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# **Poverty and Inequality in urban India with special reference to West Bengal: An empirical study**

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## **Abstract :**

In recent times rapid growth in urban population in the developing nations has been accompanied by a parallel growth in the incidence of urban poverty. The objective of the paper is to estimate the incidence of poverty and inequality in urban India during the last three decades using Parameterized Lorenz curve methods. Then using panel regression the study examine how the incidence of urban poverty is being affected by various socio economics factors in urban West Bengal, a state located in eastern India. The study is based on the unit level consumption expenditure data of different rounds of National Sample Survey Organisation(NSSO). The study reveals that the incidence of urban poverty have been quite high for the states of India during the earlier periods as compared to the latter periods. In case of West Bengal the decline in urban poverty is associated with a faster pace of urbanization, small size of the household, decline in urban inequality, growth in per capita industrial income and rise in per capita public expenditure on education and health. Finally the study tries to propose some appropriate policies for reducing urban poverty in the state.

**Key Words:** Urban poverty, Consumption expenditure, Urban inequality, Lorenz curve

**JEL Classification:** R11, P25,C33, O18

\* All the opinions expressed here are ours and not of the institute. The usual disclaimer applies.

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## **I. Introduction:**

Occurrence of rapid growth in urban population in the developing nations as witnessed by the twentieth century has been accompanied by a parallel growth in the incidence of urban poverty in these nations. According to the World Development Report (2000-2001), nearly half of the world's poor reside in South Asia which includes nearly 30 percent of the world's population. According to the Planning Commission estimates, India has the largest number of urban poor compared to any other country in the world. The rapid increase in the urban population has important implications on the basic services and infrastructure that is required for maintaining a dignified life. India's performance even at the international level in meeting the poverty related Millennium Development goals (MDG) and targets of fifty percent reduction in the proportion of people with income below US\$ 1/day between 1990-2015 AD lag behind to a great extent.

### **I.1. Urbanisation and Poverty:**

Urban poverty is a complex multidimensional problem that exists in both developing and developed nations. The living condition and environment of the urban poor are mainly characterized by high density of population, unhygienic shelter, poor quality of drinking water, inadequate sanitation facilities, poor drainage and solid waste disposal. In many cases an important factor in increasing this urban poverty has been rural to urban migration and the phenomenon of urbanization to a large extent is ruled by the process of migration.

In India there is no consensus on the definition of poverty in terms of minimum per capita per month income and reliable income data at the household level is also not available. Since income measures the potential consumption of the household or the individual, consumption expenditure is taken as the proxy measure of poverty for income in India. Owing to limited availability of poverty and poverty-related data bases in India failing to give a comprehensive idea and understanding of this phenomenon, a separate study is always needed to analyse the nature and dimensions of urban poverty in different areas of the country. In this context we have taken West Bengal as a state of India where we have tried to find out the relationship between urban head count ratio with some of the socio-economic variables.

The organisation of the paper is as follows. The next **sections II and III** present the analytics of the estimation and decomposition exercise based on Parameterized Lorenz curve method. Next

an attempt has been made to find out the estimates of urban HCR by directly calculating the number of people below that poverty line using unit level data of National Sample Survey Organisation (NSSO) and the two estimates of HCR have been compared. **Section IV** examine how the incidence of urban poverty is being affected through various socio economics factors in urban areas of the state of West Bengal. **Section V** summarizes the major findings and prescribe some relevant policies for urban poverty reduction in the state.

## **II. Database**

The study is based on the unit level Consumption expenditure data (monthly per capita expenditure) of six quinquennial rounds of National Sample Survey (NSS) namely 38<sup>th</sup>, 43<sup>rd</sup>, 50<sup>th</sup>, 55<sup>th</sup>, 61<sup>st</sup> and 66<sup>th</sup> round. As a measure **Head Count Ratio (HCR)** has been used to find the pattern of urban poverty in the major states of India and in the regions and districts of West Bengal for years where data is available.

For different years, the average monthly per capita expenditure ( $\mu$  in our study) in urban areas have been obtained from the NSS reports in case of India and other states. The mean expenditure for the regions and districts of West Bengal are calculated from the unit level data of NSS. The poverty line used here are the official estimates of the Planning Commission's urban poverty line ( $z$  in our study) for different years. The estimates of HCR for urban areas of the states of India for all years are based on uniform reference period (URP) of the consumption expenditure unit level data of NSS. For the years 1983,1987,1993 , 1999 and 2004 for estimating urban HCR we have used the urban poverty line for all the state of India calculated on the basis of Modified Expert Group methodology(using URP data) <sup>1</sup>. Also for the year 1993 , 2004 and 2009 the urban HCR is calculated using poverty line based on Tendulkar methodology(based on MRP data)<sup>2</sup>.

## **III. Technical framework**

Studies by Carunia Mulya Firdausy (2000), Jong Gie Kim (2000), Fan, Xiaobo Zhang and Shenggen Fan (2002) in Indonesia, Korea and urban China respectively showed that urban poverty reduction during 90 s has been mainly caused by rapid economic growth. Bhanumurthy and Arup Mitra (2004) assessed the impact of reforms on poverty for the rural and urban areas of 15 major states and at the all India level using Kakwani(2000) and Majumder and Son(2002) methodology of decomposition with the National Sample Survey data for 1983 to 1993-94 and

1993-94 to 1999-2000 and shows that growth effect dominates over the inequality that caused the incidence of poverty in India to fall both in 80s and 90s. Gaurav Datt and Martin Ravallion (1992) showed how changes in the poverty measures could be decomposed into growth, redistribution and residual components using parameterized poverty measures and Lorenz curves taking India and Brazil into consideration during 1980s.

*(i) Estimation of urban poverty:*

In this paper, we have used the Parameterized Lorenz curve methods (General Quadratic (GQ) Lorenz curve) following Gaurav Datt's (1998) methodology for constructing poverty measures. This methodology has been applied here as the measure is relatively accurate and one significant usefulness of the Lorenz curve based method of estimating poverty is that it acts as a very efficient poverty simulation device. From this a number of different simulations can be done, one of which is used in the study is the decomposition analysis. A study showing decomposition of changes in urban poverty over the periods of time 1983-84 to 1987-88, 1987-88 to 1993-94, 1993-94 to 1999-00, 1999-00 to 2004-05 and 2004-05 to 2009-10 have been done for the urban areas of India in terms of growth/mean effect (holding inequality constant) and inequality effect (holding mean unchanged) and the residual effect.

An attempt has also been made to find out the estimates of the HCR by using the Planning Commission's official estimates of urban poverty line and then directly calculating the number of people below that poverty line which would yield the HCR.

Construction of poverty measure:

Let  $L = (p; \pi)$  and  $P = P(\mu/z, \pi)$  be the Lorenz curve and poverty measures functions respectively where  $L$  is the share of the bottom  $p$  percent of population in aggregate consumption,  $\pi$  is a vector of (estimable) parameters of the Lorenz curve,  $P$  is a poverty measure defined as a function of the ratio of the mean consumption  $\mu$  to the poverty line  $z$  and  $\pi$ , the parameters of the Lorenz curve.

The Head count index  $H$  is derived by using the relationship between the Lorenz curve and the distribution function.

### Poverty measure for GQ Lorenz curve:

Equation of the Lorenz curve:

$$L(1-L)=a(p^2-L) +bL(p-1) +c(p-L)$$

$$L(p)= -1/2(( bp +e+(mp^2+np+e^2)^{1/2})$$

Where,  $e= -(a+b+c+1)$

$$m=b^2-4a$$

$$n=2be-4c$$

We calculate poverty line /mean consumption for all the districts or regions of West Bengal for different years by constructing cumulative proportion of population (p) and cumulative proportion of consumption expenditure (L) . Using the values of p and L from the survey data we regress  $L(1-L)$  on  $(p^2-L)$ ,  $L(p-1)$  and  $(p-L)$  to estimate GQ Lorenz curve parameters a, b and c. Then we can construct H estimate of poverty measure by a formula using the values of  $z/\mu$  and coefficients a,b,c as obtained above.

$$\text{Head count index (H)}= -1/2m(n+r(b+2z/\mu )((b+2z/\mu )^2-m)^{-1/2})$$

Where  $e= -(a+b+c+1)$

$$m=b^2-4a$$

$$n=2be-4c$$

$$r=(n^2-4me^2)^{1/2}$$

*(ii)Decomposition of urban poverty changes:*

We try to *decompose the change in poverty ratio* into growth effect and redistribution effect and effect of a residual component that is neither due to growth nor distribution.

For any two dates 0 and 1, the growth component of a change in the poverty measure is the change in poverty due to a change in the mean from  $\mu_0$  to  $\mu_1$  while holding Lorenz curve constant at  $L_0=L(p, \pi_0)$  .The redistribution component is defined as the change in poverty due to a change in the Lorenz curve from  $L_0$  to  $L_1=L(p; \pi_1)$  holding mean constant at  $\mu_0$ .

Hence we get the following decomposition.

$$P(\mu_1 / z, \pi_1) - P(\mu_0 / z, \pi_0) = (P(\mu_1 / z, \pi_0) - P(\mu_0 / z, \pi_0)) + (P(\mu_0 / z, \pi_1) - P(\mu_0 / z, \pi_0))$$

+Residual

or ,

Change in Poverty = Growth Component + Redistribution Component + Residual

The poverty line is kept fixed over the two periods. The means have been adjusted for changes in the cost of living over the two dates. After we get the values of H we try to find the decomposition of changes in poverty ratio into growth effect, redistribution effect and effect due to a residual term.

From NSSO robust district level estimates of wellbeing and poverty are available for 61<sup>st</sup> and 66<sup>th</sup> rounds only. So first we compare region level estimates of urban poverty in the state of West Bengal and analyse different issues at the region level for all these years. Then we analyse the districts for the years where data is available.

In the next section, we have tried to examine how the incidence of urban poverty is being affected through various socio economic factors considering the urban areas of the state of West Bengal.

### (iii) *Determinants of urban poverty*

That urbanization process play a quantitatively significant role in overall poverty reduction has been revealed by various national and international studies by Ravallion , Chen and Sengupta (2007) , Deolalikar & Dubey (2003), ADB (2000) and many others. Larger household tending to face a higher probability of being poor has been shown by (Tokunbo Simbowale Osinubi ,2007) and (Philip Serumaga-Zake and Willem Naude ,2002) in China and south west province of South Africa respectively. A study on the incidence of urban poverty and it's response to income and inequality by Yao, Zhang and Hanmer (2003) in rural and urban sectors of China show that significant level of urban poverty in a region is associated with high level of inequality. Gaurav Nayyar (2005) showed how economic growth leads to poverty reduction in India using panel data regression. Arup Mitra (1992) showed how the spread of industrialisation lead to income growth in the industrial sector leading to reduction in urban poverty. Nayyar (2005) and Jha, D.Biswal and Biswal (2001) used health expenditures and education expenditure as explanatory variables and showed that these help reduce poverty in case of India.

To understand the interconnection and interdependence among urban poverty with different socio economic variables like degree of urbanisation, urban household size , level of urban inequality, per capita industrial income and per capita public expenditure on health and education panel data regressions have been done taking 16 districts<sup>3</sup> of West Bengal for the years 1983, 1987,1993, 1999, 2004 and 2009. We have used two regression models. Model 1 includes three variables like degree of urbanisation, per capita industrial income, and per capita public expenditure on education and health .Model 2 in addition to these three variables includes two more variables like urban household size and urban inequality. We have conducted both the Fixed Effects Model (FEM) and Random Effects Model (REM) under model 1 and 2 and tried to show which one is appropriate.

To explore this relationship the following equations have been used.

#### **Fixed Effects Model (FEM):**

We estimate the following FEM:

##### **Model 1**

$$H_{it} = \beta_0 + \beta_1 URB_{it} + \beta_2 PCIND_{it} + \beta_3 PCEM_{it} + a_i + u_{it} \dots (i)$$

##### **Model 2**

$$H_{it} = \beta_0 + \beta_1 URB_{it} + \beta_2 HSIZE_{it} + \beta_3 PCIND + \beta_4 GINI_{it} + \beta_5 PCEM_i + a_i + u_{it} \dots (i)$$

*Where*

*i=1,2,...16 are the districts; t= 1,2,...6 are the time periods*

*H<sub>it</sub> is the urban head count ratio*

*HSIZE is the urban household size*

*PCIND is the per capita income from the industrial sector*

*GINI is the urban gini coefficients.*

*PCEM is the per capita public expenditure on education and health.*

*a<sub>i</sub> is generally termed as unobserved effect. a<sub>i</sub> captures all unobserved , time constant factors that affect UHCR<sub>it</sub> . (The fact that a<sub>i</sub> has no subscript tells us that it does not change over time). u<sub>i</sub> is the idiosyncratic error or time-varying error , because it captures unobserved factors that change over time and affect UHCR<sub>it</sub>.*



### Random Effects Model (REM)

We also estimate the following REM:

#### Model 1

$$H_{it} = \beta_{0i} + \beta_1 \text{URB}_{it} + \beta_2 \text{PCIND}_{it} + \beta_3 \text{PCEM}_{it} + u_{it} \quad (i)$$

#### Model 2

$$H_{it} = \beta_{0i} + \beta_1 \text{URB}_{it} + \beta_2 \text{HSIZE}_{it} + \beta_3 \text{PCIND}_{it} + \beta_4 \text{GINI}_{it} + \beta_5 \text{PCEM}_{it} + u_{it} \quad (i)$$

$$\text{Where } \beta_{0i} = \beta_0 + a_i$$

Thus instead of treating the district- effects ,  $\beta_{0i}$  , as fixed , the REM assumes that each is a random variable with a mean value of  $\beta_0$  and a random error term ,  $a_i$  . with a zero mean and constant variance . So the REM can be rewritten as :

#### Model 1

$$H_{it} = \beta_0 + \beta_1 \text{URB}_{it} + \beta_2 \text{PCIND}_{it} + \beta_3 \text{PCEM}_{it} + w_{it}$$

#### Model 2

$$H_{it} = \beta_0 + \beta_1 \text{URB}_{it} + \beta_2 \text{HSIZE}_{it} + \beta_3 \text{PCIND}_{it} + \beta_4 \text{GINI}_{it} + \beta_5 \text{PCEM}_{it} + w_{it}$$

where  $w_{it} = a_i + u_{it}$  is the composite error term.

## IV. EMPIRICAL EVIDENCE

### IV .1. Indian scenario:

**IV.1.a. Incidence of urban poverty:** If we study the pattern of urban poverty in India between 1983-2010, we will find that between this period there has been a significant achievement in reducing poverty both at the national and state level (Table 1). During this period poverty has fallen in all the states with substantial differences in all the states. Some believe that this decline in poverty in urban India may be attributed to the high growth rate achieved by the states. If we divide our period of analysis between pre-reform period and post-reform period then we will find that urban India has done well under economic reforms. In the first case, we analyse incidence of urban poverty in the states of India for 1983,1987,1993,1999 and 2004 on the basis of the

Modified Expert Group estimation of urban poverty line( URP) <sup>1</sup>. This is shown by Estimate 1 in our table. Then based on the Tendulkar methodology (MRP)<sup>2</sup> of estimation of urban poverty line we calculate the incidence of urban poverty for the years 1993, 2004 and 2009 which we name as Estimate 2 in our analysis.

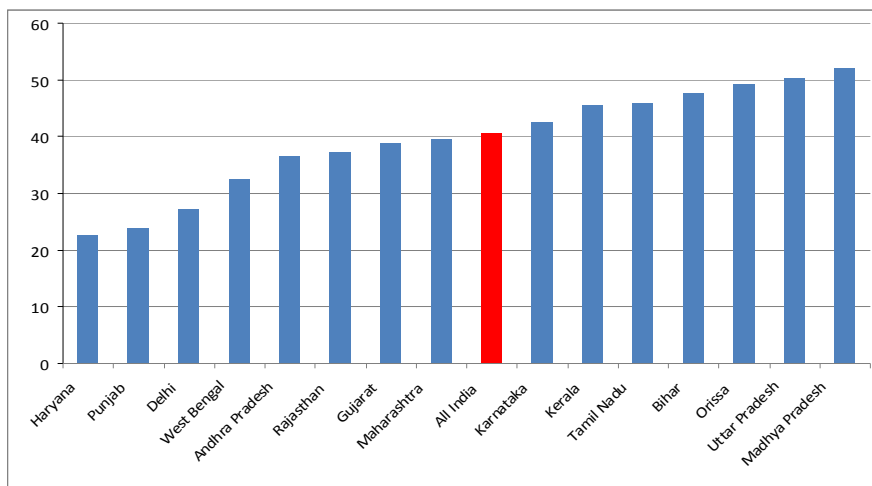
Analysing Estimate 1 from Table 1 we find that between 1983-87 urban poverty has fallen in almost all the states except a few states like Andhra Pradesh, Bihar, Karnataka, Rajasthan and West Bengal. Between 1987 and 1993 significant decline in HCR could be noticed in almost all the states particularly Kerala, West Bengal, Bihar, Rajasthan, Punjab and Gujarat. The decline in the urban poverty had accelerated in the 1990s. Between 1993-2004 significant fall in urban poverty could be experienced in Gujarat, Andhra Pradesh, Tamilnadu, Punjab and West Bengal. Orissa seemed to be the only state where there has been no changes in poverty ratio during the years. Now if we consider Estimate 2, then we find that between 1993-2004 urban poverty have significantly fallen in states like Andhra Pradesh, Tamilnadu, Gujarat and Punjab. However the percentage fall in urban poverty has been more in case of URP as compared to MRP during these years for these states. Thus we find that based on the type of methodology in estimating urban poverty line the results vary. Between 2004-2009 significant fall in urban poverty could be noticed in most of the states like Kerala, Madhya Pradesh, Rajasthan, Tamilnadu, Maharashtra, Karnataka, Andhra Pradesh, Gujarat, Orissa and West Bengal.

It can be seen that in our estimates the value of HCR is more or less same with that of the HCR estimates obtained by using the Planning Commission's official estimates of urban poverty line (Table 2) and then directly calculating the number of people below that poverty line which yield the HCR in case of Modified Expert Group methodology of estimating poverty line during different years. Where as the value of HCR in our estimates are a little higher than the directly calculated estimates in case of Tendulkar methodology of estimating poverty line during 1993-94, 2004-05 and 2009-10. That is we find that the latter estimates provide underestimation of urban poverty for India and all its states.

It is interesting to note that whatever methods we choose in finding the estimates of urban poverty the relative position of the states with respect to their rank (Tables 3 and 4) in the prevalence of urban HCR remains almost same for all the states for different years of study.

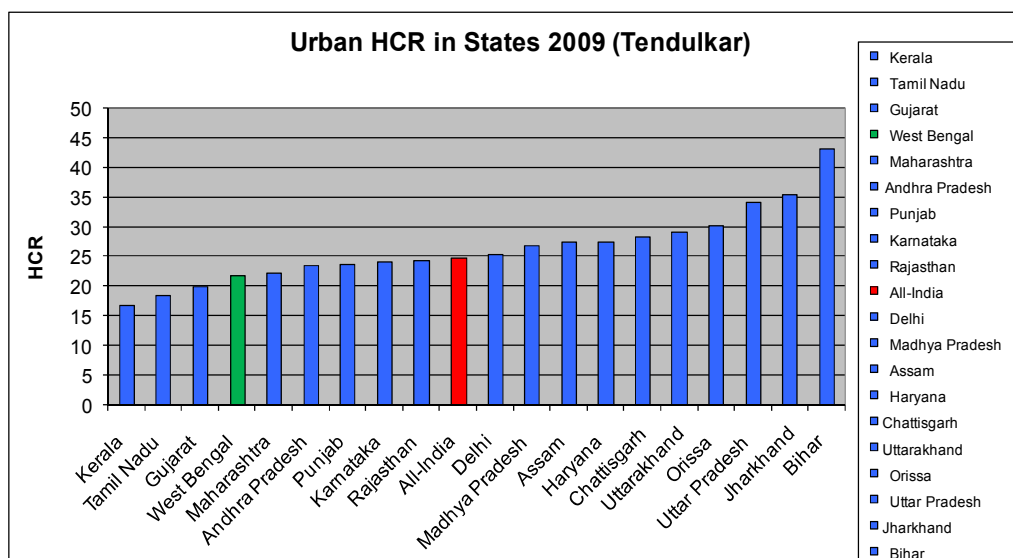
The following figures show the position of West Bengal with respect to India's national average of poverty estimates in urban areas.

**Figure 1: State level urban Head Count Ratio-1983**



Source: All the above figures are plotted from Author's calculation

**Figure 2: State level urban Head Count Ratio-2009(Estimate 2)**



Source: All the above figures are plotted from Author's calculation

**IV.1.b. Incidence of urban inequality:** This is measured by the gini index. If the Lorenz curve is represented by the function  $Y=L(X)$ , then

$$G = 1 - 2 \int L(X) dX.$$

Sometimes the entire Lorenz curve is not known, and only values at some intervals are given. If  $(X_k, Y_k)$  are the points on the Lorenz curve which are known with  $X_k$  indexed in increasing order ( $X_{k-1} < X_k$ ) such that:

$X_k$  is the cumulated proportion of the population variable, for  $k=0, \dots, n$ , with  $X_0=0, X_n=1$

$Y_k$  is the cumulated proportion of the income variable, for  $k=0, \dots, n$ , with  $Y_0=0, Y_n=1$

$Y_k$  should be indexed in non-decreasing order ( $Y_k > Y_{k-1}$ )

The resulting approximation for G is

$$G_1 = 1 - \sum_{k=1}^n (X_k - X_{k-1})(Y_k + Y_{k-1})$$

By using the above method for gini calculation we get the values of gini coefficients for all the states of India for the years 1983, 1987, 1993, 1999, 2004 and 2009 in the following Table 5a which shows that there has been little differences in the incidence of urban inequality in the states of India for different years of study in almost all the years. Gujarat experienced low incidence of urban inequality among other states. States that improved their position among all the states with respect to urban inequality between 1983-2009 have been West Bengal, Karnataka and Tamil Nadu. When we consider the percentage change in urban inequality in India between 1993-2004, then from Table 4 we find that except Andhra Pradesh all other states experienced an increase in urban inequality. Between 2004 and 2009 Karnataka, Madhya Pradesh, Punjab, Tamilnadu, Uttar Pradesh, West Bengal and Chhattisgarh experienced a fall in the value of gini coefficient where as the rest of the states show a rise in the value of gini coefficient. From table 5b we find that between 1993-2004 the percentage reduction in urban inequality have been maximum for states like Andhra Pradesh followed by Tamilnadu, Maharashtra, Gujarat, Delhi, Bihar and West Bengal. Between 2004-2009 maximum urban

inequality occurred in Chattisgarh followed by West Bengal, Karnataka, Madhya Pradesh, Tamilnadu, and Punjab.

#### **IV.2. West Bengal Scenario: Determinants of urban poverty**

In large scale agrarian economy like India there has been a steady rise in the process of urbanisation and the impact of urbanisation has been immense. In West Bengal, towns were initially developed mainly as trading centres in the pre-colonial era. Majority of such towns traded mainly textile products. During the colonial era with the forceful decay of such production activities urbanization in present day West Bengal centered around Calcutta (Kolkata) serving as Capital City of British rule in India. Later with the setting up of Jute Mills, initiation of railways, growth of tea sector in Northern Bengal and also with increased mining activities in the Western part, certain new towns had come up. The pattern of urbanization during colonial era in West Bengal comprises of all these—fall of old towns, higher mining activities, agricultural stagnation, decay of handicrafts, and famines. They all together characterized the process of urbanization in West Bengal. And these pattern continued to follow in post independence period along with the burden of large scale immigration due to partition as well as with the birth of Bangladesh in 1970s (West Bengal Development Report, 2010). Presently the urbanisation pattern in West Bengal remains uneven. It is observed that proportion of population of the state living in class I towns has increased from 77 per cent to 83 per cent during 1991-2001 whereas the proportion of people living in small towns has declined (Sivaramankrisnan et al , 2005). The uneven growth of urban population is not only in terms of space but also with respect to time. During 1950-70 proportion of urban population of the state was around 24 per cent which increased sharply to more than 30 per cent in 2009 (Figure 6.1). Obviously the urbanisation process has a major role in the living conditions of its citizens.

We find that the pattern of urban poverty has shown a decreasing trend over the years of study whether the estimates of urban Head Count Ratios are obtained using MRP or URP in calculating urban poverty line. However, whatever methodology is adopted in estimating urban poverty ratios, the pattern of urban poverty remains all the same i.e declining over the years. If we look at the values of the Gini coefficient for West Bengal we find that it increased from 0.33 in 1983 to 0.38 in 2009 implying a rise in the level of inequality between these years.

Next we explore whether degree of urbanisation, urban household size, per capita industrial income, urban inequality and per capita public expenditure on education and health affect urban poverty significantly. For this a panel data regressions have been done taking 16 districts<sup>3</sup> of West Bengal for the years 1983, 1987, 1993, 1999, 2004 and 2009.

The summary of basic statistics has been given in Table 6 in the appendix. Table 7 in the appendix shows that there exists some amount of correlation among some of these variables. But since the correlation is not very high, these variables could be used together in the panel regression.

The results of regression analysis is presented in the following Table 8

**Table 8: Regression Results: Urban HCR taken as dependent variable**

Explanatory variables	Model1	Model2	Model 1	Model2
Variables(1)	(2)	(3)	(4)	(5)
Degree of Urbanisation	-0.2397913 (-0.41)	-0.1732241 (-0.26)	-0.4011721*** (-3.24)	-0.4157852*** (-3.76)
Household size		1.915036 (1.17)		2.556649* (1.80)
Income inequality (GINI)		34.94222 (1.18)		59.63368** (2.32)
Per capita Industrial Income	-6698.427 (-3.11)	-6520.174*** (-2.85)	-5761.618*** (-3.23)	-5584.198*** (-3.03)
Per capita public expenditure on education & health	-0.1335463 (-1.48)	-0.1229321 (-1.34)	-0.1415973** (-1.98)	-0.1286999** (-1.91)
Constant	43.45603 (3.90)	21.09893 (1.10)	45.92639*** (11.62)	14.37175 (1.17)
Observations	96	96	96	96
R- squared	.3123	.3432	.3027	.5306
Model	Fixed Effect	Fixed effect	Random effect-GLS	Random effect-GLS
Breush-Pagan LM test, chi2(p)			0.83 (0.1463)	0.24 (0.3119)
Hausman test, chi2 (p-value)			0.62 (0.7351)	4.51 (0.3415)
Mean VIF	1.15	1.25		
Wald chi2 (p-value)			31.51 (0.000)	41.53 (0.000)
Wald Test, F (p-value)	1.88 (.0485)	1.35 (.2073)		

Source: Author's calculation

Note: \*\*\* significant at 1 % level \*\* significant at 5 % level and \* significant at 10 % level

- The values of urban HCR for the regions have been taken for the corresponding districts of that region wherever estimates of urban HCR for the respective district is unavailable for any year.

### **Discussions:**

The insignificant p- value in column 2 and 3 in the F test in FEM suggest that the constant terms are not all equal. Here the null hypothesis is rejected and we do panel regression instead of OLS. From Breusch and Pagan LM (Lagrange multiplier) test, the insignificant p-value in column 4 and 5 suggest selection of random effects over classical regression. So the models do not suffer from selection- bias. In the random effect model it is found that the value of Wald  $\chi^2$  is 31.51 in column 4 for Model 1 and the value of Wald  $\chi^2$  is 41.53 in column 5 for Model 2 with probability =0.0000. This suggests that the test statistic is significant. So we cannot reject the null hypothesis and hence conclude that the unobserved effect and the explanatory variables are uncorrelated. This supports the use of Random Effect model. In Hausman test the computed value of the  $\chi^2$  is 0.62 with probability  $>\chi^2 = .7351$  for Model 1 in column 4. Again the computed value of the  $\chi^2$  is 4.51 with probability  $>\chi^2 = .3415$  for Model 2 in column 5. The value of test statistic is low and p-value is insignificant in both the models. Hence the null hypothesis cannot be rejected. A failure to reject Hausman test means that there does not exist significant differences between the two FE and RE estimates. So this suggests that random effects regression is more appropriate than fixed effects. Low values of mean VIF (lower than tolerance level of 10 ) in both the models(1.15 in Model 1 and 1.25 in Model 2 in column 2 and 3) suggest that our models do not suffer from multicollinearity (Table 9).

We find that in **Model 1** when we use Random Effects, there are negative coefficients on URB ,PCIND and PCEM which implies that they are indeed poverty reducing in urban West Bengal. The estimated coefficients of URB and PCIND are found to be significant at 1 percent level and that of PCEM is found to be significant at 5 percent level. Now including HSIZE and GINI coefficient we find in **Model 2** the overall explanatory power of the REM has improved with value of  $R^2$  at 0.5306. Here also we have negative coefficients on URB ,PCIND and PCEM as before which implies they are poverty reducing in urban West Bengal. We have positive coefficients on GINI and HSIZE which means that urban poverty is directly related with GINI and HSIZE.

The study reveals that decline in urban poverty is associated with a faster pace of urbanization in West Bengal (estimated coefficient is -.4157852 in model 2 and significant at 1 percent level). During the period 1999 to 2009 in West Bengal urban population increased from 32.03 percent to 37.80 percent. The regression result suggests that during this ten years the process of

urbanisation with 5.77 percentage points increase nearly contributed to 2.39 percent points fall in urban HCR. The study reveals that per capita public expenditure on education and health significantly contribute to decline in urban poverty reduction (estimated coefficient is  $-.1286999$  significant at 5 percent level). In measuring the Per capita public expenditure on education and health we have used expenditure by the municipalities on education and health combined together because the data source does not permit further segregation. It is also to be noted that municipalities mainly run primary schools. During the period 1999 to 2009 in West Bengal the per capita expenditure of West Bengal on health and education increased from Rs 22.43 to Rs 32.38 . This ten percentage points rise in the expenditure led to a drop in urban HCR by 1.2 percent points. This implicates only the impact of primary education mainly as well as health services by municipal authorities.

The negative relationship of urban HCR with per capita industrial income suggests that as per capita industrial income rises, urban poverty falls. It is evident in all developing nations that economic growth remains central to poverty reduction. It is seen that urban HCR has a positive relationship with urban household size. The positive relationship of urban HCR with urban household size suggest that poverty has been more intense for urban households with larger family size (estimated coefficient is significant at 10 percent level). In other words, greater the household size more is the probability of household being poor. The positive relationship of urban HCR with urban inequality suggest (estimated coefficient is significant at 5 percent level) urban inequality raises the probability of incidence of urban poverty. Here from the estimated results of the panel regression, it can be suggested that estimated coefficients of all the explanatory variables are significant at 1-10 percent level. They act as significant determinant of urban poverty in West Bengal.

## **V. Policy issues and Conclusions**

Urban poverty perhaps is one of the most serious development challenges that India is recently facing. Though the incidence of urban poverty has fallen over the years of study, yet the performance of the country in reducing the rate of incidence of urban poverty has not been very satisfactory. In case of West Bengal the decline in urban poverty is associated with a faster pace of urbanization ,small size of the household, decline in urban inequality, growth in per capita industrial income and rise in per capita public expenditure on education and health.



Since the early 1980s, the strategy of development of urban areas in West Bengal has been implemented by a democratic and participatory governance of Urban Local Bodies (ULB) which tried to capture the felt needs of the people of urban areas through regular election to ULBs.

If we look at the current policies in West Bengal with regards to poverty reduction and inequality we would find that Swarna Jayanti Sahari Rozgar Yojana (SJSRY), a centrally assisted poverty alleviation programme launched during 1997 has been instrumental in creating an increase in access to education and health services by providing awareness and visible income opportunities for the unemployed and underemployed urban poor. The SJSRY programme opened up prospects for many economically marginalized women through provision of vocational training programmes. Some started the business of jute handicrafts and allied fancy items, some started the spice business and have been recognized as successful entrepreneurs.

A central government scheme named Valmiki Ambedkar Awas Yojana (VAMBAY) has been launched during 2001-2002 to provide shelter or upgrade the existing shelter for people below poverty line in urban slums. Later the programme has been merged into the Integrated Housing and Slum Development Programme (IHSDP) and Basic Services for Urban Poor Programme (BSUP) in 2003. As a part of poverty reduction programme there emerged the Kolkata Urban Services Programme (KUSP) for the poor with an aim to improve urban planning and governance, improve access to services for the poor and promote economic growth. KUSP has also been operative in strengthening the existing community based primary health care services in the ULBs through community based honorary health worker scheme that has been in operation in West Bengal since 1986 through different health programmes like CUDP, India Population Project (IPP-VIII), UHIP in KMA ULBs and IPP-VIII( Extn), RCH Sub Project, Asansol and HHW Scheme in Non-KMA ULBs. KUSP has created an innovative /challenge Fund to support civil society organizations in undertaking innovative and pioneering initiatives that help in contributing to the overall mandate of urban management and focus on different issues related to the poor and vulnerable sections of the society. An amount of Rs. 3.5 crores per year has also been allocated for this fund from KUSP budget throughout the entire duration of the programme and large number of projects have been sanctioned across various ULBs in KMA targeted towards improvements of the poor people. The public health infrastructure of West Bengal is overstretched due to the huge population pressure on the state and because of the fact that a lot of

curative services are also rendered through the public healthcare delivery system. 76 percent of all health institutes in the state are run by the government, compared to 40 percent in other parts of India (West Bengal Human Development Report 2004). It is time to place more focus and intervention in preventive health services. A major problem is inequitable distribution of health and education facilities in the different categories of municipalities, especially the facilities owned by the municipalities. 25 percent of the health facilities are taken away by the 4 percent of the municipalities and 50 percent of the facilities are enjoyed by only 12 percent of them (Urban Health Strategy, 2008; Govt of West Bengal).

The government has initiated the process of introducing generic medicines in state-run hospitals by opening fair price shops through public-private partnership (PPP) and these outlets are selling generic drugs at a rebate on the maximum retail price (MRP) to serve large number of people especially the poor section. So far the consumption expenditure is concerned, a large proportion of it nearly 25-35 per cent goes as health expenses. In the context of rising pace of urbanisation giving rise to 999 total number of towns in 2011 from 375 in 2001 including the statutory towns and census towns this fair pricing scheme can benefit a large section if it's base can be increased. However quality control would be a vital issue here. Other Indian states can also follow this scheme of fair price medicine shops in order to help the needy poor.

Among many, one of the objectives of the Kolkata Environmental Improvement Project (KEIP) initiated in March 2002 for the Kolkata Municipal Corporation area and financially assisted by Asian Development Bank (ADB) and Department for International Development (DFID) has been slum area development. To reach the children of disadvantaged families in slum areas, non-formal schools in the form of Sishu Siksha Kendras (SSKs) are being run by the urban local bodies for imparting primary and elementary education to the children in the age group of 5-9 under the coverage of Sarva Siksha Abhijan (SSA), the Government of India's programme of universalisation of elementary education. Owing to persistence of huge youth unemployment there is an urgent need for more job oriented vocational training and technical courses for students onwards middle and secondary level.

Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in late 2005 includes KMA and Asansol urban area as Mission cities funded by both Central; and State government for improvement of water supply and sewerage, drainage and slum area development. All infrastructural development schemes under megacity programmes have been subsumed under

JNNURM. But The City Development Plans (GDP) prepared under JNNURM are by and large consultant driven whereas some other towns have access to sectoral plans for specific services provided by respective parastatal / state level agency. These plans somehow remains detached from the 'local' components of planning and does not adequately cover local /actual priorities. (Pandey, 2012).

Taking into account the emerging pattern of urbanisation in India, formulation and implementation of a long term national urbanisation policy including an integrated urban slum policy for the states is required in the country in order to channelize the future urban growth in an equitable and sustainable manner. Keeping in mind the importance of education in urban poverty reduction as the study suggest, sufficient investments is required for community based primary education programs which aims to make elementary education accessible to girls, children in deprived communities, SC/STs, children from minority groups and children with special needs. This would also raise the enrollment ratio in future and further promote for more participation in secondary and higher levels of education. Enough investment in urban health programme is also required from the corporate, private sectors and NGOs in improving health services to the poor. There is also a requirement of proper co-ordination and integration of different poverty alleviation programmes like Jawaharlal Nehru National Urban Renewal Mission(JNNURM) , Integrated Housing and Slum Development Programme, Elected bodies and City administration departments of health and family welfare, and Women and Child development and Education departments.

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**Notes:**

<sup>1</sup> In the case of Uniform Recall Period (URP), all information on consumption expenditure is collected on a month-long recall period basis.

<sup>2</sup> Under Mixed Recall Period (MRP), information on five broad item groups of household consumer expenditure with low frequency of purchase namely, clothing, footwear, education, institutional medical care and durables is collected on a year or 365 days recall basis while information on consumption expenditure on all other items is collected on a month or 30 days recall period.

<sup>3</sup> Districts of West Bengal include Darjeeling, Jalpaiguri, Coochbehar, Uttar Dinajpur, Dakshin Dinajpur, Malda, Murshidabad, Birbhum, Nadia, Burdwan, Howrah, Hooghly, 24 Parganas North and South and Kolkata, Bankura, Purulia, Paschim and Purba Midnapore.

- The estimates of urban population for the required years 1983, 1987, 1993, 1999, 2004 and 2009 are arrived at by interpolation and extrapolation of the census data on urban population (1981, 1991, 2001 and 2011 population census) obtained from the census reports.
- The average household size have been calculated from the unit level data of National Sample Survey Organisation.
- The estimates of Industrial income per capita have been calculated after dividing the domestic product of Industrial sector by the urban population for the required years from the interpolation and extrapolation of the census data on urban population (1981, 1991, 2001 and 2011 population census).
- We take per capita public expenditure on education and health by the municipalities from the report of Municipal statistics.

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