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Comparative Study on Urbanization of Maharashtra and West Bengal in the Post Liberalization Era

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Abstract: ***This paper compares the urbanization pattern and growth of urbanization between West Bengal and Maharashtra after the post-liberalization era. Twenty years' time period is taken for the study i.e., from 1991-2011. This paper shows the inter-district urbanization pattern of the above states along with their growth rates and also inter-district disparity present in the states and the reasons for it. This paper also shows the urbanization in West Bengal and Maharashtra is affected by the changes in economic indicators, demographic and development indicator,and how they are related to urbanization. A brief comparison takes place between the population growth, sectoral comparison of Kolkata and Mumbai, which are the capital of these states respectively, is analyzed. The paper concludes that urbanization in Maharashtra is taking place at a faster rate and in a diverse way than that of West Bengal because of various factors mentioned in the study.***

Keywords: Post-liberalisation era, Urbanization, Maharashtra, West Bengal

1. Introduction

In recent years, most of the developing countries in the world are experiencing rapid urbanization compared to the developed countries. Rapid urbanization is one of the most important factors that are counted upon to promote urban lead economic growth in India. Urbanization can be described as a transition from an agriculturally based economy to an urban-based industry and service lead (i.e., non-agricultural) economy. Urbanization is the main engine of higher productivity and higher economic growth all over the world, its contribution to India's national income also has been increasing in tandem with urbanization. Migration has played an important role in the growth of cities and towns transforming rural into urban areas. Urbanization is related to better access to health care, education, transport, and financial resources.

Maharashtra, the home state of Mumbai, was a centre of commerce, industry, finance, and arts. West Bengal, the home state of Kolkata, was a centre of manufacturing, and it had the social and physical infrastructure that came with Kolkata's past as the long-standing capital of the British Empire. Over the next three decades, however, the two states' economies diverged as West Bengal under-performed relative to Maharashtra. Both states experienced growth, but West Bengal grew more slowly.

West Bengal, the eastern part of the country was one of the most urbanized states of the country as a result of colonial rule. The urban pattern was dominated by the city of Kolkata with a high degree of primacy. Industrial growth, initially dependent on the jute industry, started in the existing small towns and settlements along the river Hooghly, and was initially based on the riverine transportation network and subsequently on railways. The state agriculture was characterized by landholding concentrated in few hands till 1911, Kolkata was the major port and capital city of British India and thus the major concentration of urbanization in the present

state of West Bengal. Kolkata was the main centre of the labour movement to different parts of the British Empire. So, streams of migration from other parts of India converged to the city. The partition of the country in 1947 brought an influx of people to West Bengal which increased the level of urbanization in the decade 1941-1951. After the Partition, to create East Pakistan (Bangladesh since 1971), the level of urbanization in the districts around Kolkata became more lopsided, as the huge influx of refugees from the eastern part of the state settled in Kolkata. This Partition was a blow to the economy of the state The state gradually lost in industrial prominence because of two reasons, Firstly, it lost the Jute growing district to East Pakistan and the jute mills were out of work as the supply of jute became uncertain and costly. Secondly, the Freight Equalization Policy (1956) took away its comparative advantage in mining-based and Engineering Industries.

Maharashtra, the western part of the country, the home state of Mumbai (Mumbai), was the centre of commerce Industry, Finance, and Arts. During the British administration on the west coast, Mumbai became a leading town and gateway to India from the Arabian Sea. Mumbai became the presidency capital and railways and roads connected it with the vast interior, local finance and enterprise, cotton from the hinterland, technological impact from the British textile industry, labour from the Konkan and the Maharashtra Plateau and coal from Durban in the earlier phase, favored the location here of the textile industry. The improvement of the harbour further promoted the growth of Mumbai both in terms of population and functions. Since Independence it has recorded a phenomenal rise in its population as well as aerial extent, it should, however, be noted that during the inter-censual period 1941 to 1951, the urban population increased quite rapidly due to the influx of refugees from Pakistan to many urban centres in India Because of the partition of the country in 1947, a large number of people came to India. Several colonies were established in the vicinities of big cities to accommodate them and it helped in the process of urbanization. The great Mumbai strike of 1982 ended up shutting down the textile industry and it propelled Mumbai's journey into its current avatar

The fast pace of urbanization can be attributed to many factors such as rural to urban migration, reclassification of cities, and the natural growth rate of the urban population. Higher productivity in the urban area, more employment

opportunities, and a better lifestyle, etc. attract more firms and also people towards urban areas. Large-scale migration from rural to urban areas increases the urban GDP and economic growth rate, which in turn helps to reduce dependency on agriculture and poverty in rural areas. In 1960, two of the three richest states in India were Maharashtra and West Bengal. Between 1960 and 1995, West Bengal, which was one of the richest states in India in 1960, has experienced a sharp decline in relative per capita income as compared to Maharashtra (From 105 percent of Maharashtra to a relative income of around 69 percent). A large part of the blame for West Bengal's development woes can be attributed to (a) low aggregate productivity (b) poorly functioning labour markets and sectoral misallocations. Sectoral productivity and labour market allocation wages were strongly correlated with political developments in West Bengal.

2. Literature Review

Ghosh (1950) in his study entitled "The urban pattern of Kolkata", analysed the distribution of urban population and its characteristics in the city area of Kolkata.

Mookherjee (1957) also conducted a similar study on the "Urban pattern of Siliguri" and on the "Urban character of West Bengal".

Sinha (1975) while dealing with the process of Urbanization in Maharashtra found that the level of Urbanization is highly correlated with a socio-economic variable like literacy rate and workforce participation rate in non-agricultural studies. Index of Industrial Production and other measures of economic growth are useful factors that affect the urban process of a region.
Mulik (1978) studied the "Trends of Urbanization in Maharashtra in the 20th Century", where an attempt has been made to bring the salient features of the trends in urbanization and the growth pattern of the urban system in the South Maharashtra plateau. In this work, he also analysed the comparative trends of Urban Growth, demographic characteristics of the region, stages of urbanization, trends of rank fluctuation of urban centres and growth characteristics of the town.

Munsi (1984) while studying the trend of Urbanization in West Bengal Found that the. The process of Urbanization remained slow during 1951-1981.He further stated that through Kolkata remains to be the primate city it is showings signs of downward move and many large, medium, small-sized towns are emerging. He also studied the migrant Population of the Kolkata Metropolitan District and compared it to Mumbai.

Kothavale (1987) conducted his research work on the New Towns of Maharashtra" inwhich he has focused on the post-Independence trends of urbanization and growth ofnew towns, classification, and their sphere of influence. This is a study conducted onfew towns that have come into existence after 1981.

Adsul (1994) has contributed to the knowledge of urban geography by doing his PhD on the Urban Perspective of Class-I Cities in Maharashtra". This is a unique study as hardly anyone had attempted to focus on the problems of cities in Maharashtra. He has analysed the urban problems in terms of the spatial distribution of cities, their evolution, occupational structure, zone of influence, land use characteristics together with some case studies.

According to Dasgupta (1995), the Historical perspective of urbanization in West Bengal was determined largely by the exogenous factors rather than being a part of the endogenous development of the region.

Phadke and Mukharji (2003) have written a joint paper on the urbanization & development in Maharashtra by considering 1961 and 1991 data. Their discussion is mainly about how urbanization and development in the state are reciprocal.

Guchbait, Sanat K., and Abhik Dasgupta (2009) studied spatially and zoning of urban functions in North-Easter of Kolkata. They focused on the functional classification of towns of Kolkata metropolitan areas.

Objectives:
1) To study the trends of urbanization in the states of Maharashtra and West Bengal.
2) Inter-district analysis among the two states.
3) Comparison between Maharashtra and West Bengal with the help of Indicators
4) Kolkata vs. Mumbai: a comparative study

3. Research Methodology

The data is collected from secondary data sources which comprise statistical reports available on national websites, research publications, and data mining (through the internet). Data is collected in accordance with the objectives which are mentioned above and qualitative and quantitative analysis is conducted. Relevant data relating to both states were obtained from government websites.
We have used 2 indicators - Economic, Demographic, and Development. These indicators are subdivided into 3 more categories each.

Economic Indicator-
- Net State Domestic Product (NSDP)
- Sectoral Composition
- Poverty

Demographic & development Indicator-
- Sex Ratio
- Infant Mortality Rate (IMR)
- Literacy Rate

The study of the level of Urbanisation was done using the following formula:

*Level of Urbanization = Urban Population/ Total Population*100*

The compounded annual growth rate of urban population within the districts of these two states for the year 1991-200l

and 2001-2011 has also been calculated, using the following formula

$$CAGR = \left[\frac{Final\ Value}{Inital\ Value}^{\frac{1}{Year}} - 1 \right] \text{ x } 100$$

Trends of Urbanization in Maharashtra and West Bengal

Urbanization in Maharashtra: Maharashtra is the third most urbanized state of India. The state covers an area of 3,07,7 13 square kilometres or 9,84 of the total geographical area of India. It has a total of 35 districts with a total population of 112.37 million. Maharashtra is the 2 most populated states. Maharashtra has one of the highest levels of industrialization and has maintained a leading position in the industrial sector among all the states. It has 45.23 percent of the urban population of its total population, rank after Tamil Nadu (48456) and Kerala (47.72%) Mumbai and Mumbai (suburban) have 100 per cent of their population in urban areas while two other districts, Gadchiroli and Sindhudurga, have less than 15 per cent of their population living in urban areas. The population of Greater Mumbai Urban Agglomeration (UA) is 18.41 million, which is the largest Urban Agglomeration (UA) in the country in terms of population. Maharashtra has six urban agglomerations (UA) cities, Greater Mumbai, Pune, Nagpur, Nashik and Aurangabad, having a population of one million and above in the state. People from different parts of India over the years have migrated to Maharashtra in general and Mumbai in particular in search of livelihood.

Table 1: Urbanization of Maharashtra from 1991 to 2001

Year	Urbanization Level	Rate of Urbanization
1991	38.68	10.25
2001	42.43	9.66
2011	45.22	6.57

Source: Calculated from Census of India 1991-2011

From the Table, it can be seen that the urbanization level in Maharashtra has increased from 1991 to 2011.Urbanisation level in Maharashtra was 38.69% during 1991 and increased to 45.22% in 2011. It should also be noted that the rate of urbanization in all the decades is quite high. However, in 2011, the gap has decreased slightly and for the first time in the post-independence period, the growth rate of urbanization in the state has fallen because the growth of the urban population was shrinking due to the low birth rate.

Urbanization in West Bengal: West Bengal is India's fourth-most populous state and is the fourteenth-largest Indian state, with an area of 88,752 km² (34,267 sq. mi). In the post-independence period, the growth rate of urbanization in the state was higher than that of the country but it kept decreasing gradually. In 2001, West Bengal ranked 7h in the list of most urbanized Indian states which in 1951 was ranked 4h, The two prominent features of urbanization pattern in West Bengal are the low level of urbanization and the excessive concentration of the urban population in Kolkata metropolis and the near districts of Kolkata. One of the explanations of the lower growth rate of the state could be traced due to the demographic characteristics of the state. The urban growth rate in the state is lower than the national growth rate of the urban population. The level of rural-urban migration within the state is low and decreased over time and it suddenly rose in 2011. The results of the 2011 census almost came as a surprise. At the national level, the rate of urban growth of urban population surpassed that of the rural and West Bengal, the growth rate jumped to 14%. Secondly, of the 2500+ new census towns of the country. West Bengal tops the list with about 582 new towns. Which in turn encouraged migration and in turn growth too.

Table 2: Urbanization of West Bengal from 1991 to 2001

Year	Urbanization Level	Rate of Urbanization
1991	27.48	3.48
2001	27.97	1.79
2011	31.87	14

Source: Calculated from Census of India 1991-2011

Table 2 shows us the figures where it's clear that the urbanization rate was on a fall in between 1991-2001 when it fell from 3.48% to 1.79% but then suddenly shot up to 14% in 2011. This major change took place due to new census towns and also the coming up of new industries in the state.

Appendix 1: Data for Inter-District Analysis

Data 1: Urbanization level in Maharashtra in 1991,2001,2011

District	1991	2001	2011
Ahmednagar	15.82	19.89	20.1
Akola	36.14	38.51	39.69
Amravati	32.6	34.5	35.19
Aurangabad	32.76	37.45	43.74
Bhandara	14.29	15.47	19.5
Beed	17.94	17.91	19.9
Buldhana	20.59	21.2	21.21
Chandrapur	28.04	32.11	35.08
Dhule	24.18	26.11	27.91
Gadchiroli	8.71	6.93	11
Gondha	11.97	11.95	17.07
Hingoli	13.66	15.6	15.17
Jalgaon	27.44	28.59	31.8
Jalna	16.91	19.15	19.26
Kolhapur	26.33	29.81	31.75
Latur	20.39	23.57	25.47
Mumbai City	100	100	100
Mumbai Suburban	100	100	100
Nagpur	61.78	64.26	68.3
Nanded	21.72	23.96	27.23
Nandurbar	15.4	15.45	16.73
Nashik	35.55	38.8	42.53
Osmanabad	15.19	15.69	16.96
Parbhani	28.15	31.76	31.04
Pune	50.74	58.08	60.89
Raigarh	18.01	24.22	36.51
Ratnagiri	8.95	11.33	16.35
Sangli	22.64	24.51	25.51
Satara	12.88	14.17	18.98
Sindhudurga	7.59	9.47	12.6
Solapur	28.77	31.93	32.4
Thane	64.64	72.58	76.92
Vardha	26.56	26.28	32.47
Washim	16.59	17.48	17.69
Yavatmal	17.18	18.6	21.59

Source: Director of census operations, Maharashtra 1991, 2001, 2011

Data 2: Urbanization level in West Bengal in 1991,2001,2011

District	1991	2001	2011
Bankura	8.29	7.37	8.36
Bardhaman	35.09	37.18	39.87
Birbhum	8.98	8.58	12.8
DakshinDinajpur	13.35	13.09	14.13
Darjeeling	30.47	32.44	38.99
Medinipur	9.85	10.49	13.1
Howrah	49.58	50.39	63.3
Hugli	31.19	33.48	38.62
Jalpaiguri	16.36	17.7	27
KochBihar	7.81	9.1	10.25
Maldah	7.07	7.32	13.8
Murshidabad	10.43	12.49	19.78
Nadia	22.63	21.27	27.81
N.24 Parganas	51.23	54.3	57.59
Purulia	9.44	10.07	12.75
S.24 Parganas	13.3	15.77	25.61
Uttar Dinajpur	13.34	12.06	12.07
Kolkata	100	100	100

Source: Director of census operations, West Bengal 1991,2001,2011

Inter-District Analysis

In this section, we will analyse the inter-district urbanization rate of West Bengal and Maharashtra individually.

District wise urbanization level in West Bengal:

A district-wise pattern of urbanization depicted that out of 18 districts of West Bengal, Kolkata recorded the highest degree of urbanization, where 100% of the total population lived in the urban areas from 1991 to 2011. Based on levels of urbanization (Appendix 1: Data 1)

The state can be divided into three broad categories, as follows:

a) Below 10%
b) 10-30%
c) 30-60%
d) Above 60%

A) Below 10%

- 1991: Bankura, Birbhum, Medinipur, Koch Bihar, Maldah, Purulia
- 2001: Bankura, Birbhum, Koch Bihar, Maldah
- 2011: Bankura

In 1991-2011 the level of urbanization below 10 % is shown in Bankura remained constant.

B) 10-30%

- 1991: Jalpaiguri, South 24 Parganas, Murshidabad, Nadia, Uttar Dinajpur, Dakshin Dinajpur.
- 2001: Medinipur, Purulia, South Twenty-Four Parganas, Nadia, Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Murshidabad.
- 2011: South Twenty-Four Parganas, Nadia, Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Murshidabad, Koch Bihar, Malda, Birbhum.

Considering the period 1991-2011, the level of urbanization between 10-30% is shown in South Twenty-Four Parganas, Nadia, Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Murshidabad remained constant.

All these areas are very poor in terms of agricultural and industrial development. Socio-cultural backwardness, low level of diversification, low literacy level among males and females are responsible for the low degree of urbanization.

C) 30-60%

- 1991: Darjeeling, Bardhaman, Hugli North 24 Parganas, Howrah
- 2001: Darjeeling, Bardhaman, Hugli North 24 Parganas, Howrah
- 2011: Darjeeling, Bardhaman, Hugli North 24 Parganas.

Considering the period 1991-2011 the level of urbanization between 30-60% is shown in Darjeeling, Bardhaman, Hugli, North 24 Parganas remained constant.

A moderate degree of urbanization was due to the impact of urban-to-urban migration, moderate level of industrial development, location along the major transportation routes and establishment of some small and medium scale industries.

D) Above 60%

- 1991: Kolkata
- 2001: Kolkata
- 2011: Kolkata and Howrah

In 1991-2011 the level of urbanization above 60% is shown in Kolkata remained constant. The districts which are under a high degree of urbanization have the facility of roadway, railways.

The high concentration of urban population may be attributed to a very high level of industrial development, their strategic location along the well-developed roads and railway lines and high level so social awakening due to high level of male and female literacy rates.

The pattern of the level of urbanization in West Bengal perfectly coincides with the pattern of urban population distribution except for Darjeeling. In 13 districts of West Bengal, the level of urbanization is less than the national average. Only five districts like Darjeeling, Bardhhaman, Hugli, Howrah, and North 24 Parganas are experiencing a high level of urbanization than the national average. West Bengal has recorded a positive rate of urbanization during 2001-2011.It indicates an increasing number of urban areas in all districts. Interestingly, inter-district variation exists as well. The rate of urbanization is lower than the national average in Uttar Dinajpur, Dakshin Dinajpur, Bardhhaman, and Purba Medinipur districts due to lower growth in the percentage of the urban population in 2001-2011 than in 1991-2001, but it is more than five times higher than the national average in Maldah and South 24 Parganas districts due to higher growth in the percentage of the urban population in 2001-2011 than in 1991-2001. Nine districts of West Bengal are urbanizing at a pace less than the national average Due to proximity to the Kolkata Metropolitan area

and industrial development, Howrah is urbanizing at a pace more than five times the national average. All other districts also show a positive pace of urbanization during the period as all districts are experiencing positive growth in the urban population in every decade concerning the previous decade. Konar (2009) has stated that a very important factor causing the high growth rate of urbanization in the state of West Bengal lies in massive migration from rural areas to urban areas. Very high loading of Howrah at the primary level indicates a very developed condition in the perspective of urbanization but in secondary loading, Howrah has responded negatively due to its low value of decadal growth rate of the urban population, rate of urbanization and rural-urban displacement measures. Maldah, Murshidabad, South 24 Parganas, and Jalpaiguri have shown positive loading in both primary and secondary stages, so these are in more advanced stages of urbanization. Nadia, Darjeeling, Hugli, North 24 Parganas, and Howrah are in relatively less advanced stages as they have positive primary loading and negative secondary loading whereas other districts are in less urbanized stages.

District wise urbanization level in Maharashtra:

According to the urbanization level (Appendix 1: Data 2), districts are divided into
following groups:

a) Below 10%
b) 10-30%
c) 30-60%
d) Above 60%

E) Below 10%

- 1991: Gadchiroli, Sindhudurga, and Ratnagiri
- 2001: Gadchiroli and Sindhudurga
- 2011: None of the districts were below 10% level of urbanization.

These areas have a very low level of urbanization because of very poor development ofthe agricultural and industrial sector, socio-cultural backwardness, and low levels of literacy rate.

F) 10-30%

- 1991: Ahmednagar, Bhandara, Beed, Buldhana, Chandrapur, Dhule, Gondia, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Nanded, Nandurbar, Osmanabad, Parbhani, Raigarh, Sangli, Satara, Solapur, Vardha, Washim, and Yavatmal
- 2001: Ahmednagar, Bhandara, Beed, Buldhana, Dhule, Gondia, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Nanded, Nandurbar, Ratnagiri, Raigarh, Sangli, Satara, Vardha, Washim, Yavatmal and Osmanabad
- 2011: Ahmednagar, Bhandara, Beed, Buldhana, Dhule, Gondia, Hingoli, Jalna, Latur, Nanded, Nandurbar, Ratnagiri, Sangli, Satara, Osmanabad, Yavatmal and Washim

Considering the period 1991-2011, Ahmednagar, Bhandara, Beed, Buldhana, Dhule, Gondia,Hingoli, Jalna, Latur, Nanded, Nandurbar, Washim, Satara, Osmanabad, Yavatmal, and Sangliremained constant. These areas have a low level of urbanization due to peripheral location andpoorly developed infrastructural facilities are responsible for a low level of urbanisation inthese parts of the state.

G) 30-60%

- 1991: Akola, Amaravati, Aurangabad, Nashik, and Pune
- 2001: Akola, Amaravati, Aurangabad, Chandrapur, Nashik, Solapur, Pune andParbhani
- 2011: Akola, Amaravati, Aurangabad, Chandrapur, Nashik, Solapur, Parbhani,Jalgaon, Kolhapur, Raigarh, and Vardha

Considering the period 1991-2011, Akola, Amaravati, Aurangabad, Nashik remainedconstant. These areas have a moderate level of urbanization due to the establishment of small andmedium scale industrial units and some agro-based processing units has helped in someconcentration of population in urban centres of these districts.

H) Above 60%

- 1991: Thane, Mumbai Suburban, Nagpur, and Mumbai City
- 2001: Thane, Mumbai Suburban, Nagpur, and Mumbai City
- 2011: Pune, Thane, Mumbai Suburban, Nagpur and Mumbai City

Considering the period 1991-2011, Thane, Mumbai Suburban, Nagpur, and Mumbai Cityremained constant. Pune district was added to this category in the 2011 census period because oftheir strategic location along the well-developed roads and railway lines, infrastructuralfacility and high level of social awakening due to high literacy rates. Mumbai and Mumbai(suburban) have 100 percent of urbanized districts in Maharashtra due to rapidindustrialization and rural to urban migration. Hence these two districts remained in thecategory of areas with a very high degree of urbanisation for the last three census period.

The growth rate of population in urban areas of Maharashtra is seen to be high when compared to that of the rural population. People are migrating from the rural to the urban areas due to the availability of employment, education and business opportunities. Maharashtra is highly urbanized as 45.23% population lives in cities and it is high in literacy rate. Mumbai and Mumbai Suburban have 100% of urbanized districts in Maharashtra, while two other districts, Gadchiroli and Sindhudurga have less than 10% of their population living in the urban areas. Mumbai, the State's capital is the country's financial and business capital. Most large business houses of India are headquarters in Mumbai. Reserve Bank of India, National Stock Exchange, Securities, and Exchange Board of India and other major financial institutions are located in Mumbai, whereas urbanization within the Pune district is very irregular.

4. Statistical Analysis

Table 3: Mean, SD, and CV calculated for Maharashtra and West Bengal urbanization level (years: 1991,2001,2011)

States		1991	2001	2011
Maharashtra	Mean	28.58	30.78	33.42
	SD	22.23	22.63	22.4
	CV	77.77	73.52	67.03
West Bengal	Mean	24.36	25.17	29.77
	SD	23.52	23.76	23.93
	CV	96.57	94.41	80.38

Source: Calculated with reference to appendix 1

The average urbanization level of Maharashtra and West Bengal for the period 1991-2011 are 30.93 and 26.43 respectively. From the given table we can see that the mean is increasing at a decreasing rate and the standard deviation (SD) is almost constant for both Maharashtra and West Bengal. To check the disparity in the level of urbanization of the districts in both states, we have used the coefficient of variation (CV). For both the states, we can see that the coefficient of variation is decreasing. This means that the degree of variation in the urbanization level of the districts for both states is decreasing. Comparing Maharashtra and West Bengal's cv for years: 1991, 2001, and 2011, we see that the degree of variation in the urbanization level is greater in West Bengal than in Maharashtra, i.e., the degree of disparity in the urbanization level is higher in West Bengal than Maharashtra. The urbanization pattern in West Bengal is mono-centric concentrating mainly around Kolkata. So, the maximum development is in Kolkata and its nearby surrounding areas whereas urbanization in Maharashtra took place all over the region. So, the development had spread across all its region.

Ranked on the basis of compounded annual growth rate and population:

The ranking of districts in West Bengal and Maharashtra on the basis of their compounded annual growth rate of the urban population in % for the period 1991-2001 and 2001-2011.

Table 4: Districts (of West Bengal) ranked on the basis of Compounded Annual growth rate of Urban Population in % (1991-2001)

Rank	District	Compounded annual growth rate of urban population in % (1991-2001)
1	Murshidabad	1.82
2	S.24 Parganas	1.72
3	Kochbihar	1.54
4	Jalpaiguri	0.79
5	Hugli	0.71
6	Purulia	0.65
7	Medinipur	0.63
8	Darjiling	0.63
9	N.24 Parganas	0.58
10	Bardhaman	0.58
11	Maldah	0.35
12	Howrah	0.16
13	Kolkata	0
14	DakshinDinajpur	-0.19
15	Birbhum	-0.45
16	Nadia	-0.62
17	Uttar Dinajpur	-1
18	Bankura	-1.17

Source: Calculated with reference to Appendix 1 (Data 1)

Table 4: Districts (of West Bengal) ranked on the basis of Compounded Annual growth rate of Urban Population in % (2001-2011)

Rank	District	Compounded annual growth rate of urban population in %(2001-2011)
1	Maldah	6.54
2	S.24 Parganas	4.97
3	Murshidabad	4.7
4	Jalpaiguri	4.31
5	Birbhum	4.08
6	Nadia	2.72
7	Purulia	2.39
8	Howrah	2.31
9	Medinipur	2.25
10	Darjiling	1.86
11	Hugli	1.44
12	Bankura	1.27
13	Kochbihar	1.19
14	Dakshin Dinajpur	0.77
15	Bardhaman	0.7
16	N.24 Parganas	0.59
17	UttarDinajpur	0.01
18	Kolkata	0

Source: Calculated with reference to Appendix 1 (Data 1)

For the period 1991-2001, the highest rank is given to Murshidabad with 1.82% and the lowest rank is given to Bankura with -1.17%. We can see that for Dakshin Dinajpur, Birbhum, Nadia, Uttar Dinajpur, and Bankura the compounded annual growth rate of the urban population in % are all negative and that for Kolkata is 0%.

For the period 2001-2011, the highest rank is given to Maldah with 6.54% and the lowest rank is given to Kolkata with 0%. We can see that the compounded annual growth rate of the urban population in % are not negative for any of the districts that were seen in the previous period and that for Kolkata remains the same as before, i.e., 0%. Jute, mango, and silk are the notable products of Maldah. It is one of the mangos exporting districts across the world and is also claimed internationally.

Table 6: Districts of Maharashtra ranked on the basis of Compounded annual growth rate of the urban population in % (1991-2001)

Rank	District	Compounded annual growth rate of urban population in % (1991-2001)
1	Raigarh	3.01
2	Ratnagiri	2.39
3	Ahmednagar	2.31
4	Sindhudurga	2.24
5	Latur	1.46
6	Chandrapur	1.36
7	Pune	1.35
8	Aurangabad	1.34
9	Hingoli	1.25
10	Jalna	1.24
11	Kolhapur	1.21
12	Parbhani	1.16
13	Thane	1.01
14	Solapur	0.99
15	Nanded	0.96
16	Satara	0.88
17	Nashik	0.79
18	Bhandara	0.79

19	Yavatmal	0.77
20	Dhule	0.75
21	Sangli	0.58
22	Akola	0.57
23	Amravati	0.52
24	Washim	0.41
25	Jalgaon	0.39
26	Nagpur	0.32
27	Osmanabad	0.29
28	Buldhana	0.03
29	Nandurbar	0.02
30	Mumbai City	0
31	Mumbai Suburban	0
32	Beed	-0.02
33	Gondia	-0.07
34	Vardha	-0.11
35	Gadchiroli	-2.26

Source: Calculated with reference to Appendix 1 (Data 2)

Table 7: Districts of Maharashtra ranked on the basis of Compounded annual growth rate of the urban population in % (2001-2011)

Rank	District	Compounded annual growth rate of urban population in % (1991-2001)
1	Gadchiroli	4.79
2	Raigarh	4.6
3	Ratnagri	3.73
4	Gondia	3.63
5	Satara	2.96
6	Sindhudurga	2.89
7	Bhandara	2.34
8	Vardha	2.14
9	Aurangabad	1.56
10	Yavatmal	1.5
11	Nanded	1.29
12	Jalgaon	1.07
13	Beed	1.06
14	Nashik	0.92
15	Chandrapur	0.89
16	Nandurbar	0.79
17	Osmanabad	0.78
18	Latur	0.78
19	Dhule	0.67
20	Kolhapur	0.63
21	Nagpur	0.61
22	Thane	0.58
23	Pune	0.47
24	Sangli	0.4
25	Amravati	0.39
26	Akola	0.3
27	Solapur	0.18
28	Washim	0.12
29	Ahmednagar	0.11
30	Jalna	0.06
31	Buldhana	0.01
32	Mumbai City	0
33	Mumbai Suburban	0
34	Parbhani	-0.23
35	Hingoli	-0.28

Source: Calculated with reference to Appendix 1 (Data 2)

For the period 1991-2001, the highest rank is given to Raigarh with 3.01% and the lowest rank is given to Gadchiroli with -2.26%. We can see that for Beed, Gondia, Vardha, and Gadchiroli the compounded annual growth rate of the urban population in % are all negative and that for Mumbai City and Mumbai Suburban is 0%.

For the period 2001-2011, the highest rank is given to Gadchiroli with 4.739% and the lowest rank is given to Hingoli with -2.289%. We can see that for Parbhani and Hingoli the compounded annual growth rate of the urban population in % are all negative and that for Mumbai City and Mumbai Suburban remains the same as the previous period, i.e., 0%.

We can see a distinct difference for Gadchiroli. It ranked to be the lowest in the urbanization level growth rate for the period 1991-2001 but ranked first for the period 2001-2011.

4.3 Comparison between Maharashtra and West Bengal with the Help of Indicators

A comparison is made between West Bengal and Maharashtra based on two Indicators- Economic Indicator, Demographic & Development Indicator and across three-time points (1991, 2001,2011).

1. Economic Indicator

It includes parameters like net state domestic product (NSDP), Composition structure of NSDP at the current price for the year, Percentage of poverty below the poverty line.

a) Net State Domestic Product (NSDP)

Net State Domestic Product reflects the status of economic growth, is defined in the same manner as the net domestic product for the country, ie. it is equal to the income generated by the production of goods and services within the geographical boundaries of a State. The sectoral composition of an economy is the proportionate contribution of different sectors to the total Gross Domestic Product (GDP) of an economy during a year. It gives the share of the agricultural sector, industrial sector, and service sector in GDP.

Table 8: NSDP data for Maharashtra and West Bengal (1991, 2001, 2011)

States	NSDP (Per Capita) in crore		
	1991	2001	2011
Maharashtra	352.47096	2249.848	6212.256
West Bengal	229.002	1685.0055	3170.9759

Source: Planning Commission & RBI

From table 8, we see that the net state domestic product per capita is increasing for both the state. In absolute terms, the NSDP (per capita) of Maharashtra is quite higher than West Bengal From 1991-2011 we saw an increasing trend in NSDP (per capita) in both the states and Maharashtra has grown at a higher rate compared to West Bengal over the year due to infrastructural facilities and higher industrial growth. Due to political turmoil in West Bengal, the figure lagged compare to Maharashtra.

b) Sectoral Composition

The sectoral composition of an economy is the proportionate contribution of different sectors to the total Gross Domestic Product (GDP) of an economy during a year. It gives the share of the agricultural sector, industrial sector, and service

sector in GDP. The service sector must contribute the maximum to the GDP of an economy. When an economy grows, there exists a situation called structural transformation and this implies that the economy's dependence on the agricultural sector will decrease to the minimum level and the share of the industrial and service sector will increase over the years. The growth in the performance of the service sector with the higher contribution to the total GDP is an indicator of economic development.

Table 9: Sectoral composition data for Maharashtra and West Bengal (1991,2001,2011)

States	1991			2001			2011		
	Agriculture	Manufacturing	Services	Agriculture	Manufacturing	Services	Agriculture	Manufacturing	Services
Maharashtra	20.5	32.34	47.15	13.7	32.8	53.5	7.08	27.83	63.24
West Bengal	30.91	18.09	50.99	26.5	21.2	52.5	20.2	14.27	63.62

Source: Economic Survey of West Bengal and Maharashtra

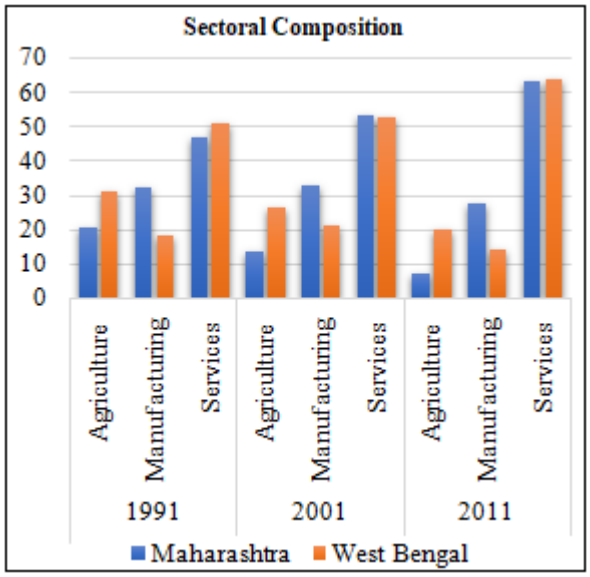

Figure 9: Sectoral Composition between Maharashtra and West Bengal

Table9 shows that the share of the service sector is increasing gradually over the years and for the agricultural sector, figures are showing a decreasing trend continuously, where the figure for this sector in 1991 was 20.50, it comes to 7.08 in 2011. On the other hand, the share of the manufacturing sector remains almost the same over the years. For West Bengal, we can see the same trend as Maharashtra that is a decreasing trend for agriculture and an increasing trend for the service sector continuously. As the share of the service sector is increasing continuously, this can imply a higher growth in urbanization. So, from the above explanation, we can imply Sectoral composition clearly shows a decreasing trend of agricultural share which in turn reflects the increasing urbanization trends for both the states, but in the case of West Bengal, the decrease in the agricultural sector is lower than Maharashtra. On the other hand, the sectoral share of non-agricultural activity (Industry and service) is high in Maharashtra than in West Bengal, So, we can conclude that over the years a slower tendency for a decrease in agricultural activity and a low share of the non-agricultural sector reflects the diffused urban pattern of West Bengal and an increasing urban pattern of Maharashtra.

c) Poverty

Poverty is a situation in which one is unable to get even the minimum necessities of life such as food, clothing, and shelter A person is considered poor if he is not able to fulfill his basic needs. Poverty is a multifaceted concept that may include social, economic, political elements. Although poverty is a phenomenon as old as human history, its significance has changed over time.

Table 10: Poverty data for Maharashtra and West Bengal (1991, 2001, 2011)

States	1991			2001			2011		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Maharashtra	59.30	30.30	47.80	47.90	25.60	38.20	24.20	9.10	17.40
West Bengal	42.50	31.20	39.40	38.20	24.40	34.20	22.50	14.70	20.00

Source: Perspective Planning Division, Planning Commission

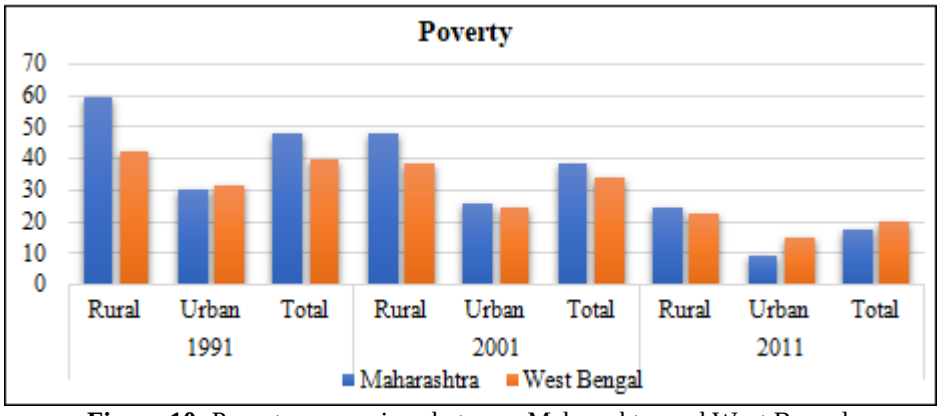

Figure 10: Poverty comparison between Maharashtra and West Bengal

Here we can see a continuous fall in the poverty rate and the figure 30.30 in 1991 comes to 9.10 in 2011 for urban. So, the reduced urban poverty rate can imply an increase in urbanization. In 1991 for West Bengal, the poverty rate is 31.20 for urban and it reduces to 14.70 in 2001. So over time poverty has reduced in both the states but the fall in poverty is higher in Maharashtra than West Bengal and rural poverty is rather more concentrated in Maharashtra. In 1991 both the states are quite equal in the level of poverty. In 2001 there is a more decline in the poverty rate in Maharashtra for the rural area than in West Bengal but the decline for urban area is almost equal for both the states. In 2011 we can see a huge decline in BPL people in both states. In Maharashtra, we saw a drastic fall inthe poverty rate in rural and urban areas due to the 11th Five years Plan mainly the inclusive growth, some poverty schemes, welfare schemes of central and state government, and ultimately, we can see where the poverty rate was higher in Maharashtra in 1991 than West Bengal, the figure becomes lower in Maharashtra than West Bengal in 2001 which implies higher urbanization in Maharashtra.

II. Demographic & Development Indicator:

Demographic indicators selected in this paper are sex ratio and infant mortality rate. The literacyrate is selected to analyze as the development indicator.

a) Sex Ratio

Sex ratio is a valuable source for finding the population of women and what is the ratio of women to that of men.

Table 11: Sex Ratio (Female per 1000 Males) in Maharashtra and West Bengal

Year	West Bengal	Maharashtra
1991	917	934
2001	934	922
2011	947	945

Source: Census of India (2011)

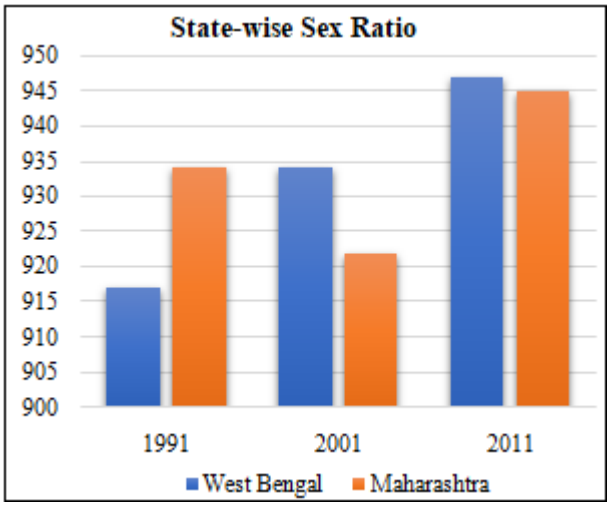

Figure 10: Sex Ratio comparison between Maharashtra and West Bengal (1991-2011)

There is an overall improvement in both the states. In the Population Census of 2011, it was revealed that the population ratio in West Bengal and Maharashtra in 2011 is between 940 to 950 females per 1000 males. From the graph, we can see that the gap between these two states was reduced and the interesting point is that West Bengal overtook Maharashtra which was lagging in the year 1991. The Sex Ratio shows an upward trend from the census 1991 data for West Bengal but there is a fall in Census 2001 for Maharashtra and the reasons behind this decline are mainly-

- Little care is taken to the health and hygiene of females. Consequently, there is a higherdeath rate amongst females than males
- The higher female mortality at all ages further widens the gap between the two sexes' growth.
- The occupational structure of Maharashtra in 2001 was low participation of females in the working force.

b) Infant Mortality Rate

Infant mortality rate (IMR) is the number of deaths per 1,000 live births of children under one year of age. Good health and population control can enhance the productivity of people. We examine a selected indicator of human capabilities- IMR. While there are multiple indicators of health, the reason why we choose IMR is that it can indicate the low level of healthcare services, morbidity, ignorance of good health practices, poor maternal health as well as poor family health overall.

Table 12: Infant Mortality rate in West Bengal and Maharashtra (Per Thousand)

Year	West Bengal	Maharashtra
1991	71	60
2001	51	45
2011	32	25

Source: Handbook of Statistics on Indian States: Reserve Bank of India 2016-17

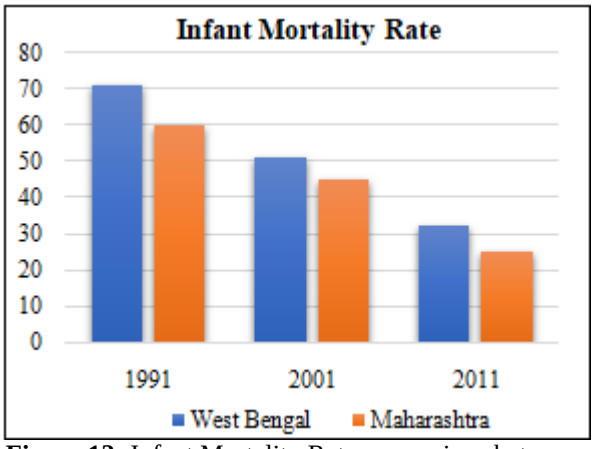

Figure 12: Infant Mortality Rate comparison between Maharashtra and West Bengal (1991-2011)

From Figurel2, we can see a downward trend as both the states have declining IMR which implies a healthier population A healthy population is capable of producing more output and income. Reasons behind the declining IMR:

- **Disease Control Medicines:**By importing drugs, mass killers as typhoid, malaria, smallpox, pneumonia, plague, etc. have been kept in control.
- **Public Health Programmes:** By adopting public health programs for keeping the environment clean and free of pollution Governments have been following strict pollution control measures. Consequently, deaths due to respiratory diseases have declined.
- **Medical Facilities:** Medical facilities have not only increased but also improved in such countries. The

number of doctors and trained nurses has increased considerably. Besides the spread of government hospitals in urban centers and primary health centers in rural areas, private hospitals and nursing homes are coming up which provide the best of medical facilities comparable 1o those in advanced countries. As a result, the number of deaths is on the decline.

- **Spread of Education:**With the spread of education, people are becoming rational They are giving up superstitious and fatalist attitudes towards life. They have started taking a keen interest in their health and that of their children They have become health conscious. They take nutritive and balanced diet, do exercise, go for a walk and even to a gym. All these have brought down the death rate.
- **Status of Women:**The status of women in society has increased with the spread of literacy among them. Women now understand the importance of cleanliness and hygiene and take better care of their children's health. Consequently, the infant mortality rate is on the decline. Early marriage of girls has been banned in the majority of developing countries, thereby reducing the death rate at the time of the first child
- **Food Supply:**Reduction of death rates can be possible with the increase in the food supply through imports of food grains.

c) Literacy Rate

The literacy rate is the total percentage of the population who can read and write. For example, if the literacy rate of a nation is 78, then it implies out of every 100 people 78 are literate

Table 13: Literacy Rate in West Bengal and Maharashtra

Year	West Bengal	Maharashtra
1991	57.70	64.87
2001	68.64	76.08
2011	76.30	82.30

Source: Census of India (2011)

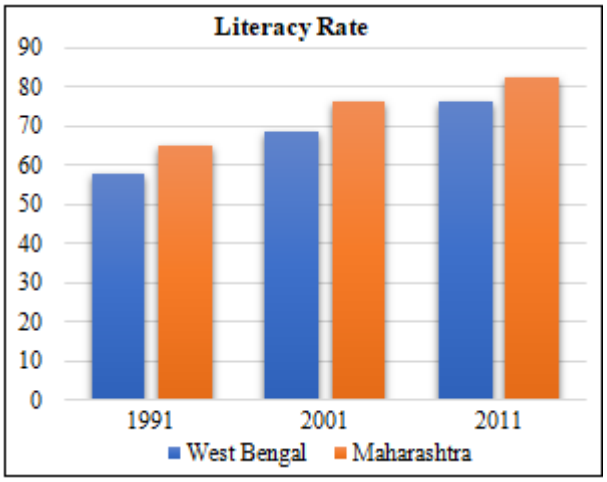

Figure 13: Literacy rate comparison between Maharashtra and West Bengal (1991-2011)

The literacy rate can be expected to positively affect economic growth and per capita income in these states primarily because it is treated as a proxy for the knowledge and skills of the population. We assume that a high literacy rate makes people better inform, prepares the ground for higher skills, the ability to deal with technology, and enhances their efficiency at work. The literacy rate might be a crude measure of the population's ability to read and write. These capabilities enable them to generate more output and income. From the graph, we can see that the literacy rate for both West Bengal and Maharashtra shows an upward trend but the growth rate of literacy rate was higher in West Bengal which was 18.96% for the year 2001 and 11.15% for the year 2011, yet the total literacy rate was higher in Maharashtra for that period.

Econometric Analysis

In this section, we are trying to determine which factors are most closely related to urbanization. We will include a variety of factors that are important in explaining the level of urbanization across three time periods (1991, 2001, 2011). Some of those are demographic such as sex ratio, literacy rate, and infant mortality rate and some are economic such as per capita NSDP, the sectoral composition of NSDP, and poverty All factors are not equally important and the goal of our study is to determine their relative importance. Here first we check whether these indicators (Economic, Demographic,) are correlated with the level of Urbanization. We calculate the Correlation Coefficient (rxy) for each indicator with the level of Urbanization for both states.

Table 17: Correlation coefficient for Economic, Demographic and other indicators

States	Correlation coefficient for economic indicator (R_{1y})	Correlation coefficient for demographic indicator (R_{2y})	Correlation coefficient for economic indicator (R_{3y})
Maharashtra	0.91	-0.92	0.97
West Bengal	0.67	-0.98	0.98

Source: calculated from the table of appendix

From the above table, we show that economic indicators and other indicators are positively correlated with the level of urbanization in both states, but the demographic indicator is negatively correlated with level urbanization. It implies that economic and other indicator has a strong positive relationship with the level of urbanization in Maharashtra as the value of the correlation coefficient (0.91 and 0.97 respectively) is greater than 0.50 (rxy>0.50). And also in West Bengal the economic and other indicator (0.67 and 0.98 respectively) has strong positive relations. But demographic indicator has a strong negative relationship with the level of urbanization as the value of the correlation coefficient is less than the -0.50 (rxy<0.50). The correlation coefficient for the demographic indicator is -0.92 in Maharashtra and -0.98 in West Bengal.

Now if we compare the two states then we can see that the economic indicator has a relatively strong relation on the level of urbanization in Maharashtra than West Bengal as the correlation coefficient for the economic indicator is high in Maharashtra.

From the correlation, we understand the relationship of the indicators (Economic, Demographic) on the level of urbanization. Now to observe the marginal effect of these

indicators on the level of Urbanization, we regress each index separately for two states.

Linear Regression Model:

Now we take a Simple Linear Regression Model (SLRM) without an intercept term. It indicates that there is no fixed effect is included in the regression model. The regression equation will be,

$$Y= \beta X_i+U_i; \text{ where } i=1,2,3$$

Here we don't take the intercept term which explains the fixed effect, because we want to show the marginal effect of these three indicators Economic, Demographic, and Infrastructure Here P shows the marginal effect and the regression line is passing through the origin. In other words, we want to show only the effect of the explanatory variable(X) on the dependent variable(Y).

Now we regress the combined index of each indicator on the level of urbanization and will check whether regression is significant or not.

It can be possible that the explanatory variables(X) are not at all useful in predicting the dependent variable in the data set. We can formulate this as a null hypothesis that regression parameters (β) are Zero.

Null Hypothesis: Explanatory variables do not explain the dependent variable

$$H_e: \beta=0$$

Alternative Hypothesis: Explanatory variables explains the dependent variable

$$H_a= \beta \neq 0$$

P-value shows the marginal level of significance. At a 5% level of significance if the P-value is less than 0.05 then it will be statistically significant and we will fail to accept the null hypothesis So the alternative hypothesis will be accepted which means changes in explanatory variables are related to changes in the dependent variable. Conversely, if P-value is greater than 0.05 then it will be statistically insignificant at 5%level of significance, which means that we fail to reject the null hypothesis or weak evidence against the null hypothesis

Regression analysis

By using the Composite Index of these three indicators (Economic, Demographic, and Infrastructure) as explanatory variable(X), here we will regress the mentioned regression equation taking level of urbanization of both states (Maharashtra and West Bengal) as dependent variable (Y).

Regression for Economic Indicator:

Table 18: Regression of Economic Indicator on the level of Urbanization

Regression statistics	Maharashtra	West Bengal
Multiple R	0.98	0.97
R Square	0.96	0.95
Adjusted R Square	0.46	0.45
Standard Error	9.62	7.76
Observation	3	3
Infrastructure coefficient	0.28	0.22
Standard error	0.036	0.034
T stat	7.45	6.35
P value	0.01	0.02
Lower 95%	0.11	0.07
Upper 95%	0.43	0.36

Source: referred to appendix 2

Table 18 shows the regression of the composite index of economic indicators (taking as an explanatory variable) on the level of urbanization (taking as dependent variable) for both the states. The above regression statistics defines some important conclusion Here in Maharashtra, we find that the P-value (0.01) is less than 0.05 which implies the regression equation is statistically significant at a 5% level of significance (95% confidence level). So, we reject the null hypothesis and accept the alternative hypothesis. From the above analysis, we can say that the economic indicators create a significant influence on urbanization. The coefficient economic indicator in the regression equation is 0.28, which implies if economic indicators increase by I unit, the level of urbanization increases by 0.28 units.

Now in the case of West Bengal from the above regression statistics, we see that the P-value (0.02) is less than 0.05 at a 5% level of significance (95% confidence level). It implies that we fail to accept the null hypothesis and will accept the alternative hypothesis, which indicates that $\beta \neq 0$, in other words, we can say that economic indicators have a significant impact on the level of Urbanization. The economic coefficient (B) in the regression equation is 0.22, which implies if economic indicators increase by 1 unit, the level of urbanization increases by 0.22 units.

Here we can conclude that there is a significant positive relationship between the economic indicator and level of urbanization in both states West Bengal and Maharashtra But Maharashtra has a relatively larger impact of changes in economic indicators on the level of urbanization as compared to West Bengal As the above regression statistics shows that the Coefficient of the economic indicator (β) is higher in the case of Maharashtra.

Regression for Demographic Indicator:

Table 19: Regression of Demographic Indicator on the level of urbanization

Regression statistics	Maharashtra	West Bengal
Multiple R	0.98	0.99
R Square	0.97	0.98
Adjusted R Square	0.47	0.48
Standard Error	7.50	4.48
Observation	3	3
Infrastructure coefficient	-0.29	-0.20
Standard error	0.031	0.018
T stat	-9.63	-11.16
P value	0.01	0.007
Lower 95%	0.16	0.12
Upper 95%	0.43	0.27

Source: referred to appendix 2

The above Table19 shows the regression of the composite index of demographic indicators (Taken as the explanatory

variable) on the level of urbanization (taken as the dependent variable) for both states. The above regression shows that the P-value (0.01) is less than 0.05 in the case of Maharashtra. It implies that the regression is statistically significant at a 5% level of significance (95% confidence level), Thus we fail to accept the null hypothesis and will accept the alternative hypothesis, which indicates that $\beta \neq 0$. But here the value of the coefficient (β) for demographic indicators is negative. The value of the coefficient is -0.29, which implies that if demographic indicators increase by 1 unit, the level of urbanization decreases by 0.29 units.

On the other hand, in West Bengal, we find that the P-value (0.007) is less than 0.05. It implies that the regression is statistically significant at a 5% level of significance (95% confidence level). Thus, we fail to accept the null hypothesis and will accept the alternative hypothesis, which indicates that $\beta \neq 0$. The value of the coefficient is -0.20, which implies that if Demographic indicators increase by 1 unit, level of urbanization decreases by 0.20 units. But here the value of the coefficient (β) for demographic indicators is negative for both states. Thus, it implies a negative relation between demographic indicator (explanatory variable) and level of urbanization (dependent variable) for both states. Now if we compare two states In Maharashtra and West Bengal, then we can conclude that the demographic indicators have a greater impact on the level of urbanization in Maharashtra. Because the regression statistics shows that the coefficient of the demographic indicator in the regression is negative in both states but the value of the coefficient (β) is smaller in Maharashtra (-0.29) as compared to West Bengal (-0.20), which implies changes in demographic indicators affect the level of urbanization more in Maharashtra.

From the above Econometrics analysis, we can conclude that both the indicators- Economic and Demographic are significantly important in explaining the level of Urbanization in both states (Maharashtra and West Bengal). Another thing is here we find demographic indicator has a negative relationship on the level of urbanization. It implies that improvement in the demographic indicator will worsen the level of urbanization. The reason behind it is here we take three variables for demographic indicator Urban sex ratio, Literacy rate, and Infant Mortality Rate (IMR)- here IMR is decreasing over time which is better for urbanization which explains this negative relation, other two variables have positive relation on the level of urbanization but over time IMR decreases drastically which outweighs the positive effects of the other two variables.

5. Conclusion

From the study, we can conclude that Maharashtra is a step ahead of West Bengal in every field of urbanization Inter district analysis shows us that urbanization in Maharashtra has taken place in a more diverse way than that of West Bengal whose urbanization is mainly concentrated around Kolkata, and its surroundings. There were no districts in Maharashtra under a 10% level of urbanization in 2011 whereas in West Bengal the level of urbanization in Bankura was below 10% in the year 2011. Statistical analysis of the districts of these states concludes that the disparity in the level of urbanization is more in West Bengal than in Maharashtra Although the results of census 2011 show that at the national level, the rate of growth of urban population surpassed that of the rural and West Bengal, the growth rate jumped to 14%. Secondly, of the 2500+ new census towns of the country, West Bengal tops the list with about 582 new towns. The economic indicator shows that NSDP is higher in Maharashtra than in West Bengal, the sectoral composition shows a huge increase in the service sector of Maharashtra and a relatively lesser decline in agriculture activity of West Bengal compared to Maharashtra. Poverty is a major factor that decreases with an increase in urbanization. Initially, Maharashtra was having more poverty than West Bengal in the years 1991 and 2001 but in the year 2011 overall poverty is lesser in Maharashtra than in West Bengal due to an increase in urbanization in a diversified way rather than concentration around a particular district. Demographic & development indicators had better data for Maharashtra than that of West Bengal but the growth rate of progressing is higher in West Bengal.Overall we can say that West Bengal provides better access to drinking water Econometric analysis of these indicators with urbanization shows that economic indicators are positively related with urbanization whereas demographic indicators are negatively related. The regression results show that all the indicators are significant to affect urbanization, which means a change in these indicators will lead to change in the urbanization of the states Finally, we can draw a clear analysis between two metro cities Kolkata and Mumbai. We can conclude that in the post-liberalization era Mumbai significantly make an economic and infrastructural transition. Though these two cities are almost the same in the pre liberalization era, Kolkata has fallen even after liberalization and we get a diffused urbanization and economic pattern. Kolkata and Mumbai comparisons show that Mumbai has a higher amount of GDP, port services, and a higher share of the service sector in total sectoral composition whereas Kolkata has a higher share of agriculture share in the total sectoral composition.

Appendix:

Economic Indicator comprises

NSDP(per Capita) - (A1)
SECTORAL COMPOSITION OF NSDP - (A2)
POVERTY - (A3)

Composite index of Economic Indicator = GM of (A1,A2,A3)

Demographic Indicator comprises

URBAN SEX RATIO - (B1)
Literacy Rate - (B2)
INFANT MORTALITY RATE - (B3)

Composite index of Economic Indicator = GM of (B1,B2,B3

Table I: Regression Variables for Maharashtra

Year	Level of Urbanization(Y)	Composite Index		
		Economic indicator (X_1)	Demographic Indicator (X_2)	Other indicators (X_3)
1991	38.69	94.69	150.45	2.91
2001	42.43	170.66	144.04	3.47
2011	45.22	172.67	122.75	4.32

Source: Calculated from the table of economic, demographic and other indicators.

Table II: Regression Variables for West Bengal

Year	Level of Urbanization(Y)	Composite Index		
		Economic indicator(X1)	Demographic Indicator(X2)	Other indicators(X3)
1991	27.48	79.03	152.04	2.12
2001	27.97	144.7	146.21	2.73
2011	31.87	153.69	131.86	4.52

Source: Calculated from the table of economic, demographic and other indicators.

Regression Tables

Regression statistics for Maharashtra

- **Economic Indicators (Maharashtra)**

Summary Output

Regression Statistics	
Multiple R	0.982492
R Square	0.965291
Adjusted R Square	0.465291
Standard Error	9.628597
Observations	3

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5156.65	5156.65	40.55317	0.084855
Residual	2	185.4198	92.7098		
Total	3	5342.069			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
			7.45797	0.0175		0.43454	0.11658	0.43454
X Variable 1	0.275567	0.036949	3	1.74E-05	0.127644	8	7	8

- **Demographic Indicators(Maharashtra)**

Summary Output

Regression Statistics	
Multiple R	0.989407
R Square	0.978926
Adjusted R Square	0.478926
Standard Error	7.502655
Observations	3

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5229.491	5229.49	92.9029	0.065813
Residual	2	112.579	56.2898		
Total	3	5342.069			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
		0.03103	-9.63861	0.01059		0.43454	0.43263	0.1655
Demographic	-0.29911	3	6	3	0.16559	8	7	9

- **Other Indicators (Mahrashtra)**

Summary Output

Regression Statistics	
Multiple R	0.995027
R Square	0.990078
Adjusted R Square	0.490078
Standard Error	5.418014
Observations	3

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5829.065	*5289.06*	*199.572*	*0.044989*
Residual	2	53.00409	*25.502*		
Total	3	5342.069			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
			14.1269	0.00497		15.159	8.08087	15.159
Other	11.61997	0.822536	9	3	8.080879	6	9	6

Regression statistics for West Bengal

- **Economic Indicators (West Bengal)**

Summary Output

Regression Statistics	
Multiple R	0.976111
R Square	0.952792
Adjusted R Square	0.452792
Standard Error	7.763047
Observations	3

ANOVA					
	df	*SS*	MS	F	Significance F
Regression	1	2432.64	2432.638		
Residual	2	120.53	60.264	40.36576	0.099386
Total	3	2553.17			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
			6.353405	0.023889		0.36699	0.07062	0.36694
Other	0.218813	0.03444	1	9	0.070628	8	8	6

Demographic Indicators (West Bengal)

Summary Output

Regression Statistics	
Multiple R	0.992079
R Square	0.98422
Adjusted R Square	0.48422
Standard Error	4.488231
Observations	3

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2512.88	2512.88	124.7445	0.056848
Residual	2	40.28844	20.14422		
Total	3	2553.168			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
			-11.1689	0.00792		0.27913	0.12388	0.27913
Other	-0.20151	0.018042	1	1	0.123881	8	1	8

Other Indicators (West Bengal)

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.969056
R Square	0.93907
Adjusted R Square	0.43907
Standard Error	8.819433
Observations	3

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2397.6	2397.6	30.8245	0.113449
Residual	2	155.5648	77.7823		
Total	3	2553.168			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
			5.55198	0.03094		15.2651		15.2651
Other	8.600196	1.549032	2	4	1.93525	4	1.93525	4

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