, high-tech services industry – can use cities as engines of national economic growth, as well as creating a new middle class of consumers. This new and growing middle class have consumption patterns that generate additional jobs from what trickles down, and cultural practices that reflect modern, global citizenship (Shukla, 2010). The goal is private sector growth, and the state and the public sector are either obstacles to that growth or ignored altogether.

Few cities have been held up as a model of this strategy to the same degree as Bangalore. Now referred to as the “Silicon Valley of India,” the city has become a hub of the globally connected information technology (IT) sector, which includes software development as well as other outsourced business processes. It was on a golf course in

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This article was originally published with errors. This version has been corrected. Please see Erratum (<http://dx.doi.org/10.1080/02723638.2018.1405891>).

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Bangalore that Thomas Friedman (2005) “discovered” that the world was flat. In *The Triumph of the City*, Edward Glaeser (2011) marvels that, “Bangalore, India’s fifth largest city is among the subcontinent’s greatest success stories. Bangalore’s wealth comes not from its industrial might (although it still makes plenty of textiles) but from its strength as a city of ideas” (p. 25). Bangalore and other cities that follow this path, are how India is supposedly, “leapfrogging straight from agriculture to information technology” (Glaeser, 2011, p. 49). The surprising success of IT in the city has put Bangalore on the map as a model for how cities in the Global South should develop and take advantage of the benefits of globalization.

The common story of Bangalore describes a city where IT materialized from thin air, from the efforts of individual entrepreneurs unhindered by state intervention, with perhaps the exception of the importance of local universities and research institutes. In the *World Bank Research Observer*, Pack and Saggi (2006) explain the success was partly due to “an agglomeration of firms in Bangalore, [which] was achieved spontaneously without government direction ... there was no evidence of government initiation or preference” (p. 289). In fact, “the main role of the government was benign neglect” (Pack & Saggi, 2006, p. 292). Similarly, Hilhorst’s (1998) analysis of trajectories of developing agglomeration economies situates Bangalore as one particular type of fast industrial growth,

“... in hitherto virtually non-industrialized areas, such as the high-tech complexes of Route 128 and Silicon Valley in the USA. Here initial growth is ascribed to institutional support, especially of universities, to small entrepreneurs, and to their ability to network and produce in accordance with the principles of flexible specialization. In this fourth type, *the state has virtually no part to play, while the role of entrepreneurship and the sources of investment are crucial* ... Parts of the high-tech industry in Bangalore is based on similar characteristics.” (Hilhorst, 1998, p. 12, emphasis added).

These accounts not only ignore the extensive state economic programs that promoted the emergence of the private IT industry in Bangalore through subsidies, tech parks, trade assistance, and other state-sponsored industry support (Das & Lam, 2016; Heitzman, 2004; Parthasarathy, 2000), but also the other ways the state fostered a high-tech ecosystem and provided a breadth of public goods in the city through public sector companies. By relying on entrepreneurial spirit and purely market forces to explain Bangalore’s economic path, these authors put forward an account that erases the crucial role that the state played in shaping the city of today.

In this article, I will compare two periods in Bangalore’s history: (1) 1947–1991 when the city’s post-independence economy was importantly shaped by the state, particularly through large public sector enterprises (PSEs) that produced goods for domestic sale as well as export, and created large inclusive housing townships – what I call the “developmentalist city” – and (2) 1991–present, where in the wake of India’s liberalization, the state largely gives way to the dominance of market forces, particularly via the real estate and global service industries like IT – what I call the “neoliberal city.” While the developmentalist city describes a period in which the state takes an active and overt role in attempting to develop domestic industrial capacities and employment, the neoliberal city is a period that features a reorientation of the state under a market logic, and focuses on industries and markets with greater global reach. I will treat these two periods

as ideal types, but as we shall see the reality is that the developmentalist city was importantly linked with the global market economy, and the neoliberal city cannot be understood without accounting for very local activity, much of which is shaped by the state. By contrasting two phases of Bangalore's development, I argue that the public sector in the developmentalist city set up important conditions on which the neoliberal city emerged. While others have pointed to the role of the state more broadly in the emergence of IT in Bangalore, I will focus on the role of public sector enterprises in the city.

Moreover, by contrasting these phases, we can recover elements from previous experiments that illuminate what development means today. Sen (1989, 1999) rejects measuring development purely in terms on income or GDP, or even human capital, but rather advocates development as an expansion of human capabilities – the individual and institutional factors necessary to truly exercise freedom in an economy and a democracy. While the developmentalist city is one where the state focuses on fostering the capabilities of citizens, the neoliberal city promotes market mechanisms to prioritize economic growth. In Bangalore, PSEs have fostered these capabilities not only by developing a skilled technical labor force, but also by promoting economic security by creating a city of homeowners who had secure, well-compensated jobs protected by labor unions, as well as amenities like schools and hospitals that served as public goods that were accessible to non-employees. Thus, contrary to the global city development model, Bangalore did not gain a middle class from globalization. It had a middle class already.

I will look at the capabilities expanded by the public sector through two main lenses: (1) the socio-geographic impact of PSEs on the city through the creation of housing and other amenities, and (2) the socio-economic impact of PSEs through employment practices. The integrated townships that PSEs created have shaped the physical growth trajectory of the city, as well as provided pathways for employees to become homeowners and have housing security. These PSE communities had amenities – such as schools, hospitals, and markets – that were both created directly by the PSEs as well as by co-operative groups of employees, yet which were also available as public goods to the broader community. Moreover, the workers employed by the largely high-tech defense companies – and their children – were an important part of the employment base of the later neoliberal city. As state enterprises, they were also subject to policies of inclusion for women and disadvantaged castes.¹ The consequence of erasing this history is that it sustains the perception that the public sector was a wholly unproductive drain on the economy, which thus helps justify the market-led reforms as necessary and inevitable. By comparing these two phases, we can better understand what is at stake in the supposed triumph of Bangalore, and the development of cities in the Global South.

Background

Development and the state

The role of the state vis-à-vis the market has been a central question in discussions of economic growth and development. Most recent discussions of this focus on what is known as “neoliberalism,” which calls for the roll back of the Keynesian welfare state and other state capacities, and the roll out of new forms of state governance that free up

the market to be the primary engine of economic growth (Peck & Tickell, 2002). Despite claims that neoliberalism creates a “borderless” world in which states are unimportant, Yeung (1998) shows the many ways that states provide certain functions to ensure capital accumulation, and do so in ways that are anchored to place (Brenner, 1998). The state therefore does not go away under neoliberalism, but changes the form and function of its activities. The questions for the developmental state literature are what form the state should take in the process of economic development, and how has that form changed. Williams’ (2014) analysis of the twentieth-century developmental state discussions argues that it equated development with economic growth and emphasized it as the top priority. The primary tools of the developmental state are subsidies, tariffs, and other regulatory policies that either encourage or discipline the activities of the private sector. The state’s role is to mediate between private capital and other interests, in the pursuit of economic growth. In most cases, this is fundamentally about the state influencing the productive capacities of private firms, rather than engaging directly in production itself.

In contrast to conceiving of development in primarily economic terms, Sen’s (1989, 1999) “capability approach” points to the need to consider other elements that influence one’s quality of life. “Capabilities” refer to the underlying potential of an individual to achieve freedoms, which are not restricted to purely economic activity. This is broader than human capital, which consists of only the qualities that help an individual in the labor force. The notion is that expanding capabilities allow for the ability to pursue a wider range of activities that improve economic, social, and political freedom. Development thus means removing impediments to freedom, such as economic insecurity, social deprivation, inadequate health and education, and lack of political voice. Evans (2002) adds to this by drawing attention to *collective* capabilities, where “Organized collectivities – unions, political parties, village councils, women’s groups, etc. – are fundamental to [developing] ‘people’s capabilities to choose the lives they have reason to value’” (Evans, 2002, p. 56). Evans (2014) returns to the notion, arguing that the developmental state literature has under-discussed the ways the specific ways that state itself directly fostered collective capabilities.

More broadly, the conflict over the role of the state in development has been captured in a recent debate between two sets of India’s most famous economists. Jagdish Bhagwati and his co-writer Arvind Panagariya (2013) defend the 1991 reforms that liberalized the national economy as having helped generate unprecedented growth in the country, while opening up opportunities for India’s poorest. On the other hand, Jean Drèze and Amartya Sen (2013) argue that India has not adequately devoted funds to social programs to benefit the 37% of the population living in poverty. Both sets of authors agree that economic growth is important for the implementation of various state-based social programs, but they differ in their assessment of the implications of India’s growth trajectory. Bhagwati and Panagariya (2013) argue that social services can only stand on the shoulders of economic growth, and therefore reforms must be taken to address declining growth rates. By contrast, Drèze and Sen (2013) argue that the hand wringing about India’s growth rate is ultimately overstated. Growth may not have been stellar after independence at an average of 3.5%, but it was certainly a significant improvement from the colonial period when it was approximately zero (Drèze & Sen, 2013, p. 12). As a result, they do not see growth as the necessary precondition for investments in public social services, but rather that investments in social services serve

as tools for enhancing human capital and capabilities for broader social benefit and improved quality of life. Still, most of the discussion by the two sets of authors with respect to the public sector was either about social services, administration, subsidy policies, or public utilities. They give little attention to public sector enterprises (PSEs), which engaged in their own production and employed many workers.

Cities, development, and the middle class

The broad focus on the developmental state as an engine for developing national economies has shifted to a narrower attention on cities as engines of development. Glaeser's enthusiasm for cities as sites of innovation and growth mirrors the focus on cities by the World Bank, which unveiled its "Urban and Local Government Strategy" in 2009. "The new strategy ... inaugurates the *Decade of the City*, a decade that will be remembered for recognizing cities at the core of growth and human development. Never before has there been so much interest in cities" (World Bank, 2009, p. 1, emphasis original). This is in conjunction with a longer trend in which state functions in the global economy are rescaled and reterritorialized from national states into the urban regions that serve as key nodes of capital accumulation (Brenner, 1998). Cities and their governments thus take on entrepreneurial strategies to make their urban areas more competitive and better able to attract global capital, and conform with world city aesthetics (Ghertner, 2015; Jessop & Sum, 2000). In India, this "urban turn" took the form of many policies directed at cities, the largest of which was the Jawaharlal Nehru National Urban Renewal Mission, which was established to invest \$20 billion in cities over 7 years. State-level leaders also took initiative. Chief Ministers S.M. Krishna and Chandrababu Naidu sought to transform Bangalore and Hyderabad, respectively, into "world cities" driven by the high-tech industry, based on models like Singapore and Kuala Lumpur (Bunnell & Das, 2010; Nair, 2005). This is counterpoised, however, by parallel trends in the clearing slums, the proliferation of informal labor, the increased social and economic isolation of the underclass (Ghertner, 2015; Gidwani & Reddy, 2011).

One of the main reasons for this shift to focus on cities is that they are not only key sites for economic growth of national economies in the global south, but also where the new middle class emerges and grows. Connected to the global economy through their employment in the private, internationally-linked services sectors, the new middle class has substantially larger incomes, which makes their consumption patterns a notable cultural and economic force in the city. McKinsey & Company, a global consulting firm, has played a substantial role in shaping the focus in development on consumption and consumers in cities (Ghertner, 2015). Cities, they argue, will house the global consumer class, and thus should be a prime focus of development efforts (Dobbs et al., 2012). Within India, the expansion of disposable income is claimed to have massive trickle-down effects that will lead to broad upward mobility in the years to come (Ablett et al., 2007). As a result of this broader political economic shift toward what Scott (2011) calls a "cognitive-cultural" economy, cities must increasingly orient their policy and urban planning in order to compete for creative class knowledge workers (Florida, 2002).

While cities are increasingly seen as important nodes of national economic development, this phenomenon is not entirely new with economic liberalization. Previous

national development efforts have also had important relationships to cities, which is brought into sharper relief when we think of development as the expansion of capabilities, rather than just economic growth. Before we look at these issues in the case of Bangalore, I will provide a brief sketch of the broad national and local historical context relevant for understanding this case.

Historical background

As a colonial city, Bangalore was a military outpost for the British, who divided the city in two. The “Cantonment” was the walled military compound to the east, which contained the British residential areas as well as the main colonial administrative buildings. To the west, the “*pete*” was home for the local Bangaloreans, and much of the textile factories and trading markets that predominated the city’s economy at the time. This geographically, socially, and economically divided the inhabitants of the city. Locals produced cheap textiles for the empire, while the British maintained a strong military presence in the region. Poor working conditions in the textile mills made them ripe for organizing the independence movement, and the burgeoning Congress Party that played a crucial role in the independence struggle set up their offices in the *pete* in the 1920s (Nair, 2005).

After independence in 1947, the nationalist project to build a new India, free from the constraints and imperatives of colonial rule, set out to build much of India’s new productive capacity under the auspices of the public sector. Business leaders preempted the efforts of some in the independence movement to fully nationalize the economy, by coming together to draft the “Bombay Plan”, which suggested that instead of full nationalization, particular industries that could not be or were not currently spearheaded by the private sector should instead be directly controlled by the state – infrastructure, power, transportation, defense, and telecommunications among other industries were the primary suggestions (Chibber, 2003). The intention was that through this arrangement, in combination with regulatory and international trade protections, the private sector would in time grow its own legs. This nonetheless planned economy focused on maximizing employment, predominantly in skilled labor, and paying higher wages and benefits. These goals in some ways took priority over market efficiency or national security.²

Bangalore was known as the “capital” of the public sector in India, as it was home to the headquarters of many of the major Central PSEs.³ These were predominantly high-tech companies and were largely in the field of defense, but also in telecommunications, aerospace research, and machinery development firms (see Table 1). In a visit to the city, Nehru said that Bangalore was, “very much a picture of India of the future, more especially because of the concentration of science, technology and industries in the public sector here” (Holström, 1994, p. 18). PSEs helped create a middle class in Bangalore, by providing large numbers of comparatively well-paid jobs with good benefits, including access to financing to buy a home, and a pension. The trade union movement in the city largely grew out of the public sector, which shaped the local political culture, as well as the national labor movement. In the 1980s, some public sector enterprises began to run into crises of productivity, and nationally the public sector came under fire.

Table 1. Major central public sector enterprises in Bangalore, 1971.

Public Sector Enterprise*	Industry	Area in Sq. Km.	Township Population**
Hindustan Aeronautics Ltd. (HAL)	Defense aircraft and aerospace	21.75	49,149
Indian Telephone Industries (ITI)	Telephony and communications equipment	1.68	9,875
Bharat Electronics Ltd. (BEL)	Radar, and defense electronics	2.85	6,825
Hindustan Machine Tools (HMT)	Machinery manufacturing	2.59	11,154
Hindustan Machine Tools Watch Factory (HMT Watch Factory)	Consumer watches	0.74	2,351
Bangalore Urban Agglomeration		177.3	1,664,208

Source: Census of India (1991). Karnataka, Series 11. *Part II-A, General Population Tables*

*Additional significant Central PSEs for which township data was not available include Bharat Earth Movers Ltd. (BEML), which manufactures construction equipment, and Bharat Heavy Electricals Ltd. (BHEL), which manufactures large power generation equipment.

**Not all who lived in the township were PSE workers, and not all PSE workers lived in the townships.

While liberalization began to unfold in the mid-1980s under Prime Minister Rajiv Gandhi, a balance of payments crisis culminated in the early 1990s, leading to a structural adjustment policy from the IMF in 1991 that has fundamentally reshaped the Indian economy. The role of the state was at the core of the narrative leading up to the reforms, where corruption and inefficiency were common critiques, as well as the accusation that the state's use of regulations was a source of corruption and a barrier to growth. In addition to bringing down regulations and trade restrictions, one of the key goals was the downsizing, closure, and privatization of many PSEs. Throughout the 1980s, numerous legislative commissions were formed to investigate PSEs, which continued to grow through the 1990s. The Department of Disinvestment was created to manage the shutting down and selling off public sector assets, in favor of spurring private sector growth, which continues today. The Bombay Stock Exchange now manages a website to centralize these activities.

Meanwhile in Bangalore, the 1980s began to see the emergence of information technology (IT) as a significant sector in the local economy. Over the course of the 1990s, IT and business process outsourcing (BPO) came to hold prominence in the city, as companies like Infosys and Wipro led the way to Bangalore's dubbing as the "Silicon Valley of India". This development was crucially led by national, state level, and local governmental efforts to intentionally foster an IT sector, by setting up tech parks, creating regulatory and subsidy programs through existing and new governmental ministries, and extensive tech boosterism (Heitzman, 2004; Pani, 2009; Parthasarathy, 2000). Inequality rose, consumption increased, and real estate development and large-scale infrastructure projects to cater to high-tech industries fueled by global finance capital became the focal point of city planners (Goldman, 2011). At the same time, surviving public sector companies in the city have decreased full-time employment, while increasing the use of contract workers. Some companies have closed down and been sold for parts, namely the land on which they sit, which has become a prized asset in the hot real estate market. Despite the focus on IT, which is estimated to employ somewhere between 4 – 7% of workers, Bangalore's workforce is still largely in textiles, small scale manufacturing, and services, much of which is in the informal economy (Narayana, 2011)

Methods

This article draws on 10 months of fieldwork conducted between 2009 and 2010, and relies largely on interview data. I interviewed retired PSE workers from the earlier period, as well as current, younger employees. I interviewed union leaders, management and non-management employees of the past and present, and IT workers. The interviews focused on understanding the role of PSEs in the changes that have taken place in Bangalore since independence. I also physically observed the housing and township arrangements of the PSEs, as well as interviewed local urban planners. I then triangulated the data I collected with secondary sources, including government records, maps, union histories, news accounts, and other published scholarly works. During my time there I also conducted participant observation with a local non-governmental organization, through which I was able to observe the unfolding of a wide variety of projects and policies aimed at transforming Bangalore into a world city.

Bangalore, the developmentalist city

Building the city

PSEs drew on national resources to provide local financial and institutional support for the creation of integrated townships for employees and the surrounding community. As the townships evolved, PSEs operated with a high degree of autonomy from the local municipal government, while also fostering a variety of employee-led cooperative efforts helped provide additional amenities and contributed to local civic life. In Bangalore, over the 1940s and 1950s, PSEs established their factories and campuses on what was at the time the periphery of the city (See [Figure 1](#)). It was easier to dispossess farmers of large areas of rural land to create what would become factory townships. PSEs created company-owned housing in the immediate proximity for their workers. The PSEs additionally built schools, hospitals, markets, and other amenities right around the factory, which eventually became integrated with the broader city, as these facilities became public goods for anyone to use. The townships followed what one informant called a “leap-frog” pattern of urbanization, where instead of growing outward from the urban core, the factories established beyond the periphery of the city subsequently grew their independent housing colonies and amenities back inward towards the city, while the central city simultaneously grew outward toward the factories (personal communication, 10 June 2010). The large swaths of land that the factories obtained lie in the core of the city today.

Despite the townships being established independently from the city’s infrastructure and planning apparatus, “They were the epitome of good planning, generously provided with facilities for recreation, education, and shopping” (Nair, 2005, p. 89). At a time when the municipal government’s capacity for managing urbanization was limited, “The townships were a deliberate effort to contain large-scale industrial production in ways that would not strain the city’s resources” (Nair, 2005, p. 90). Thus, the national government’s capacity could supplement where the local government was weak. However, it also imposed costs on the companies, according to a former managing director at one of the major PSEs, who told me, “A lot of investment, energy, and time of the management was spent on managing the infrastructure facilities. Once you have

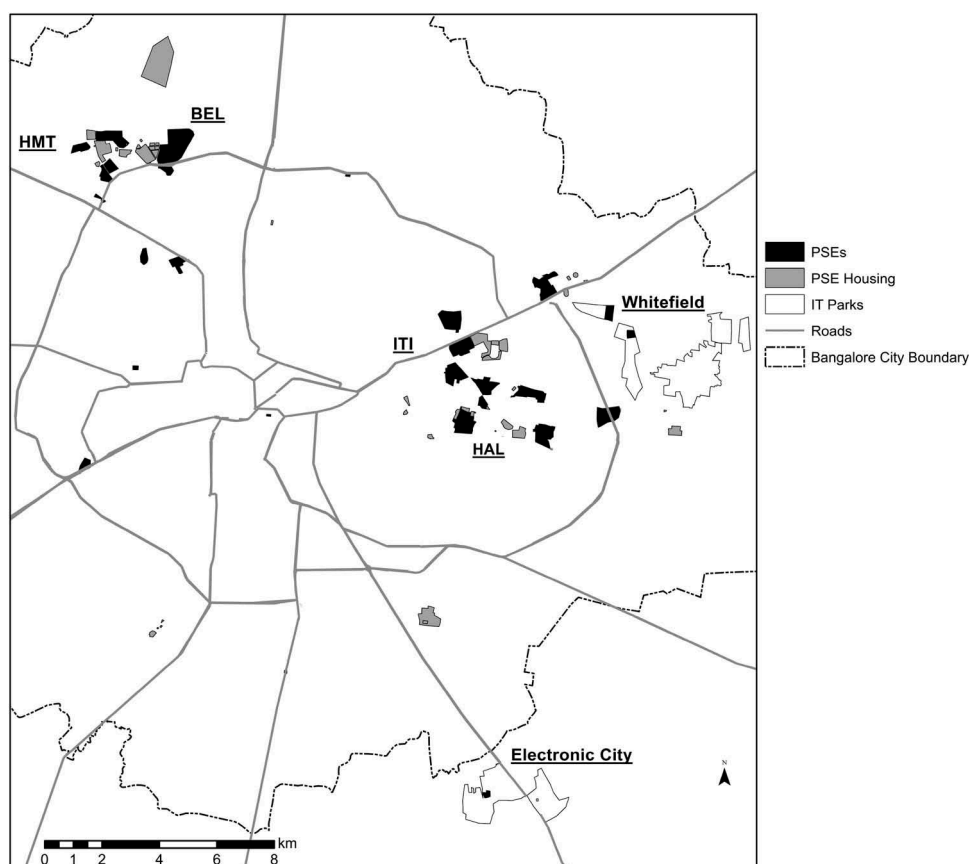


Figure 1. Land use map of Bangalore, public sector enterprises and IT Parks.

Note: Due to lack of availability of a comprehensive land use map where PSE factories, townships, and housing development cooperative societies could be identified, this map is an illustrative, but not definitive, account of the geographic impact of PSEs. Cooperative societies are significantly underrepresented in this map. Source: OpenStreetMap data extracted by Mapzen; Karnataka Industrial Areas Development Board <http://kiadb.in>.

housing, you have to provide the water, you have to provide the electricity, sewage. Because the city at that time was not equipped to handle these things” (personal communication, 18 May 2010).

PSEs provided housing for workers through a number of different arrangements. Some workers lived in housing quarters that were built directly by the PSE. Indian Telephone Industries (ITI), the first public sector company established in independent India, did not include housing in its campus until 6 years after its founding, but later companies built housing along with the factory itself. This housing was segregated by job status, with better accommodations for officers and managers than for other workers. Others might receive a housing rent allowance to subsidize a worker’s private housing costs elsewhere in the city. This was a particularly important benefit for those who came from outside of Bangalore to work in a PSE.

Most of the construction of housing quarters by PSEs stopped in the mid-70s, and was succeeded by independent Housing Co-operative Societies in the late-70s and 80s as the primary mode of housing workers (Nair, 2005). In these arrangements, the PSEs

would provide the institutional and financial backing for a group of employees to come together and form a “co-operative society,” which would legally acquire land and create their own housing developments. The PSE would intercede and work with a financing company to get a reduced interest rate for the land and construction costs, and would negotiate more favorable terms for the loan. Financing companies enjoyed this arrangement, because they received a large chunk of capital upfront, and a stable and well-paying PSE job also meant that the loans would be paid off on time, and with little chance of default. A former director who also was president of his co-operative society, explained that Bharat Electronics Limited (BEL) would pay the standard government rate of interest, whatever that may be (personal communication, 31 May 2010). If someone chooses to go instead to a private company, which charges a higher interest rate, BEL would still pay the same rate, and the loan recipient would pay the difference.⁴

The society would then proceed to develop the layout by leveling the land, building roads, sewers, and electrical lines, incrementally taking portions of the land price from the society members to carry out the works. Once the land was developed, families could then purchase their plots, move in and start building their houses. While laws placed some restrictions on selling cooperative society homes, it was nonetheless an asset that could be sold by the owners, and help accumulate intergenerational wealth. One respondent purchased their land with ₹7,500 from their retirement account – he estimated the land’s current value to be around ₹7,500,000 (personal communication, 31 May 2010). Residents said in interviews that most of the households currently living in the layouts are still current or former PSE employees, though many others have moved in as well.

Apart from housing, a variety of other amenities were embedded within the townships to serve the needs of workers outside of their workplace. Larger PSEs created facilities like hospitals and schools to provide affordable and accessible education and healthcare for their workers, which were also publicly available for to non-employees to use. BEL in particular still maintains a particularly large school system, with including a nursery school, a primary school, a school for special-needs students, a high school, a pre-university school, and a first grade college, all near the primary layout and BEL campus.

Both formal layouts and those separate from the factories often include consumer societies that allow employees to purchase basic provisions, such as rice, dal, ghee, and sugar, at a reduced rate. These societies buy goods in bulk, so that they can sell to employees at a lower price than any other store. The larger PSEs also have provided transportation to the factories. BEL at one time boasted a fleet of 120 green and blue buses emblazoned with the BEL logo, which would pick up workers from their neighborhoods, and bring them to work in the factory. Officers and managers would get shared or private car services to take them to work. In addition to these daily amenities, the PSE layouts are filled with a wide variety of autonomous civil society associations and social groups. Associations for various groups of people, such as officers, disadvantaged caste employees, language-based organizations, and others contribute to the social life outside of the workplace.

Building workers – trade unions, reservations, and skilled labor

In addition to the effects on the social and built environment of the city, one of the most important impacts from PSEs has been through their employment of large

numbers of well-compensated workers in predominantly skilled, technological industries. These factors, along with the provision of housing and other services described above, contributed to the growth of the middle class in the city. The most prominent PSEs in the city have been importantly in technology manufacturing and development companies, which have contributed to a highly educated and skilled workforce in Bangalore. These workers had ample compensation packages, good working conditions, and high job security. This was largely because PSEs set the bar for labor standards for the city as well as the country. PSEs also were important places of inclusion for disadvantaged caste and women workers. The policies and practices of PSEs, combined with additional pressure from a strong trade union movement, made public sector workers part of the “labor aristocracy of the city” (Nair, 2005; Subramanian, 2011).

One of the major impacts of PSEs in Bangalore has been through the creation of primarily highly skilled, technical jobs that contrasted sharply with some of the other non-skilled industries in the city, such as the garment industry, the tanning industry, and trading⁵ (Nair, 2005; Pani, 2009). In addition to the PSEs already discussed, Indian Space Research Organization, Defense Research and Development Organization, and Karnataka Pharmaceuticals are just some of the workplaces that trained and employed knowledge workers in the city. The number of high-tech companies and institutions has created a large demand for educated workers in Bangalore. The city is home for over a dozen major research institutions, including the Indian Institute of Science,⁶ which was a significant force in creating scientists and engineers, and fed into local companies and institutions (Basant & Chandra, 2007; Pani, 2009; Parthasarathy, 2000). As a result, Bangalore now boasts 924 colleges, the most of any city in the country, followed by Jaipur which has 544 (Department of Higher Education, 2013, p. 7). The evolution of Bangalore as a center for highly educated workers in particularly high-tech fields comes partly out of the history of mutual reinforcement between these higher-education institutions and the high-tech (mostly defense) PSEs.

These large companies also saw the agglomeration of new businesses in the area to cater to the needs of PSEs, and also serving as additional employment generators. After the national Bureau of Public Enterprises issued guidelines in 1971 for PSEs to commit to ancillary firm development, including guaranteeing percentages of purchases that must come from ancillaries, many small-scale industries grew up around PSE factories, expanding employment opportunities and the broader development of the manufacturing industry in the city (Parthasarathy, 2000). The growing use of small-scale industries by PSEs also contributed to the State of Karnataka’s creation of the Peenya Industrial Area, which at one point claimed to be the largest industrial estate in South and Southeast Asia (Pani, 2009; Sudhira, Ramachandra, & Bala Subrahmanya, 2007). The ITI ancillaries were largely started by former ITI employees, who wanted to take their skills and become entrepreneurs (Parthasarathy, 2000). Combined with the ancillary industries, the four largest PSEs in Bangalore accounted for over 110,000 jobs by 1961, at a time when the population of the city was 1.2 million people (Nair, 2005, pp. 127, 101).

For decades, trade unions nationally steadily grew their power and influence within PSEs, particularly the large ones located in Bangalore (Patil, 1976). Trade unions made numerous gains in benefits for their own workers, such as improved wages and benefits, and in preventing layoffs and the expansion of subcontracting. One former managing director said that in his experience, unions challenged many of the changing employment practices and cost-cutting measures because they were seen as a “dilution of the

philosophy of public sector – as a means of reducing the employment potential of the public sector” (personal communication, 18 May 2010). In 1980–81, the largest and longest public sector strike took place in Bangalore, led by five of the large central PSEs in the city (Subramanian, 1997a, 1997b). The power that the trade union leaders wielded in the city was parlayed into political office, as many subsequently held local and state elected positions in the 1980s.

Apart from the ability of trade unions to protect workers, PSEs are subject to some meaningful – though certainly incomplete – policies of social and economic inclusion that we shall see have been significantly diminished in post-1991 Bangalore. As a government entity, PSEs come under the country’s reservation system of employment quotas for disadvantaged castes and tribes. As a result, historically excluded castes and tribes would be able to secure positions in PSEs, and thus have access to the wages and benefits that were higher than most non-public sector employment. As significant as this is, it has by no means sufficiently addressed deeply entrenched inequalities. Subramanian (2007) shows that while PSEs employ many disadvantaged caste workers, the positions they hold and their ability to move up the ladder are unquestionably below those of their other coworkers. Additionally, middle- and upper-caste Hindus have commonly expressed resentment to the reservation policy at the workplace, charging “compensatory discrimination,” and would were known to socially exclude disadvantaged caste coworkers at places like the townships and the lunch tables (Subramanian, 2011).

Public sector companies have also historically been large employers of women workers. Even in 1956, former trade union leader C. Balakrishnan said that about 7,000 of 13,000 of the employees at BEL were women, at a time when formal sector work was not as common for women (personal communication, 28 May 2010). One of my informants, Annapoorna, a retired BEL employee, described what it meant to have a job at a PSE as a woman: “Women, they go out from the house. Some people they go out because we were educated, and we think if we contribute anything to our country, instead of staying at home and then cooking, and then looking after house, all that, it is not a big thing. Somehow we have to go out and then see the world, you know. So that way we have come out” (personal communication, 4 June 2010).⁷ While PSEs employed many women, they were not allowed to work past 7:00 pm, by policy, so that they could go home and cook for their families.

PSEs have been a substantial force in shaping the city, even filling needs unmet by the city government. In one former managing director’s reflection, “Looking back, I do not know whether it was the right way of doing things, because what it meant was that the city washed its hands off, you know, it felt that they had no responsibility to provide the infrastructure, or the facilities for this growing labor population” (personal communication, 18 May 2010). In addition to these impacts on the city, the growth of PSEs in Bangalore generated benefits for employees directly, while also creating social and economic shifts in the city as a whole (see Table 2). The direct investments of PSEs as well as the synergies they fostered with the private sector and civil society through efforts like ancillary industries and housing co-operatives societies helped change the built environment of the city, while also expanding the homeownership and the middle class. The strength of organized labor won concrete improvements for employees, and gave them a voice at work. High wages and full benefits that were won created economic multiplier effects throughout the city, while also creating a middle-class culture through economic security and consumption (Nair, 2005). The presence of

Table 2. Capabilities fostered by PSEs.

Freedoms	Capabilities	Ways PSEs fostered capabilities
Economic freedoms	Financial security	High wages and guaranteed pensions
	Housing security	Guaranteed housing, facilitating homeownership by financing housing co-operative societies
	Job security	Strong trade union movement
	Food security	Co-operative shopping markets
	Economic independence for women and disadvantaged castes	Employment reservation requirements as a state organization
Social freedoms	Skilling labor	Training for workers on site. Symbiotic relationship with local technical colleges and universities
	Healthcare	Hospitals for the families of worker and the general public
	Education	Schools for the children of workers and the general public
Political freedoms	Social needs	Civil society associations tied to the townships
	Working class political representation	Political power of the trade union movement

these technological companies, combined with a proliferation of higher learning institutions would then further set the stage for the next phase of the city: the neoliberal city and the rise of IT.

Bangalore, the neoliberal city

The neoliberal city in Bangalore embodies much of the national economic reforms of 1991. This period is characterized by a shift in the efforts of the state from a development model centered on developing the capabilities of citizens to one focused on using market mechanisms to foster growth. The withdrawal of the state from its previous functions is claimed as a necessary precondition to the creation of new economic growth that lifts people into the middle class and provides higher standards of living through increased consumption. These processes can be seen in the example of PSEs, where disinvestment, contractualized labor, and selling off of land holdings have grown. These are mirrored by the expansion of the IT sector and the state's efforts to cater to its growth. The parallel rise of the real estate market in the city has led to the accumulation of land in the hands of developers, including the land assets of the public sector. But while the neoliberal city has benefitted from the dismantling of the public sector, it also has been highly dependent on its legacy – that the labor for IT is heavily drawn from the high skilled technical workers of PSEs and their children.

Since one of the main impacts of the public sector on the city has been the sheer numbers of people employed in well-paid and secure jobs, then the large reductions in employment and shift toward contract work due to the systematic divestment from the public sector has had a significant effect. These reductions came about through a variety of processes. A “voluntary retirement scheme” was a widely-used practice to clear the payrolls of the perceived old and redundant employees (RoyChowdhury, 2003). Between 1987–1999, three of the Bangalore PSEs – Bharat Electronics Limited (BEL), Hindustan Machine Tools (HMT), and Indian Telephone Industries (ITI) – reduced their permanent employees by at least 14,541 (RoyChowdhury, 2003, p. 37).

However, despite this drop in official employment numbers, factories like BEL are still full of people. While previously almost all components of a product were made in-house, to address complaints of inefficiency and worker idleness PSE managements massively expanded subcontracting. The people who used to run the buses or cleaning services are now contract workers not fully employed by BEL. Private staffing companies will provide things like canteen and cleaning services, at a fraction of the cost. As one former managing director explained to me, “Earlier everything was done by our own people – cleaning, catering, canteen services. The standards of payment being very high. We thought it would be more economical to subcontract. ... We used our own drivers for our own buses. Now cars are all outsourced to taxi services. Security, outsourced ... Once they retire, we sell those buses and ask someone else to do it. So maybe gradually you will see nothing will be there” (personal communication, 31 May 2010). Outside of the factory, increased subcontracting has led to further growth of Peenya, a vibrant industrial area of small-scale producers located near HMT and BEL, which employs many workers, but they do not enjoy the same benefits and protections as PSE employees.

While unions have partly stemmed the tide of these changes, the power of labor to resist has drastically declined (RoyChowdhury, 2003). Increased international economic competition after 1991, combined with the explicit national policy position to disinvest from PSEs, gave more power to management in negotiations with workers. Management took globalization as an opportunity to pursue a different strategy to secure concessions from labor. A former PSE managing director shared that, “We started telling, ‘You are inefficient, so our costs are high. We are not getting orders. You have to tighten your belt. If you tighten your belt, then we can try to compete.’ This measure was given to unions. Now unions have realized, ‘Yes, we also should compete’” (personal communication, 31 May 2010). A former PSE trade union president concurred: “The general power of the unions has come down. In some cases, the managements are also equally helpless ... because the external situation for them is also very bleak, and in that kind of a situation they can’t do justice to the expectations of the workers and the unions, because the external factors are loaded against them” (personal communication, 6 June 2010). This new imbalance at the bargaining table against the background context of globalization is an important factor in the decline of trade union power.

The neoliberal city embodies both the decline in the significance of the public sector, as described above, as well as the rise in new economic forces fueled with global financial capital. The emblematic example of this in Bangalore is the rise of the IT sector. Yet IT did not emerge purely from the entrepreneurial spirit of the founders and CEOs of the new companies, but had a long legacy of direct and indirect state support (Evans, 1995; Heitzman, 2004; Nair, 2005). One way was by drawing upon the local workforce of skilled engineers and managers that had been fostered by PSEs. A former PSE managing director said that it was the public sector that, “Provided a trained workforce, particularly in the case of electronics industries. A lot of middle managers, lot of young engineers in their first 10 years of their career, were taken by these private companies – multinationals and also Indian companies – and they provided the nucleus for these new industries” (personal communication, 18 May 2010). The Central Machine Tool Institute, which trained many engineers and designers who have started their own successful private firms, was sited by the Government of India in Bangalore

because of its proximity to Hindustan Machine Tools (Holström, 1994). In the 1980s, BEL and ITI lost many of their integrated circuit designers to Bangalore tech companies like Texas Instruments and Motorola (Parthasarathy, 2000). Engineering firms like Larsen & Toubro benefitted from the engineers and managers trained in Bharat Earth Movers Limited, which then offered the employees a better salary than they were getting in a PSE job. Founder of Infosys, N.R. Narayana Murthy, said in an interview that “manpower availability in the south was the primary” reason for moving to Bangalore in 1983 (Parthasarathy, 2000, p. 395).

An important part of the legacy of PSEs is the children of its workers who are now often employed in IT companies. Nagesh, son of retired BEL worker, Annapoorna, said that when he was growing up, “every kid wanted to have a job in the government [both PSEs and government bureaucracy] or in a bank, but now everyone wants to work for IT” (personal communication, 4 June 2010). A survey of IT workers in Bangalore showed that 21% of the workers’ fathers were executives in public sector companies, and another 21% were government officers (Upadhy, 2007, p. 1863). Upadhy’s (2007) survey also shows that IT workers tend to be from middle- to upper-class and caste backgrounds. The survey found few workers from rural areas (5%) and non-upper or dominant castes (14%) (Upadhy, 2007, p. 1864). The survey additionally found no disadvantaged caste employees, compared with the 42.8% of the workforce in public sector enterprises that is from disadvantaged castes nationally (Department of Public Enterprises, 2008, p. 48). Unskilled workers from rural areas with minimal education and English skills can indeed find jobs inside IT companies, but it is often as a cleaner or food services worker under contract. This contrasts starkly with the secure employment with substantial benefits provided by public sector companies for even low-skilled workers.

The rise of IT has seen the parallel rises of financialization and real estate development, and land is one of the key commodities the state helps to regulate. International finance capital along with local developers and financiers work together with state actors to gain access to land for residential and commercial real estate development (Goldman, 2011; Rouanet & Halbert, 2016). “Economic growth” now comes under the definition of the “public purpose” that must be justified to use eminent domain, so anything that claims to generate economic activity can be justified. A crucial difference is that whereas before the state would acquire land for the benefit of workers, now the state will use eminent domain to turn over land to speculative real estate developers to build housing and amenities for elites.

Today, the dismantling of the public sector is crucially a question of the land that PSEs occupy. A report by McKinsey Global Institute identified access to land markets as the most important inhibition to growth, even ahead of the general critiques of the inefficiency of the public sector (Ghertner, 2015). As PSEs are being sold off for parts under the national PSE divestment strategy, land has become an important token for government officials in land deals. In 2012, the Ministry of Heavy Industries proposed establishing a Public Sector Land Development Authority to help sell off the estimated 20,000 hectares nationally of vacant land from faltering PSEs (Tiwari, 2012). While the Authority never came to fruition, the Central government is still attempting to sell an estimated \$8.4 billion⁸ in land and other assets from troubled PSEs around the country (Tiwari, 2016).

Bangalore is not excluded from these deals with public sector land. Now that PSEs are no longer situated in the periphery but the heart of the city, the land they sit on is prime real

estate. ITI, HMT, and the New Government Electrics Factory (NGEF) have been a particular focus in the city. Michael Fernandes, former ITI trade union leader, sees state giveaways of lands to speculative developers happening all over the country, but particularly in Bangalore: “So therefore whether it is Center or State, they belong to one caste. The land-grabbing caste” (personal communication, 6 June 2010). Both NGEF and HMT have found themselves in controversy of accusations of selling land well-below market value and on improper terms (Economic Times, 2013; Rochan, 2005). But little has slowed the momentum to create the image of the world city. The Aquila Heights apartments were built for \$80.5 million on the HMT Main Road, right in the middle of the township. Starting at about \$200,000 one can buy a three-bedroom apartment with helipad access in one of the tallest building in Bangalore. In this terrain, the cooperative housing societies are adapting. The BEL Housing Cooperative Society has a newly updated website that features the new layouts and apartment complexes they are building, complete with pools and fitness centers to match the changing housing tastes in the neoliberal city.

Conclusion

One day when I was walking through the BEL housing layout, I struck up conversation with a young man named Nagesh who worked for Accenture. He brought me home to meet his mother, Annapoorna, who was a retired officer at BEL. She said that while she experienced many challenges a woman and a mother entering into the industrial labor force in a country where such roles for women have historically been less prevalent, her job at a public sector company was a pathway to create a middle-class life for her family. Two of her three sons went to the BEL school for some of their schooling, and all went to college. Nagesh went to one of the first classes at the new BEL college, and now works in an IT company where high wages and pool tables appeal to self-ambitious younger workers, but job security is precarious where unions are absent to protect employees. One son lives in Australia, and the money from Annapoorna’s early voluntary retirement payment allowed them to add another level to their home.

The legacy of the public sector is that it created much of the conditions out of which the IT sector grew. What was created, in the words of former trade union leader C. Balakrishnan, was a “scientific, technological, managerial intelligentsia,” which flourished in Bangalore, and had lasting effects both in the city and elsewhere in India (personal communication, 28 May 2010). As a result, many of these new high-tech companies were able to take off quickly from the experience gained in the public sector. Indeed, the development pattern of Bangalore does have many similarities to the US Silicon Valley, as Hillhorst’s (1998) quote at the beginning of this article suggests, but it was not, as he argued, because the state played no part in its development. Despite the image of Silicon Valley being built in the garages of brilliant entrepreneurs, the region grew because it was the site of massive inflows of federal defense investments, which in conjunction with local universities, helped create an ecosystem filled with skilled workers conducive to the expanding sector (Saxenian, 1985). Similarly, the investment by the central government, largely in the defense sector, laid much of the important groundwork for the eventual growth of IT in the Bangalore, as well as created numerous public and private goods to form the foundation of a middle-class city.

One former managing director captures some of the dilemmas around the developmental project of PSEs:

There was a feeling in those days, and I think to some extent still continues, that being a government-owned company, it should act like an ideal employer. Of course the definition of ideal, it was left to each one to decide, which from the workers point of view meant that they should be paid well, they should have housing, they should have transportation, they should be fed well. And, you know, the idea was to generate employment, therefore overstaffing was accepted as a one of the responsibilities of public sector. A relaxed attitude towards work, won't make demands, that sort of thing. In other words, they were supposed to be model employers, but hardly a model company (personal communication, 18 May 2010).

While he frames the additional responsibilities of PSEs largely as a burden in the context of the profit-making goals of the company, it still demonstrates a different kind of productivity – where part of what the company is producing is the city itself and the capabilities of its residents. Similarly, IT is also producing the city, but on starkly different terms.

One must be careful of overly rosy accounts of the public sector. They still were places that nonetheless reproduced certain existing social inequalities, particularly with respect to gender and caste. Still, PSEs expanded the capabilities of their workers, while also building the foundations of a middle-class city. Despite some justified claims of inefficiency, they provided amenities and opportunities that were available to all workers, from sweepers and toilet cleaners, to directors and officers, as well as members of scheduled castes and scheduled tribes. The relative income gains in the post-liberalization period in India have gone to the top fifth of earners, who have increased their share of total national income from 36.7% in 1993–94 to 53.2% in 2009–10, while all other income quintiles have decreased their share of total national income (Shukla, 2010, p. 102). Despite the shortcomings of the public sector, it was arguably more accessible to the working class than today, and helped provide the social and material bases for a relatively secure life in Bangalore for broader sections of the city. As Drèze and Sen (2013) note: “The tragedy in India has been that most of the political debates have tended to avoid getting into the question of accountability of the public sector, either through rubbishing the public sector altogether, in contrast with the allegedly immaculate virtues of private enterprise, or through rubbishing the private sector, in contrast with an imagined world of dedicated public servants doing their social duties with admirable efficiency and humanity” (p.65). An account of the neoliberal city that either ignores or minimizes the history of the public sector erases its positive contributions, despite its shortcomings, and removes the possibility of alternatives to the neoliberal city.

Notes

1. “Disadvantaged castes” here and below is a shorthand term to refer to the official Government of India designation of scheduled castes, scheduled tribes, and other backward castes.
2. For example, at some defense-related PSEs, companies would shift employee efforts to manufacturing things like hair clips and pressure cookers to maintain employment during times of overproduction of defense materials (Akbar, 1988).
3. “Central” refers to those enterprises under the purview of the national government. The city was also home to many state level public sector enterprises.

4. Despite these positive contributions, cooperative societies also have a significant history of financial corruption (Nair, 2005).
5. This is not to discount that these industries were nonetheless also substantial economic and employment engines in the city.
6. The Indian Institute of Science is the highest ranked Global University in India in 2016, according to the U.S. News and World Report. <http://www.usnews.com/education/best-global-universities/indian-institute-of-science-505956>, Accessed 8/27/2016.
7. Annapoorna also notes that there was a downside to being a woman in the workforce: “But we had lost so much, you know, by going and working in outside, being a lady, we had not given lot of care to our children. We have left our children under servants and gone. 8 hours we have to be in the factory. So that way my children have lost lot of this whatever they used to get from me.”
8. This was reported as ₹ 565 billion and converted into 2017 US dollars.

Acknowledgments

Thanks to Gay Seidman, Jane Collins, Erik Olin Wright, and Walker Kahn for guidance and comments on previous drafts. Special thanks to Michael Goldman for extensive support with this project.

Disclosure statement

No potential conflict of interest was reported by the author.

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