DETERMINANTS OF EMPLOYMENT SITUATION IN LARGE AGGLOMERATIONS IN INDIA: A CROSS-SECTIONAL STUDY

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Abstract

The present paper analyzes the employment situation in different class of cities in urban India. By focussing on 52 large urban agglomerations in India and using latest unit level National Sample Survey data for the year of 2011-12 on employment and unemployment, it investigates the relevant city specific determinants of city-wise work-force participation rate (WPR). Finally, it reviews the current and past employment policies in India. The analyses show that though urban India has been witnessing an increase in the number of total job opportunities, WPR in the large cities have declined over the years. The regression results show that indicators like city-wise average land owned by a person, city-wise percentage of persons receiving any vocational training, percentage of persons currently registered with any placement agency, city size population and city output growth have a positive effect on city-wise WPR. Finally, the paper suggests that education of the worker, vocational training, and placement agencies are needed for successful job creation in the large agglomerations in India.

Keywords: Urban Agglomeration, employment, urban India
JEL classification: R1, J21

1. Introduction

India is on the threshold of becoming one of the world's fastest growing economies due to the policy reforms adopted in the recent decades. Among the various policy reforms, promotion of urban agglomeration is one of the most important and acclaimed ones. It is also considered unavoidable for the country's future development by the government presently in power. Recently, government of India has embarked on the mission of "Make in India" to encourage multinational and domestic companies to manufacture their products in India which is meant to attract a huge amount of Foreign Direct Investment (FDI). The main objective behind this mission is to increase job opportunities and skill development in the economy by adopting industry friendly policies. In fact, one of his lectures, Hon'ble Prime Minister Mr. Narendra Modi has said that "Young Indian are not seeking high paying jobs, they prefer becoming entrepreneurs".

Concurrently, Government is promoting urban agglomeration in a big way by making 100 smart cities in India, which is under implementation on priority basis. The proposed investment in the smart city project is about Rs. 48 thousand crore in the coming years. The main features of the smart city development include promotion of mixed land use in area based developments; urban housing and inclusiveness; creation of walk- able localities; making governance citizen-friendly and cost effective; preserving and developing open spaces; promoting variety of transport options; and applying smart solutions to infrastructure and services in area-based development.

On the whole, it is clear that India is currently undergoing a transformation and promotion of urban agglomeration and industrialization is an inevitable part of this process. This transformation will make India as one the fastest growing countries in the world in the days to come. In this backdrop, the present paper tries to see what factors actually contribute to higher employment generation in large agglomerations in India. In addition, the paper evaluates the past and current policies of government of India intended to enhance job opportunities and also impart the necessary skills to make the population employable in the emerging high-tech industries.

Now let us discuss in more detail about economic growth and employment situation in urban India, in the context of the present emphasis on urban agglomerations. Urban development in India is characterised by higher urbanization rate and higher economic growth. Annual exponential growth rate of urban population increased from 2.75 percent

during 1991-2001 to 2.76 percent during 2001- 2011. Consequently, the share of urban population in the total increased from 27.86 percent in 2001 to 31.16 percent in 2011. As per 2011 Census, the absolute increase in population was more in urban areas than in rural areas. A McKinsey Global Institute study "India's Urban Awakening: Building inclusive cities, Sustaining Economic Growth" (MGI, 2010) projected that nearly 590 million Indians will be living in cities by 2030. This clearly points to the increasing trend in India's urbanization in the recent decades as also the decades to come. The draft report of "Regional Plan 2021: National Capital Region" (GOI, 2013) estimated that about 42.6% of India's urban population is concentrated in 53 metropolitan cities (cities with a million plus population as per the Census definition). The four major metropolitan cities in India, namely, Mumbai, Kolkata, Chennai and Delhi together account for 15.4% of the total urban population of India. As per the Census data, 42.6 (or 70.24) percent of urban population lived in 53 metropolitan cities (or 468 Class I cities) in India in the census decade 2001-2011. Most importantly, the 2014 revision of the World Urbanization Prospects found that Delhi with a population about 25 million has become the world's second most populous city in 2014 after Tokyo which has an agglomeration of 38 million inhabitants (UN, 2014). These facts and figures clearly show that India's increasing urban population is mainly getting concentrated in and around large or class I cities.

Urban India contributes over 50% of the national Gross Domestic Product (GDP). The share of urban economy in the total increased from 37.65% in 1970–1971 to 52.02% in 2004–2005. The growth rate of urban NDP at constant prices (1999–2000) was about 6.2 % in the period from1970–1971 to 2004–2005, which is much higher than the growth rate of India's national NDP which was about 4.87 % during the same period. Mid-Term Appraisal of the Eleventh Five Year Plan shows the urban share of GDP was about 63 per cent for 2009-10, and this share is projected to increase to 75 percent by 2030. A study by Indian Institute for Human Settlement (IIHS), "Urban India 2011: Evidence" (IIHS, 2012) estimated that India's top 100 largest cities are currently producing about 43% of the GDP, with 16 % of the population and just 0.24% of the land area .

Urban India also has experienced an increase in total employment in different periods of time. As per the latest rounds of the National Sample Survey (NSS), The total workforce (as per Current Daily Status basis) in urban India increased from 82 milion in 1993-94 to 136.5 million in 2011-12, an increase of about 66 % (See Table 1 for details). Among the different periods of time, percentage increase in total employment was the highest (i.e., 22 %) from 1999-00 to 2004-05 and it was the lowest (i.e., 7 %) from 2004-05 to 2009-10.

The Compound Annual Growth Rate (CAGR) of total urban employment was about 2.87% in the period of 1993-94 to 2011-12. Most importantly, CAGR of total urban employment was the highest (i.e., 5.52 %) in the period from 2009-10 to 2011-12 and the lowest (i.e., 1.29 %) in the period from 2004-05 to 2009-10. Growth rate of male (or female) employment was about 2.92 % (or 2.67 %) in the period of 1993-94 to 2011-12. Within this entire time period, the annual growth rate of male employment was the highest (or i.e., 4.6 %) during the period 2009-10 to 2011-12 and the lowest (i.e., 2 %) in the period 2004-05 to 2009-10. On the other hand, the growth rate for female employment was the highest (or 9.42 %) in the period 2009-10 to 2011-12 and the lowest (i.e., -1.51 %) in the period 2004-05 to 2009-10.

Table 1: Employment situation in urban India

NSS Survey Year	Total urban employment (million)			CAGR of total urban employment (%)		
	Male	Female	Total	Male	Female	Total
1993-94	65	17	82	-	-	-
1999-00	76	18	94	2.64	0.96	2.30
2004-05	90.4	24.6	115	3.53	6.45	4.12
2009-10	99.8	22.8	122.6	2.00	-1.51	1.29
2011-12	109.2	27.3	136.5	4.60	9.42	5.52

Source: Author' calculation based on Employment and Unemployment Surveys by National Sample Survey Office, various rounds.

On the whole, the statistical data indicate an increasing trend in India's urbanization process (measured by the demographic approach), higher urban economic growth and also employment situation. However, detailed analysis by Bhalla and Kaur (2011) found that percentage of labour-population in the age group 15-19 in urban areas declined from 61.8 % in 1983 to 52.2 % in 2007-08. Most importantly, male (or female) labour population in age group 15-19 in urban areas declined from 88.6 % (or 23 %) in 1983 to 82.5 % (or 19.7 %) in 2007-08. According to International Labour Organisation (ILO) data, the worker (15 years and above) to population ratio was 53.6% in India in 2011, while it was 64.8% in Brazil and 70.9% in China. This indicates that labour participation rate in the Indian economy is nowhere near that in other developing countries [Shaw, 2013]. The report on Global Employment Patterns 2012 published by the International Labour Organisation (ILO) states that robust growth in India has been mostly associated with a rapid rise in labour productivity, rather than an expansion in employment.

World Urbanization prospects 2014 projected that India will add 404 million urban dwellers, between 2014 and 2050. In fact, it is estimated that between 2010 and 2030, an additional 250 million persons – many migrants from rural areas – will join the urban population in India (McKinsey Global Institute, 2010). It is also projected that an increasing number of large agglomerations in India will provide higher employment opportunities to absorb the new additions to the labour force in this period. This would happen only if urban planners and local governments implement job friendly environment in urban India.

Now the question arises about how India can improve actual employment prospects for its fast-expanding urban population. In this perspective, the present paper tries to analyse the recent employment situation in urban India by focusing on large cities in the different periods of time. In addition, using the latest (i.e., 68th Round) unit level data of the National Sample Survey in 2011-12 on Employment and Unemployment, it tries to find the relevant economic determinants of WPR by considering 52 large cities in India. Finally, it discusses the major policies which need to be considered by urban planners for increasing work participation rate in urban India. To the best of our knowledge, this paper is the first study that evaluates the determinants of city level employment in India by considering availability of limited unit or individual level urban employment data.

Rest of the paper is organized as follows. Section 2 presents the review of literature. Employment situation in different size/class of cities in urban India is discussed in section 3. Section 4 explains the empirical framework and results for estimation of determinants of city-wise work-force participation rate. Evaluation of past and current policies is summarized in section 5. Finally, conclusions and discussions are highlighted in sections 6 and 7 respectively.

2. Select review of literature

There are several studies (e.g., Mehrotra et al. 2014; Maiti, 2015; IHD, 2014; Bhalla and Kaur, 2011; Papola and Sahu, 2012) that have tried to understand the trends and patterns of employment and unemployment in India. Mehrotra et al (2014) make a detailed review of these studies, in the context of the situation in India. The study found that India experienced an absolute fall in agricultural employment and a rise in non-agricultural employment for the period of 1993-94 to 2011-12. On the other hand, a fall in demand for manufacturing exports and increasing capital intensity resulted in a decline in manufacturing employment in the years 2004-05 to 2009-10. Bhalla and Kaur (2011) found that India has been witnessing one of the lowest labour force participation rates for women in the world, especially, urban women. Maiti (2015), using Behavior over Time Graph (BOT) variables such as economic growth, education and labour force, finds that unemployment is decreasing over time, and employment in India is challenged by major factors like economic crisis, gap between curriculum and industry demand, and jobless growth. Most importantly, India Labour and Employment Report (IHD, 2014), states that while India is counted as one of the most important emerging economies of the world, its employment scenario is abysmal. Overall, labour-force to population ratio (age group 15 years and above) at 56 per cent is low in India compared to nearly 64 per cent for the rest of the world. In India, a large proportion of workers (i.e., 49 %) are engaged in agriculture; in contrast, employment share in service

sector (or industry) is just 27 % (or 13 %). About 92 % of workers are engaged in informal employment with low earning with limited or no social protection. Papola and Sahu (2012), using NSS data for the period of 1993-94 to 2009-10, have provided a detailed explanation of the trends and patterns of employment across different sectors in India. The study argues that there is need for creation of new jobs and improvement of quality of the existing jobs in order to achieve faster economic growth.

However, there are few studies that statistically measure urban employment in the specific context of India. Chen and Raveendran (2012) explore the trends in urban employment in India, with special focus on urban informal employment, by considering three rounds of National Sample Survey data for the year of 1999-00, 2004-2005 and 2009-10, respectively. The descriptive analysis shows that though the proportion of urban self-employment increased between 1999-00 and 2004-05, it decreased between 2004-05 and 2011-12. However, between 2004-05 and 2009-10, the combined share of urban employment of different informal groups grew from 12 per cent to 41 per cent. A study by Shaw (2013) using NSS Employment and Unemployment Survey data for the year of 1999-00, 2004-05, 2009-10, and 2011-12 pertaining to both urban and rural employment scenario found that the proportion of workforce moving towards to non-farm activities has increased over the years along with a fall in the proportion of workforce engaged in casual wage-employment. Chowdhury's (2011) analysis reveals the grim employment situation in India. Author cites the drastic reduction seen in total employment in India during the years 2004-05 to 2009-210 due both to the widespread withdrawal of population from the labour force (especially women) and the and slow growth of employment in the non-agricultural sector in support of his argument. The paper also finds that the spread of education among the youth is a positive development but does not by itself explain the decline of labour force participation rate. Ramaswamy and Agrawal (2012) found that manufacturing employment in urban India grew at a faster rate (2.8 per cent) relative to all-India (1.8 per cent) over the period 1999–2000 and 2009–10. Its growth rate was higher relative to the earlier period of 1993–99. A little less than 50 per cent of the employment created in India was accounted for by the urban sector in the 2000s. More than 85 per cent of the jobs created in business services and more than 80 per cent of the jobs in total manufacturing were in the urban sector. Most importantly, IIHS (2012) using data from Economic Census, found that workforce participation rates are highest in the "major metros" (population 4 million plus), and employment in "high-tech" sector (ICT, high technology manufacturing, and fast growing exports) is also highly concentrated in the large cities. Further, the pattern of employment growth around the India's largest cities shows that manufacturing activity is shifting outwards from the city core. Manufacturing activities in general are spreading outward within 10-100 km radius from the city centre, with high-tech manufacturing spreading to 10-50 km radius from the city centre, and medium high tech manufacturing and fast growing export manufacturing moving to a 50-100 km radius from the city centre. Finally, the report suggests that the spread of manufacturing and other employments away from the city core raises the issue of sprawl and links between land use and transportation.

3. Employment situation in different class of cities in urban India

Table 2 shows the percentage increase in employment situation in urban India in terms of difference in size/class of cities/towns form 1993-94 to 2011-12. As can be seen from Table 1, there exists in urban India, a stark difference in the pattern of employment between male and female. In this regards, Table 2 presents the disparities in employment scenario in urban India by considering usually employed (principal activity status -ps+ subsidiary activity status -ss-) male and female workers in different categories separately, rather than at aggregate level.

As can be seen from Table 2, the percentage of WPR declined during the years 1993-94 to 2011-12 for both male and female worker in all the all size/class of cities/towns in India, except for female workers in class 1 cities whose share increased by 9.94 %. [1] In contrast,

[1] It is important to note here that in this paper we have used Census data and National Sample Survey (NSS) data for the analysis. Census defines class 1 cities which have *population 100,000 or*

the percentage of WPR increased during the years 1999-00 to 2004-05 for both male and female worker in all the size/class of cities/towns of India. During this period, the percentage increase (i.e., 21.79%) was higher for female workers in class 2 cities/towns than others. In addition, the percentage of WPR marginally increased in the period from 2009-10 to 2011-12, except for male workers in class 2 cities. However, it is seen that the percentage of WPR for all categories of urban workers registered decline during the years from 1993-94 to 1999-00 and 2004-05 to 2009-10.

Table 2: % increase of per 1000 distribution of usually employed (ps+ss) persons aged 15 years and above by status of employment for different size/class of cities/towns in different periods of time.

Different Category	Time span	all class 1 cities	size class 2	size class 3	Urban India	all class 1 cities	size class 2	size class 3	Urban India
		Male				*Female*			
WPR	1993-94 to 1999-00	-2.87	-1.97	-1.92	-2.08	-2.76	-11.82	-13.17	-11.66
	1999-00 to 2004-05	2.28	1.34	1.44	1.46	12.50	21.79	13.11	15.23
	2004-05 to 2009-10	-3.81	-2.65	-2.83	-3.01	-15.66	-18.35	-25.36	-19.38
	2009-10 to 2011-12	1.77	-1.09	0.40	0.14	19.16	0.56	5.34	6.56
	1993-94 to 2011-12	-2.74	-4.34	-2.94	-3.52	9.94	-11.82	-22.78	-12.56
Self-employed	1993-94 to 1999-00	4.25	-2.63	2.83	0.00	24.82	-3.46	4.58	1.35
	1999-00 to 2004-05	7.34	12.75	3.17	8.19	8.52	5.59	4.19	4.20
	2004-05 to 2009-10	-2.03	-12.83	-7.79	-8.69	-13.35	-13.14	-14.81	-13.38
	2009-10 to 2011-12	-2.07	6.48	-0.22	1.95	7.85	3.66	8.37	4.41
	1993-94 to 2011-12	7.37	1.91	-2.39	0.72	26.60	-8.21	0.60	-4.48
Regular wage/ salaried	1993-94 to 1999-00	-5.56	0.00	-3.65	-1.65	-8.08	11.30	33.13	14.33
	1999-00 to 2004-05	0.39	-8.45	-0.32	-2.63	0.96	8.06	3.76	7.76
	2004-05 to 2009-10	0.78	10.00	-1.90	3.19	9.47	14.92	5.43	9.97
	2009-10 to 2011-12	5.81	-3.73	9.35	3.57	0.00	3.37	17.17	8.56
	1993-94 to 2011-12	1.11	-3.05	3.04	2.35	1.58	42.86	70.63	47.10
Casual labour	1993-94 to 1999-00	14.02	7.10	-0.47	3.75	-16.11	-7.63	-22.49	-18.39
	1999-00 to 2004-05	-23.77	-10.24	-6.67	-13.25	-28.00	-24.31	-11.45	-21.60
	2004-05 to 2009-10	4.30	14.09	22.45	18.06	0.00	5.45	29.74	17.37
	2009-10 to 2011-12	-22.68	-6.47	-11.67	-13.53	-27.78	-16.67	-26.25	-26.53
	1993-94 to 2011-12	-29.91	2.58	0.47	-8.13	-56.38	-38.56	-34.32	-44.83

Note: Class 1 cities (with a population of one million or more), class 2 towns (with a population 50,000 to less than one million) and class 3 towns (with population less than 50,000) as per the National Sample Survey definition.

Source: Author's calculation based on Employment and Unemployment Surveys by National Sample Survey Office, various rounds.

Analyses also show that while the period 1993-94 to 2011-12 witnessed a marginal increase in the percentage of self employed male but it has decreased in the percentage of self employed female in all India urban area. During same period of time, the proportion of female self-employed workers of class 1 cities in India registered a higher increase (i.e., 26.6 %) than other groups in different size/class of cities and towns in India. Most importantly, the percentage of self-employed increased during the period 1999-00 to 2004-05 but decreased during the period 2004-05 to 2009-10 in all categories of size/class of cities in India irrespective of any gender differences. In the period of 2009-10 to 2011-12, the percentage of self employment rate increased for all categories of cities and towns except for the male working in class 1 and 3 cities/towns in India.

In the case of regular wage/salaried workers, except female working in class 2 cities, other all categories of both male and female in different size/class of cities/towns in India experienced a positive percentage change in the period 1993-94 to 2011-12. Most importantly, the percentage of female wage/salaried workers registered a higher percentage

more. At the Census 2011, there are 468 such cities. On the other hand, NSS defines class 1 cities which have population of one million or more. We have mentioned it clearly whenever we have used these two different definitions throughout this paper.

increase than the male wage/salaried workers during the same period of time. In overall, there was an increase in the percentage of female wage/salaried workers in different periods of time in different size/class of cities/towns excepting the percentage of female wage/salaried workers in class1 cities during the period of 1993-94 to 1999-00. In contrast, the percentage of male wage/salaried workers decreased or remained constant during the years 1993-94 to 1999-00 for all class/size cities/towns in India. In addition, the results also show that the percentage of male wage/salaried workers in class 3 cities declined in different periods of time except 2009-10 to 2011-12. On the other hand, the percentage of male wage/salaried workers in class 1 cities increased in different periods of time except the period of 1993-94 to 1999-00 in different size/class cities in India.

Finally, the figures show that the percentage of casual labour declined for both male and female in different size/class of cities/towns in India except for male casual labourer working in class 2 and 3 cities and towns in India during the years 1993-94 to 2011-12. Overall, there was a decline in the percentage of casual labour in different class/size of cities/towns in India except during the period of 2004-05 to 2009-10 for both male and female categories.

In general, Table 2 clearly shows that the decline in the percentage of WPR from 1993-94 to 2011-12 for both urban male and female in India is associated with the percentage increase in male self employed persons and regular wage earners among both male and female workers and the percentage decline in casual labourer among both male and female workers along with percentage decline in the percentage of self employed female workers.

4. Empirical framework for the Estimation of Determinants of WPR in large cities in India

The basic econometrics model for the estimation of the determinants of WPR is stated as follows:

$$WPR_i = \alpha_0 + \sum_{i=1}^{11} \alpha_i x_i + e_i \quad \text{..... (1)}$$

WPR_i refers to city-wise work-force participation rate, X_1 refers to city-wise average land owned by a person, X_2 refers to percentage of persons currently registered with any placement agency, X_3 refers to city-wise percentage of persons receiving/received any vocational training, X_4 refers to city population, X_5 refers to city-wise percentage of people literate without formal schooling, X_6 refers to city output growth rate, X_7 refers to city inequality level, X_8 refers to city-wise percentage of not literate persons, X_9 refers to city-wise percentage of city slum population, X_{10} refers to city-wise percentage of persons literate up to middle , X_{11} refers to CAGR of city population from 2001 to 2011. Equation (1) has been estimated by the technique of OLS.

For the analysis, we have selected 52 large cities (or agglomerations) in India. [2] There are several reasons behind the selection of these large agglomerations as units of analysis. First, because of non-availability of city- specific data for a large number of variables used in this study (e.g. city level income and employment data), city district (where the sample city in located) is used as a proxy of a city. Larger cities are good proxies for city districts as they cover large portions of the respective districts compared to smaller cities. Second, as India's urbanization (i.e. share of urban population) is mainly based on Class I cities (with a population of more than 100,000 as per Census definition), these cities are also taken as Class I cities.

[2] A total of 58 cities are listed in the World Urbanization Prospects 2011. We also consider Bhiwandi city, which is not listed in the World Urbanization Prospects 2011 but was listed in World Urbanization Prospects 2009. Due to unavailability of district domestic product (DDP), we consider only 52 cities (with population 750,000 or more) out of these 59 cities for our analysis. It is important to note here is that, as per the 2011 Census, there were 53 metropolitan cities (cities with a million plus population as per the Census definition) in India and 42 cities among these 53 metropolitan cities are included in our analysis.

Measurement of variables, data sources, and description of data

Appendix Table A.1 lists the cities used in the analysis. Appendix Table 2 summarizes the descriptions, measurements, and data sources of all the variables used in the estimation Equation 1. Table 3 elucidates the means, standard deviations, minimum, and maximum values for the variables used for the regression estimation. Dispersion about the mean is higher for city population size, percent of persons currently registered with any placement agency of the age 15 to 45 years, percent of persons literate without formal schooling, CAGR of city population from 2001 to 2011, and city-wise average land owned by a person. On the other hand, dispersion about the mean is lower for city-wise percent of persons literate up to middle school, workforce participation rate, city level inequality, and city output growth rate from 2001 to 2005. Table 4 shows the raw correlation of the variables. The values of the correlation coefficient (r^2) shows that workforce participation rate is positively associated with the city-wise percent of persons receiving/received any vocational training (i.e. r^2 is 0.52) and % of persons currently registered with any placement agency (i.e. r^2 is 0.46). On the other hand, workforce participation rate is negatively associated with persons literate without formal schooling (i.e. r^2 is -0.33) and city-wise percent of persons not literate (i.e. r^2 is -0.22).

Table 3: Description of data

Variable	Mean	Std. Dev.	Min	Max	Coefficie-nt of Variation
Workforce Participation Rate (WPR) in 2011-12 (in %)	37.43	6.12	22.91	50.69	16.3
City-wise average land owned by a person in 2011-12 (in hector)	194.88	204.55	8.44	975.88	105
% of persons currently registered with any placement agency of the age 15 to 45 years in 2011-12	10.52	10.70	0.00	42.48	101.7
City-wise % of persons receiving/received any vocational training in 2011-12	15.80	11.13	0.98	47.58	70.5
Literate without formal schooling in 2011-12 (%)	0.70	0.70	0.00	2.74	101.2
City population in 2011 (in lakh)	27.63	38.35	7.11	184.00	138.8
City output growth rate from 2001 to 2005	5.08	2.75	0.01	13.29	54.2
City level inequality in 2011-12	0.32	0.06	0.18	0.51	18.9
City-wise % of not literate persons in 2011-12	20.49	7.79	7.08	42.49	38
% of city slum population in 2011	18.75	11.98	0.20	48.56	63.9
City-wise % of persons literate up to middle in 2011-12	40.03	5.29	26.17	54.49	13.2
CAGR of city population from 2001 to 2011 (in %)	4.83	3.98	0.87	19.62	82.5

Source: Author

Table 4: Correlation Coefficient of determinants WPR in large cities

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Workforce Participation Rate (a)	1.00											
City-wise average land owned by a person (b)	0.12	1.00										
% of persons currently registered with any placement agency of the age 15 to 45 years (c)	0.46	-0.19	1.00									
City-wise % of persons receiving/received any vocational training (d)	0.52	0.06	0.15	1.00								
Literate without formal schooling (e)	-0.33	0.02	-0.21	-0.11	1.00							
City population (f)	0.18	-0.21	0.06	-0.02	0.01	1.00						
City output growth rate (g)	0.11	-0.05	0.09	-0.10	0.06	0.14	1.00					
City inequality level (h)	0.16	-0.13	0.29	0.18	-0.11	0.21	-0.12	1.00				
City-wise % of not literate persons (i)	-0.22	0.13	-0.45	-0.18	0.26	-0.22	-0.21	-0.33	1.00			
City-wise % of city slum population (j)	0.04	0.03	-0.10	0.19	-0.10	-0.07	-0.22	-0.04	0.13	1.00		
City-wise % of persons literate up to middle (k)	0.10	0.14	0.03	0.27	-0.01	-0.18	0.09	-0.26	-0.18	0.08	1.00	
CAGR of city population (l)	-0.03	-0.32	0.22	-0.10	0.01	0.20	0.37	0.09	-0.16	-0.46	0.11	1.00

Note: The correlation coefficients are based on 52 observations.

Source: Author

Results of the estimated OLS model

Table 5 summarizes the regression results of size models of the determinants of city WPR based on Equation 1 by employing the OLS method. City Workforce Participation Rate (per1000) for persons of age 15 years and above, according to usual status (ps+ss) in 2011-2012 is considered as dependent variable in the estimation. Regression analysis includes the set of controls of the best fit model for 52 large cities in India. [3] The regression explains 58% of the total variation in the dependent variable. A non-graphical test has been done by considering the Shapiro–Wilk test for normality. The statistically insignificant Z values do not reject the null hypothesis that the distribution of the residuals is normal.

The results show that city-wise average land owned by a person has positive and significant (at 10 % level) effect on city WPR. In particular, a 100% increase in city-wise average land owned by a person is associated with 0.5% increase in city WPR. This may be the case that average land holding increasing WPR by increasing self employment rate. City-wise percent of persons currently registered with any placement agency and receiving/received any vocational training has statistically strong significant effect (at 1 % level) on city WPR. The results show that a 10 % increase in the number of persons registered in any placement agency (or persons received vocational training) leads to 2.6 % increase in city WPR. This indicates that these two variables are very important factors for increasing city WPR in India. Size of city population has a robust statistically significant (at 1 % level) effect on city WPR. The results indicate that a 100% increase in city size population leads to 3.8% increase in city WPR. This is quite obvious as large urban agglomerations have a strong positive effect on employment opportunities, higher productivity per worker, and wages

[3] Other variables which did not show any impact on city WPR are city population density 2001, city-wise % of persons having diploma or certificate (below graduate level), city-wise % of persons having diploma or certificate (graduate and above level), City-wise % of persons literate and upper middle, poverty head count ratio, poverty gap ratio, squared poverty gap ratio, and mean per capita consumption measured by Modified Mixed Reference Period (MMRP).

through realization of higher economies of scale. However, city-wise percent of people literate without formal schooling has a statistically significant (at 1 % level) negative effect on city WPR. An increase of 10% in the percentage of people literate without formal schooling leads to 21.4 % reduction in city WPR. This indicates that lower level of education is one of the negative factors which decrease WPR in urban India. Finally, city output growth rate also has a very strong positive effect on city WPR. The coefficient 0.376 indicates that a 10% increase in city output growth rate increases city WPR by 3.8%. This indicates that higher economic growth is required for increasing city WPR in India. However, other variables that have statistically insignificant effect on city WPR are city inequality level, city-wise percent of not literate persons, city-wise percent of city slum population, city-wise percent of persons literate up to middle school, and CAGR of city population during years 2001 to 2011.

Table 5: Determinants of Workforce Participation Rate for large agglomerations in India

	Dependent variable: City-wise Workforce Participation Rate (per1000) for persons of age 15 years and above according to usual status (ps+ss) in 2011-2012
City-wise average land owned by a person in 2011-2012	0.005* (0.003)
City-wise % of persons currently registered with any placement agency of the age of 15 to 45 years in 2011-2012	0.26*** (0.061)
City-wise % of persons receiving/received any vocational training in 2011-2012	0.26*** (0.051)
City population in 2011	0.038*** (0.012)
City-wise % of people literate without formal schooling in 2011-2012	-2.14*** (0.694)
City output growth rate from 2001 to 2005	0.376** (0.172)
City inequality level in 2011-2012	-3.093 (12.33)
City-wise % of not literate persons in 2011-2012	0.136 (0.128)
City-wise % of city slum population 2011	-0.034 (0.063)
City-wise % of persons literate up to middle (up to class VIII) in 2011-12	0.002 (0.152)
CAGR of city population from 2001 to 2011	-0.210 (0.179)
Intercept	27.9*** (8.3)
R^2	0.58
Adjusted R^2	0.46
F statistics	9.36***
Mean VIF	1.39
Shapiro-Wilk test for normality (Prob>z)	0.76
No. of Observation	52

Source: Estimated using equation (1).

5. Evaluation of past and current policies on employment generation in India with focusing on urban employment

Table 6: Evaluation of past and current policies on employment generation taken in different Planning Period in India by focusing on urban areas

	Major employment challenges	Policy consideration
First Five Year Plan (1951-56)	Statistical measurement of employment and un- employment situation. Insufficient employment opportunities	Provision of better employment opportunities in rural sector. Reduction of unemployment or underemployment in urban sector.
Second Five Year Plan (1956-61)	Creation of employment opportunities Measurement of employment situation by considering the urban and rural sectors in different regions of the country Need of adequate data on the extent and nature of unemployment	1. Creation of labour opportunities by considering labour intensive policy (such as, construction work, railways, industries and Minerals, etc) in urban area.
Third Five Year Plan (1961-66)	Incorporation of urban employment with business, transport and industry. Inadequacy of data for building up a sufficiently detailed picture of the state of employment in the country as a whole and in its regional, urban and rural aspects.	Promote industrial development and enhancement of employment opportunities in urban area by considering different sectors. Establishment of skill and vocational or technical training centres to enhance the skill of the labourer for specific jobs of work.
Fourth Five Year Plan (1969-974)	Refinement of data for measuring employment and unemployment situation in rural and urban areas. Increase of employment opportunities.	Considerable emphasis on labour-intensive schemes such as roads, minor irrigation, soil conservation, rural electrification, village and small scale industries, housing and urban development. The industrial safety for the workers was considered by considering insurance scheme. Expansion of the intake capacity of the industrial training institutes
Fifth Five Year Plan (1974-79)	Enhancement of employment opportunities.	Reduction of urban unemployment by increasing employment situation in rural areas through improving agricultural productivity.
Sixth Five Year Plan (1980-85)	Progressive reduction of unemployment in the country Examination in some detail the main aspects of employment and unemployment in rural and urban areas based on the latest available data of N.S.S. surveys on employment and unemployment during 1972-73 (27th Round) and 1977-78 (32nd Round)	1. Increase scope for urban self-employment by providing work sheds within industrial estates, providing capital or institutional marketing support and by providing industrial home work.
Seventh Five Year Plan (1985-90)	Increase of productivity of the labour intensive informal urban sector through better urbanisation and introduction of modern technology.	Provision of housing is a highly employment intensive activity. The step-up of investment in housing envisaged during Plan Periods provided employment on a large scale, especially in urban and semi-urban areas. Provisioning for the welfare and working and living conditions of unorganised labour not only in the rural sector, but also in the urban areas. Regulation of Employment and Conditions of Services, Act, 1979, greatly improved matters for the unorganised urban workers.
Eight Five Year Plan (1992-97)	The higher incidence of urban unemployment which is much higher in urban than in rural areas. The improvement of quality of existing services which were lacking of inputs like credit and raw materials, facilities for skill development and space for carrying on such activities	Consideration of the importance of absorption of extra rural workers in urban area for increasing productivity and higher income opportunities. Creation of a favourable policy environment for the growth of entrepreneur-ship and self- employment in medium and large towns and cities were created.

Ninth Five Year Plan (1997-02)	To provide employment not only for the additions to the labour force during the Plan period, but also to reduce the back-log of unemployment accumulated from the past. Examination of both the consistency of the work opportunities with the skill attributes of the labour force and the quality of employment in terms of providing an adequate level of income for the workers.	Diversification of rural economy into non-farm activities to provide productive employment to the growing rural labour force in arresting migration from rural areas to urban areas. Promotion of infrastructural development in rural towns for expansion of activities with a high employment potential for rural workers. Reduction of the mismatch between the skill requirements of employment opportunities and the skill base of the unemployed.
Tenth Five Year Plan (2002-07)	Requirement of employment opportunities for the backlog of unemployment for the provision of gainful employment in excess of the addition to the labour force.	Promotion of urban sector development by converting rural land for urban use, reduction of stamp duty on transfer of property and laws facilitating private development of township – to increase the real estate growth, and thereby generate increased demand for construction and employment opportunities.
Eleventh Five Year Plan (2007-12)	Need to increase the volume of good quality employment along with higher rate of growth. Generation of productive and gainful employment, with decent working conditions, on a sufficient scale to absorb the growing labour force for achieving inclusive growth. Increase of female urban employment rate.	Increase of employment rate in manufacturing, construction and transport and communication sector. Taken up programmes for skill development and ensure of wider provision of social security for welfare of unorganized workers, particularly in sectors such as construction and transport. Encouragement of the corporate sector to move into more labour-intensive sectors. Encouragement of higher employment of women workers by providing various incentives. The creation of a formal relationship between the worker and the hiring establishment. To increase the volume of formal or regular employment
Twelfth Five Year Plan (202-17)	Concern of the negative employment elasticities in manufacturing sector. Problem of re-skilling the unskilled informal labour force.	Expansion of employment Opportunities. Simplification of regulatory framework for higher level of quality of employment. Skill development of the laborer including unorganized informal sector for achieving faster, sustainable and inclusive growth and for providing decent employment opportunities to the growing young population. Increase of female employment Improvement of educational qualification and vocational training of workers.

Source: Author's compilation from various Planning Period documents, GoI.

Table 6 shows that past and current government policies and programmes have tried the following: First, generation of substantial data on employment and unemployment in India by considering different categories; second, creation of employment opportunities in rural and urban sectors; third, enhancement of skill of the labourer by establishing skill, vocational and technical training centres; fourth, consideration of industrial safety for the workers by considering insurance scheme; fifth, increase of productivity of the labour intensive informal urban sector through organized urban development and introduction of modern technology; sixth, improvement of the welfare, working and living conditions of unorganised labour; seventh, absorption of extra rural workers in urban areas; eight, increase the volume of formal or regular employment; ninth, encouragement of employment for women worker by providing various incentives; and tenth, promotion of a formal relationship between the worker and the hiring establishment.

6. Conclusions

The paper has tried to explore the following three important issues. First, it presents the employment situation in different size/class of cities in urban India; second, using NSS 68th Round unit level data for the year of 2011-12 on employment and unemployment and by employing OLS regression model, it has tried to find out the most relevant economic determinants of workforce participation rate in large agglomerations in India; and third, it proposes major policies which need to be considered by urban planners in order to improve the employment situation in urban India through reviewing current and past government policies in this regard.

The paper finds that though urban India has experienced an increase in the number of total employment slots, work-force participation rate (WPR) in the large cities has shown decline

over the different periods of time. The decline in the percentage of WPR from 1993-94 to 2011-12 for both male and female for all India urban level is associated with the percentage decline in the number of both male and female casual labourers as also female self employed workers in all urban areas in India. The regression results show that city-wise average land owned by a person, city-wise percentage of persons receiving any vocational training, percentage of persons currently registered with any placement agency of the age of 15 to 45 years, city size population and city output growth have positive and statistically significant effect on city-wise work participation rate. On the other hand, city wise percentage of literate people without formal schooling has a negative and statistically significant effect on city-wise work-force participation rate. In addition, we did not find any impact of city inequality level, city-wise slum population and growth rate of slum population on city-wise work participation rate. Review of current and past policies on employment show that government of India has tried to produce substantial amounts of data on employment and unemployment situation in India. Policies are also being formulated to improve employment situation in India along with improving productivity through providing skills, safety, and welfare of the labourer. Finally, higher women employment generation is one of the main issues which are under consideration by the government of India.

7. Discussion

The study finds that city-wise percentage of persons receiving any vocational training has a significant impact on city-wise work participation rate. In this perspective, India Labour and Employment Report 2014 (IHD, 2014) reports that the levels of education and professional and vocational skills of the Indian workers are extremely low. Less than 30 per cent of the workforce has completed secondary education or higher, and less than one-tenth have had vocational training, either formal or informal. Therefore, in context of India, skill development and vocational education are critical areas of concern. In vocational training courses, India's net enrollment is about 3.5 million persons per year whereas the relevant figure for China is about 90 million and for the U.S. about 11 million. Therefore, India needs to ensure much higher enrollment rate in vocational training progremmes of its labour force in order to increase the work participation rate in urban areas. In addition, city-wise average land owned by a person has a positive impact on city-wise work participation rate. This indicates that land ownership by a person increases chance of self employment. The NSS survey estimates that half of all urban households are landless. [4] Our results suggest that landless people have less chance to participate in the workforce. Therefore, appropriate urban land reform policy is needed to increase urban work-force participation rate in India.

Results also suggest that there is a significant correlation between the percentage of people registered with any placement agency and the rate of workforce participation in urban India. As per the available information, here we consider potential laborers as those registered 'only in government employment agencies', 'only in private placement agencies', and in both government employment exchanges and private placement agencies. This indicates that those registering with placement agencies as seeking work or available for work (or unemployed) have better information regarding their job opportunities not only in different places but also their preferred places. Therefore, government needs to motivate workers to register themselves with placement agency for reducing the mismatch between labour demand (employer) and labour supply (employee).

Our results suggest that level of education of the worker is an important factor in increasing work-force participation rate. Recent census data on workers and their educational levels clearly indicate that a large share of the total Indian workforce is either illiterate or educated only up to the secondary level, which is indicative of the poor level of their competence. Most importantly, data reveals that out of about 55.5 million marginal workers seeking work in India, 21.9 million are illiterates and 20.9 million have studied below secondary level. In fact, recently Prof. Amartya Sen has argued that "India is the only

[4] http://www.livemint.com/Opinion/PUzqHSs3xejXk4hm2djTPM/How-many-Indians-are-landless.html, accessed on 3rd December, 2015.

country trying to become a global economic power with an uneducated and unhealthy labour force". [5] In line with Prof. Sen's views, this paper highlights the influence of education of the labourer on work-force participation rate.

Both population size of large cities and output growth rate in large cities have significant effect on work-force participation rate in India. In searching for reasons behind the formation of large cities we need to take note of the New Economic Geographic models (NEG) pioneered by Krugman (1991). NEG models explain that the agglomeration forces mainly come from pecuniary externalities by interacting among increasing returns, transportation costs, and movement of production factors. These factors not only increase employment opportunities in large cities but also allow selling the produced commodities at cheaper prices in cities than in rural areas, which in turn increases the real wage of the worker. But the main assumption behind this phenomenon is that the production process of the commodities should have taken place in the city as well so that we can have advantage of lower transport costs. Most importantly, Duraton and Puga (2004) argue that sharing the local infrastructure, matching between employers and employees, and learning new technologies are the major factors behind increasing returns to investment which mainly happens in the large cities. Recent empirical studies clearly show that large agglomerations have a positive impact on economic growth (e.g., Tripathi (2013) – in the Indian context) by creating better opportunities to workers. Therefore, promotion of large agglomeration will not only lead to higher economic growth but also creation of higher opportunities for workers. Finally, this paper supports the current government policies such as 'Make in India' and 'creation of 100 smart cities project' for its emphasis on better organized and industrialized urban agglomerations as also its potential to achieve higher and sustainable economic growth through providing best workable environment to workforce in India. [6]

Appendix

Table A1. Names of Cities Used in Regression Analysis

Agra (Agra), Aligarh (Aligarh), Allahabad (Allahabad), Amritsar (Amritsar), Asansol (Barddhaman), Aurangabad (Aurangabad), Bangalore (Bangalore Urban), Bareilly (Bareilly), Bhiwandi (Thane), Bhopal (Bhopal), Bhubaneswar (Khordha), Chandigarh@, Chennai (Chennai). Coimbatore (Coimbatore), Delhi@, Dhanbad (Dhanbad), Durg-Bhilainagar (Durg), Guwahati (Kamrup), Gwalior (Gwalior), Hubli-Dharwad (Dharward), Hyderabad (Hyderabad), Indore (Indore), Jabalpur (Jabalpur), Jaipur (Jaipur), Jalandhar (Jalandhar), Jamshedpur (Purbi- Singhbhum), Jodhpur (Jodhpur), Kanpur (Kanpur Nagar), Kochi (Eranakulam), Kolkata (Kolkata), Kota (Kota), Kozhikode (Kozhikode), Lucknow (Lucknow), Ludhiana (Ludhina), Madurai (Madurai), Meerut (Meerut), Moradabad (Moradabad), Mumbai (Mumbai), Mysore (Mysore), Nagpur (Nagpur), Nashik (Nashik),

Patna (Patna), Pune (Pune), Raipur (Raipur), Ranchi (Ranchi), Salem (Salem), Solapur (Solapur), Thiruvananthapuram (Thiruvananthapuram), Tiruchirappalli (Tiruchirappalli), Varanasi (Varanasi),Vijayawada (Krishna), Visakhapatnam (Visakhapatnam).

Note: City district (where the sample city in located) is used as a proxy of a city to measure all the variables (except population data) used in estimation of OLS regression of Equation

[5] http://www.indiandefensenews.in/2015/11/india-is-only-country-trying-to-become.html, accessed on 2nd December, 2015.

[6] Though there are many other government policies (e.g., Prime Ministers Employment Generation Programme (PMEGP), Mahatma Gandhi National Rural Employment Guarantee Act, Swaranjayanti Gram Swarozgar Yojana (SGSY), and Swarna Jayanti Shahari Rojgar Yojana (SJSRY)) which were formulated in past Planning periods , we mainly emphasize on 'Make in India' and 'creation of 100 smart cities project' as these policies are new and very much important for promotion of urbanization which will lead to higher economic growth and higher employment in urban India.

1 by considering urban sample persons (if data available for rural and urban separately) of that district. Name in parentheses indicates the name of the district in which the city is located.@Delhi and Chandigarh were considered as a whole proxy of a city district.

Appendix A2: Variable sources and definitions

Work-force participation rate (WPR)*(As given in NSSO):* The number of persons employed in *usual status* (ps+ss) per 1000 persons is referred to as work force participation rate (WFPR) or worker population ratio (WPR) in *usual status* (ps+ss). ***Usual principal activity status****:* The usual activity status relates to the activity status of a person during the reference period of 365 days preceding the date of survey. ***Usual subsidiary economic activity status****:* A person whose usual principal status was determined on the basis of the major time criterion could have pursued some economic activity for a shorter time throughout the reference year of 365 days preceding the date of survey or for a minor period, which is not less than 30 days, during the reference year. ***Usual activity status considering principal and subsidiary status taken together****:* The usual status, determined on the basis of the usual principal activity and usual subsidiary economic activity of a person taken together, is considered as the usual activity status of the person and is written as usual status (ps+ss). According to the usual status (ps+ss), workers are those who perform some work activity either in the principal status or in the subsidiary status. Thus, a person who is not a worker in the usual principal status is considered as worker according to the usual status (ps+ss), if the person pursues some subsidiary economic activity for 30 days or more during 365 days preceding the date of survey.

Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

City-wise average land owned by a person: This includes the following:

First, land owned by the household i.e., land on which the household has the right of permanent heritable possession with or without the right to transfer the title e.g., Pattadars, Bhumidars, Jenmons, Bhumiswamis, Rayat, Sithibans etc.

Second, land held under special conditions such as the holder does not possess the title of ownership but the right for long-term possession of the land (for example, land possessed under perpetual lease, hereditary tenure and long-term lease for 30 years or more).

Third, sometimes a plot may be possessed by a tribal in accordance with traditional tribal rights from local chieftains or village/district council. Again a plot may be occupied by a tenant for which the right of ownership vests in the community. In both the cases the tribal or other individual (tenant) will be taken as owner; for in all such cases, the holder has owner-like possession of the land in question.

Fourth, frequently, the land possessed by the household is *owned by the head of the family*, *who stays in a different town or village and therefore is not a member of the household*. In such cases the land should be regarded as not owned but *leased in* by the household.

Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

Persons currently registered with any placement agency: This includes persons registered only in government employment exchanges, only in private placement agencies, in both government employment exchanges and private placement agencies. Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

Persons receiving/received any vocational training : This includes persons who were receiving formal vocational training, received formal vocational training, and received non-formal vocational training through hereditary, self-learning, learning on the job, and others. Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

Literate without formal schooling: Persons who has got lower level education without formal schooling. Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

Large city population and its growth rate: 52 urban agglomerations 750,000 or more inhabitants in 2011 and growth rate of urban agglomerations over the period 2001 to 2011. Source: Census of India 2011, GoI.

City output growth rate: Growth rate of per capita non-primary District Domestic Product (DDP) over the period 2000-01 to 2004-05 at 1999-2000; constant prices are taken as

a measure of urban economic growth. Source: Directorate of Economics and Statistics (DES), various State Governments, GoI.

City inequality level: Gini coefficient of the large city districts by considering urban sample persons of that district. Source: Unit level data of NSS 2011-12 on consumer expenditure.

City-wise percentage of not literate persons: Percentage of people those are not literate. Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

City-wise percentage of persons literate up to middle: Percentage of people those have education up to class VIII. Source: Unit level data of NSS 68th Round on Employment and Unemployment in 2011-12.

Percentage of city slum population: Ratio of city slum population to total city population in 2011. *Source*: Census of India 2011, GOI.

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