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## Demographic profile after independence: A comparative study of Chandernagore Municipal Corporation and Hooghly-Chinsurah Municipality, West Bengal

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### Abstract

Demographic profile refers to the statistical analysis of population data of an administrative unit. It talks about spatio-temporal change of population data. The present research work is an attempt to study comparatively about demographic profile of Chandernagore Municipal Corporation and Hooghly-Chinsurah Municipality, two class-I cities of West Bengal. The whole analysis has been done based on census data of 50 years. The demographic profile has been represented using census data of 5 decades, from 1961 to 2011. Geographically both the cities are situated on the same environment but they have different colonial background. Since independence both the cities have gone through massive change in their demographic profile differently. Irregularities in population parameters are higher in Chandernagore Municipal Corporation than Hooghly-Chinsurah Municipality mainly because of drastic change of geographical area.

**Keywords:** Demographic profile, population dynamicity, household-population size index, population projection

### 1. Introduction

Chandernagore Municipal Corporation (CMC) and Hooghly-Chinsurah Municipality (HCM) are two adjacent class-I cities of West Bengal. They are situated on the Eastern most part of Hooghly district. CMC and HCM are surrounded by Bansberia Municipality in the North, Bhadreswar Municipality in the South, river Ganga to the East and different rural *mouzas* in the West. The area is located between two rivers, the Ganga to the Eastern part and the Saraswati to the Western part. The geographical location of the study area is 22°50'08" N to 22°56'42" N and 88°18'16" E to 88°24' 40" E (Figure - 1). There are 33 wards in CMC and 30 wards in HCM. The geographical area occupied by CMC and HCM is 22.03 sq. km and 17.27 sq. km respectively. The year of establishment of CMC is 1955 and of HCM is 1865<sup>[1]</sup>. The population size of CMC and of HCM is 1, 66,949 and 1, 77,209 as per the Census of India, 2011. There are 152 slums in CMC with a population of 27 per cent of the total<sup>[2]</sup>. There are 140 slums in HCM with a population of 32 per cent of the total population<sup>[3]</sup>. Since independence there is a drastic change found in these two cities in terms of ward number, geographical area and population dynamicity. Both the cities have colonial background of different culture. Establishment of Hooghly was made in 1537 by Portuguese and establishment of Chinsurah was made in 1635 by Dutch. Chandernagore was founded in 1673 by French. Within this small piece of land, three European countries established their colonisation differently. After independence both the cities were grown uniquely with keeping imprints of their different colonial background.

Demographic profile represents statistical analysis of population data. It talks about the dynamicity of population of an area. Exclusively, demographic profile demonstrates the spatio-temporal changing scenario of population data. The present work is an attempt to identify how the demographic characteristics such as, population size, population density, population growth rate, household-population size index etc are getting changed over space and time of Chandernagore Municipal Corporation and Hooghly-Chinsurah Municipality after independence.

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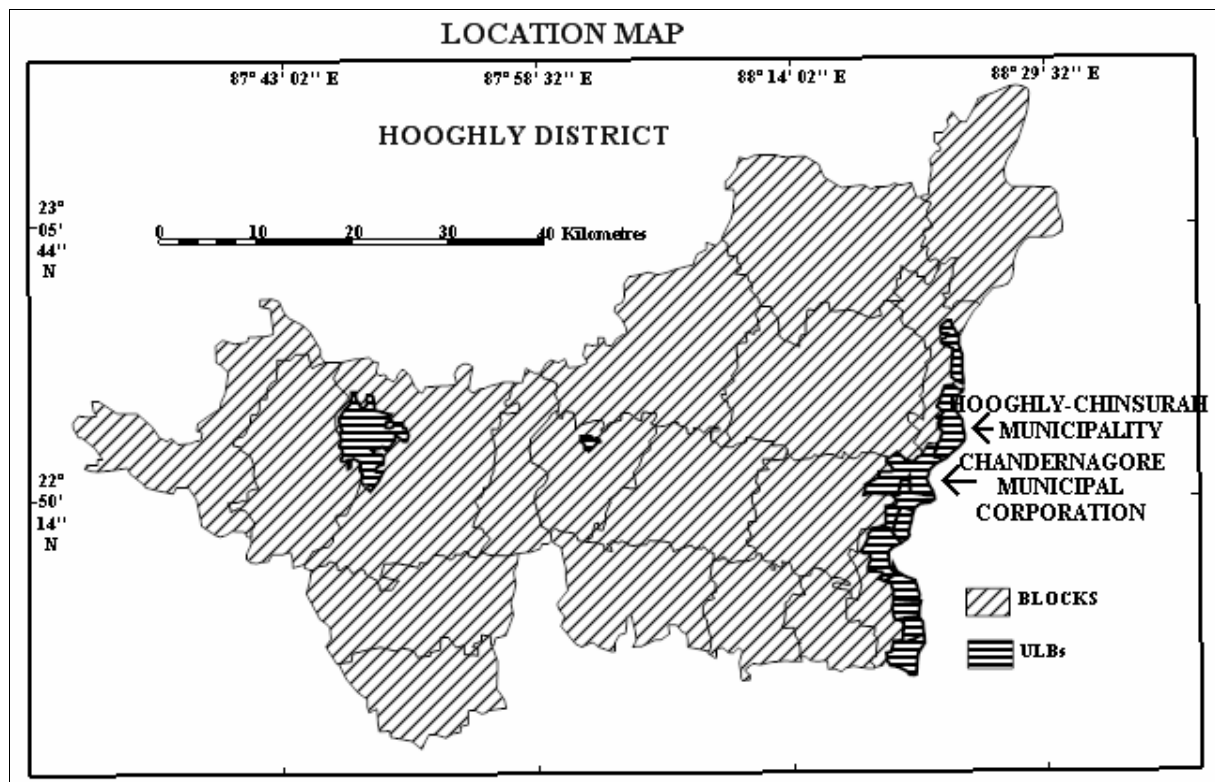


Fig 1: Hooghly District

## 2. Materials and Methods

The present research work is on demographic profile of two adjacent cities of Hooghly district, West Bengal. The work has been done mainly based on secondary data as it is a part of Population Geography and main and major source of population related data in India is Primary Census Abstract (PCA), published by Govt. of India. Here PCA data of 50 years has been used to complete the whole work. These are: PCA 1961 [4], PCA 1971 [5], PCA 1981 [6], PCA 1991 [7], PCA 2001 [8] and PCA 2011 [9]. In addition, Draft Development Plan (DDP) of Chandernagore Municipal Corporation and Hooghly-Chinsurah Municipality has been used.

The quantitative analysis has been done using statistical methods manually and sometimes in MS-Excel. The diagrams have also been prepared in MS-Excel for better representation of demographic data. Field work has been also conducted for getting into detail analysis of census data.

## 3. Results and Discussions

### 3.1 Demographic profile of CMC and HCM

Population size of CMC was 67,105 in 1961 which

increased to 1, 66,949 in 2011. The population density has also been increased from 6,947 in 1961 to 12,462 in 1991 and then declined to 7,361 in 2001 because of the increase in geographical area of CMC in 2001. Thereafter, a little rise has been occurred in population density in 2011 which is 7,578. The western part of CMC is newly added in the year of 1995 which has reduced the population density of 2001. The changing scenario of population density is not so much consistent over the decades which follow the peak in 1991 (Figure - 2). Decadal population growth has been observed maximum during 1971-81 (35.47%) and minimum during 2001-11 (2.94%) (Table - 1). The tendency of population growth rate over the decades is very much fluctuating (Polynomial 3<sup>rd</sup> order,  $R^2 = 56.5\%$ ) (Figure - 3.2). From the temporal change of population density and decadal growth rate of CMC, it is clear that the time factor alone cannot explain these patterns efficiently. Highest population growth rate during 1971-81 reflects the huge amount of immigration from Bangladesh after partition. The second highest growth rate has been observed during 1991-2001 because of areal expansion of the city in this period.

Table 1: Demographic profile of Chandernagore Municipal Corporation

| Year | No. of wards | Area (sq.km) | Population size | Population density (population/sq.km) | Decadal population growth rate (%) |
|------|--------------|--------------|-----------------|---------------------------------------|------------------------------------|
| 1961 | 5            | 9.66         | 67, 105         | 6, 947                                |                                    |
| 1971 | 22           | 9.66         | 75, 238         | 7, 789                                | 12.12                              |
| 1981 | 22           | 9.66         | 1, 01, 925      | 10, 551                               | 35.47                              |
| 1991 | 22           | 9.66         | 1, 20, 378      | 12, 462                               | 18.1                               |
| 2001 | 33           | 22.03        | 1, 62, 166      | 7, 361                                | 34.71                              |
| 2011 | 33           | 22.03        | 1, 66, 949      | 7, 578                                | 2.94                               |

Source: Author's calculation based on data of Census of India (1961-2011)

The population size of HCM was 83, 104 in 1961 which increased to 1, 77,209 in 2011. The population density has

also increased from 5, 348 in 1961 to 10, 261 in 2011. The changing scenario of population density is very much

consistent with the time (Linear trend line,  $R^2 = 95.2\%$ ) (Figure - 2). The latest census of 2011 has shown that the country has a population density of 382 persons/sq. km<sup>[10]</sup>. Decadal population growth of the city decreased from 26.64 % (1961-1971) to 4.11 % (2001-2011) (Table - 2). The temporal change of decadal growth rate of HCM is less consistent (Polynomial 3<sup>rd</sup> order,  $R^2 = 88.3\%$ ) than

population density (Figure - 3). However, HCM is more consistent in decadal population growth rate in comparison to CMC. These facts explain that the time factor dominantly influences population density of HCM than the decadal population growth rate. The highest population growth rate has been reported during 1961-71 because of immigration from Bangladesh.

**Table 2:** Demographic profile of Hooghly-Chinsurah Municipality

| Year | No. of wards | Area  | Population size | Population density (population/sq.km) | Decadal population growth rate (%) |
|------|--------------|-------|-----------------|---------------------------------------|------------------------------------|
| 1961 | 6            | 15.54 | 83, 104         | 5, 348                                |                                    |
| 1971 | 30           | 15.54 | 1, 05, 241      | 6, 772                                | 26.64                              |
| 1981 | 30           | 16.06 | 1, 25, 193      | 7, 795                                | 15.11                              |
| 1991 | 30           | 16.06 | 1, 51, 806      | 9, 452                                | 21.26                              |
| 2001 | 30           | 17.27 | 1, 70, 206      | 9, 856                                | 12.12                              |
| 2011 | 30           | 17.27 | 1, 77, 209      | 10, 261                               | 4.11                               |

Source: Author's calculation based on data of Census of India (1961-2011)

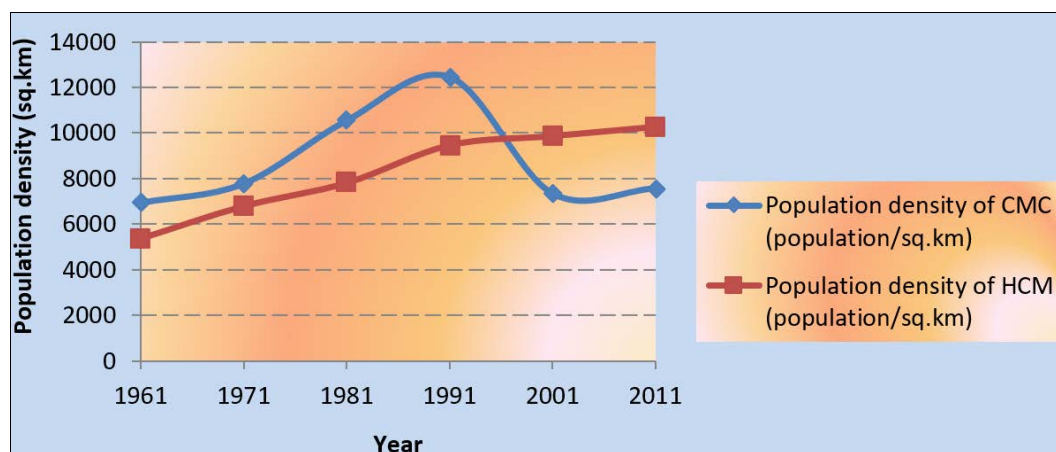


**Fig 2:** Population density of CMC & HCM (1961-2011)

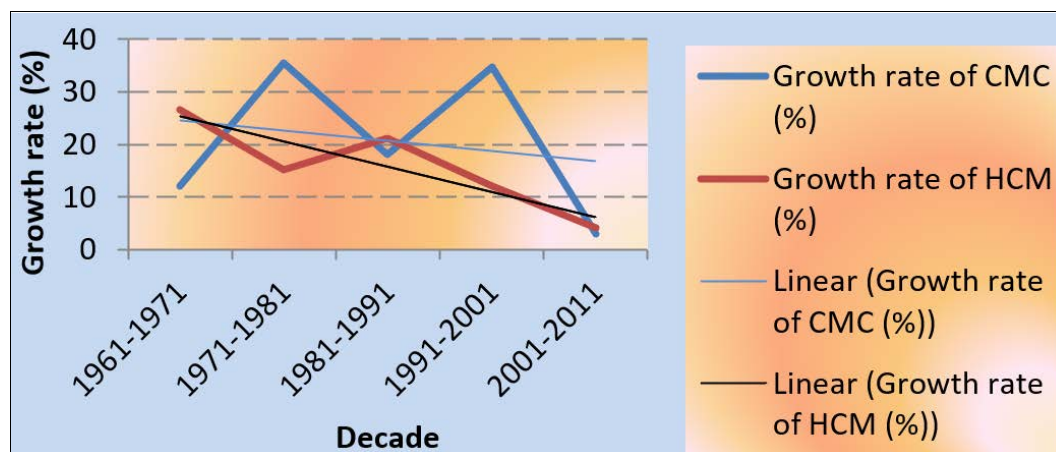


**Fig 3:** Decadal population growth rate (1961-2011)

### 3.2 Ward-level population structure

Population size varies over the wards significantly both in CMC and in HCM. Numbers of wards have been increased over the time and also size of wards has been changed. Therefore, population size has been given more importance here rather than density. The number of wards is 30 in HCM during the periods of 1971-2011. However, number of wards in CMC was 22 from 1971 to 1991 and then it was increased to 33 in 2001.

For maintaining the parity in annual growth rate analysis at ward level, ward number 1 to 22 has been considered for CMC. The highest and lowest population size has been observed 5, 260 in ward 19 and 2, 006 in ward 21 of CMC in 1971. However, the highest and the lowest values go to 7,

810 in ward 26 and 2, 601 in ward 27 in 2001. Annual growth rate of CMC during 1971-91 (CV = 84.31%) and during 1971-2001 (CV = 89.61%) shows high variability over the wards (Figure - 4). However, this variability is less in CMC than in HCM. The highest and the lowest growth rate have been observed 8.73% in ward 18 and -0.35% in ward 20 during 1971-91. During 1971-2001, the maximum and minimum value is found 6.55% in ward 8 and -0.5% in ward 17. During 2001-2011, the maximum and minimum value is found 1.88% in ward 2 and -0.77% in ward 5. Few wards are there those have scored negative growth rate. These are ward 20 (1971-91) and 16, 17, 19 (1971-2001) and 5, 6, 7, 9, 11, 17 (2001-2011) which are located in the South-Central part of CMC (Table - 3). Therefore, the

direction of annual growth rate of ward level population of

CMC is not so much consistent like HCM.



Fig 4: Temporal scenario of ward level annual growth rate of CMC

The highest and the lowest population size have been observed 12, 574 in ward 2 and 1, 256 in ward 3 in 1971 of HCM. However, the scenario is changed in 2001. Here the highest (12, 693) and the lowest (2, 506) population size belong to ward 3 and ward 12 respectively. The annual growth rate of HCM during 1971-91 (CV = 164.27%) and during 1971-2001 (CV = 169.21%) shows high variability over the wards (Figure - 5). Few wards are there those have showed negative growth rate such as ward 2, 5, 12, 14, and 25 during 1971-91 and 2, 5, 12, 14, 25, and 26 during 1971-2001 and 11, 12, 14, 16, 21, 23, 24, 25, 26 during 2001-2011. The locations of the wards explain that negative

growth rate occupies the North, East and Southern peripheral zones of CMC. Therefore, except ward 2 and 5 the rest of the wards shows negative annual population growth rate consistently since 1971 to 2011 in HCM. During 1971-91 maximum and minimum annual growth rate has been observed in ward 3 (32.75%) and in ward 2 (-2.38%). The maximum and minimum values are retained by the same wards during 1971-2001, however, the magnitude gets altered slightly which are 30.35% and -1.1% respectively (Table - 3). The maximum and minimum values of annual growth rate is 3.17% in ward 20 and -3.67% in ward 21 during 2001-2011.

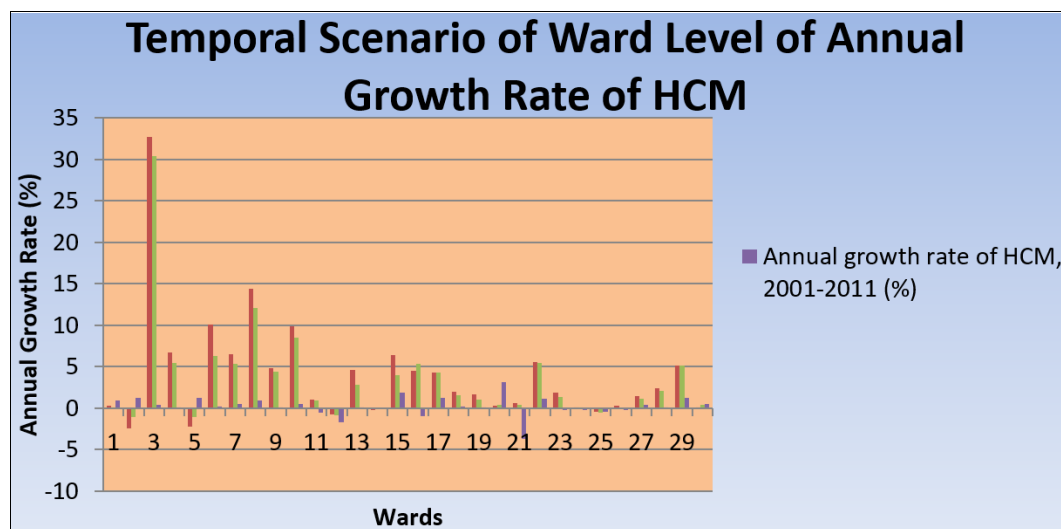


Fig 5: Temporal scenario of ward level of annual growth rate of HCM

Table 3: Ward-wise annual growth rate of CMC and HCM

| Ward No. | Annual growth rate of CMC, 1971-91 (%) | Annual growth rate of CMC, 1971-2001 (%) | Annual growth rate of CMC, 2001-2011 (%) | Annual growth rate of HCM, 1971-91 (%) | Annual growth rate of HCM, 1971-2001 (%) | Annual growth rate of HCM, 2001-2011 (%) |
|----------|----------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------|------------------------------------------|------------------------------------------|
| 1        | 3.37                                   | 2.01                                     | 1.34                                     | 0.28                                   | 0.03                                     | 0.94                                     |
| 2        | 0.07                                   | 0.47                                     | 1.88                                     | -2.38                                  | -1.10                                    | 1.28                                     |
| 3        | 4.00                                   | 2.62                                     | 0.52                                     | 32.75                                  | 30.35                                    | 0.37                                     |
| 4        | 3.21                                   | 1.18                                     | 0.09                                     | 6.7                                    | 5.47                                     | 0.02                                     |
| 5        | 0.58                                   | 0.73                                     | -0.77                                    | -2.26                                  | -1.04                                    | 1.24                                     |
| 6        | 3.31                                   | 2.37                                     | -0.55                                    | 10.05                                  | 6.28                                     | 0.20                                     |
| 7        | 5.78                                   | 1.13                                     | -0.74                                    | 6.55                                   | 5.40                                     | 0.54                                     |
| 8        | 2.91                                   | 6.55                                     | 1.73                                     | 14.37                                  | 12.06                                    | 0.93                                     |
| 9        | 7.74                                   | 2.59                                     | -0.03                                    | 4.8                                    | 4.36                                     | 0.09                                     |
| 10       | 2.38                                   | 1.12                                     | 0.36                                     | 9.9                                    | 8.52                                     | 0.51                                     |
| 11       | 0.81                                   | 2.02                                     | -0.33                                    | 1.07                                   | 0.99                                     | -0.48                                    |
| 12       | 2.39                                   | 2.98                                     | 0.58                                     | -0.77                                  | -0.82                                    | -1.70                                    |

|    |       |       |       |       |       |       |
|----|-------|-------|-------|-------|-------|-------|
| 13 | 1.9   | 1.64  | 0.18  | 4.65  | 2.85  | 0.09  |
| 14 | 1.69  | 1.44  | 0.71  | -0.21 | -0.14 | -0.12 |
| 15 | 0.04  | 3.22  | 0.84  | 6.38  | 3.97  | 1.90  |
| 16 | 6.27  | -0.18 | 0.33  | 4.50  | 5.31  | -0.93 |
| 17 | 1.76  | -0.5  | -0.29 | 4.29  | 4.33  | 1.21  |
| 18 | 8.73  | 2.44  | 0.11  | 1.95  | 1.52  | 0.19  |
| 19 | 1.18  | -0.07 | 0.45  | 1.66  | 1.08  | 0.05  |
| 20 | -0.35 | 2.8   | 0.73  | 0.35  | 0.46  | 3.17  |
| 21 | 7.24  | 6.5   | 0.80  | 0.58  | 0.45  | -3.67 |
| 22 | 2.56  | 1.07  | 0.14  | 5.52  | 5.46  | 1.11  |
| 23 |       |       | 0.91  | 1.84  | 1.39  | -0.20 |
| 24 |       |       | 0.19  | 0.10  | 0.09  | -0.26 |
| 25 |       |       | -1.98 | -0.42 | -0.50 | -0.46 |
| 26 |       |       | -2.35 | 0.26  | -0.02 | -0.24 |
| 27 |       |       | -2.03 | 1.47  | 1.14  | 0.41  |
| 28 |       |       | 0.17  | 2.37  | 2.12  | 0.12  |
| 29 |       |       | 0.82  | 5.19  | 5.17  | 1.26  |
| 30 |       |       | 2.31  | 0.05  | 0.40  | 0.56  |
| 31 |       |       | 1.21  |       |       |       |
| 32 |       |       | 0.85  |       |       |       |
| 33 |       |       | 0.97  |       |       |       |

Source: Computed by author based on Census data 1971-2011

### 3.3 Household-population size index

Household-population size index is a measure which has been used to identify population size per household. Here it has been calculated at ward level for both the cities of CMC and HCM. The average value of household-population size index of CMC and HCM were 4.55 and 4.49 in 2001 which decreased to 4.03 and 3.99 respectively in 2011 (Table - 4). These values show the average household size of the cities. The maximum and minimum household size index have been observed in ward number 11 (5.95) and 14 (4.11) of CMC and in ward number 1 (4.76) and 26 (4.14) of HCM in 2001. However, the scenario is changed little bit in the year 2011. In 2011, the maximum and minimum household size index have been reported in ward number 25 (5.68) and 14 (3.56) of CMC and in ward number 1 (4.23) and 11 and 23 (3.71) of HCM. Both the cities show a decline trend of

household size index from 2001 to 2011 in their maximum and minimum values. This is an important point to note that the household size is getting smaller and nucleated in the cities. There is not much variation in the household size among the wards of both the cities. CMC shows 9.53% and 11.52% of co-efficient of variation in 2001 and 2011, whereas, HCM shows 3.82% and 3.43% in 2001 and 2011. The distribution pattern of household size of different wards show slight skewed with a value of 2.02 in 2001 and 2.17 in 2011 for CMC and -0.18 in 2001 and 0.13 in 2011 for HCM. Moreover, CMC shows leptokurtic distribution and HCM shows platykurtic distribution (Figure - 6 & 7). From the above observation it is clear that household-population size index is almost consistent over the wards in both the cities.

**Table 4:** Household-population size index of CMC and HCM

| Ward | Household size of CMC |      | Population size of CMC |      | Household-population size index of CMC |      | Household size of HCM |      | Population size of HCM |       | Household-population size index of HCM |      |
|------|-----------------------|------|------------------------|------|----------------------------------------|------|-----------------------|------|------------------------|-------|----------------------------------------|------|
|      | 2001                  | 2011 | 2001                   | 2011 | 2001                                   | 2011 | 2001                  | 2011 | 2001                   | 2011  | 2001                                   | 2011 |
| 1    | 1407                  | 1826 | 6297                   | 7177 | 4.47                                   | 3.93 | 1573                  | 1937 | 7502                   | 8204  | 4.76                                   | 4.23 |
| 2    | 982                   | 1309 | 4412                   | 5240 | 4.49                                   | 4.00 | 1843                  | 2319 | 8409                   | 9482  | 4.56                                   | 4.08 |
| 3    | 984                   | 1209 | 4344                   | 4570 | 4.41                                   | 3.78 | 2749                  | 3148 | 12693                  | 13157 | 4.61                                   | 4.17 |
| 4    | 954                   | 1160 | 4630                   | 4676 | 4.85                                   | 4.03 | 1979                  | 2349 | 9370                   | 9392  | 4.73                                   | 3.99 |
| 5    | 988                   | 995  | 4534                   | 4185 | 4.58                                   | 4.21 | 1153                  | 1481 | 5005                   | 5626  | 4.34                                   | 3.79 |
| 6    | 974                   | 968  | 4688                   | 4428 | 4.81                                   | 4.57 | 1016                  | 1145 | 4498                   | 4588  | 4.42                                   | 4.00 |
| 7    | 1003                  | 1105 | 4732                   | 4382 | 4.71                                   | 3.97 | 1284                  | 1546 | 5745                   | 6055  | 4.47                                   | 3.91 |
| 8    | 1762                  | 2316 | 7632                   | 8950 | 4.33                                   | 3.86 | 2548                  | 3178 | 11534                  | 12606 | 4.52                                   | 3.96 |
| 9    | 1323                  | 1495 | 5689                   | 5672 | 4.3                                    | 3.79 | 977                   | 1093 | 4319                   | 4360  | 4.42                                   | 3.98 |
| 10   | 996                   | 1150 | 4338                   | 4493 | 4.35                                   | 3.91 | 1172                  | 1331 | 5344                   | 5615  | 4.55                                   | 4.21 |
| 11   | 959                   | 1020 | 5709                   | 5519 | 5.95                                   | 5.41 | 758                   | 806  | 3147                   | 2997  | 4.15                                   | 3.71 |
| 12   | 1174                  | 1541 | 5809                   | 6148 | 4.94                                   | 3.99 | 581                   | 533  | 2506                   | 2079  | 4.31                                   | 3.90 |
| 13   | 1087                  | 1263 | 4546                   | 4630 | 4.18                                   | 3.67 | 745                   | 864  | 3281                   | 3311  | 4.4                                    | 3.83 |
| 14   | 1213                  | 1500 | 4987                   | 5341 | 4.11                                   | 3.56 | 933                   | 1005 | 3976                   | 3928  | 4.26                                   | 3.90 |
| 15   | 1265                  | 1538 | 5248                   | 5689 | 4.14                                   | 3.69 | 1965                  | 2597 | 8964                   | 10671 | 4.56                                   | 4.10 |
| 16   | 1099                  | 1327 | 4749                   | 4908 | 4.32                                   | 3.69 | 2418                  | 2524 | 11251                  | 10203 | 4.65                                   | 4.04 |
| 17   | 727                   | 790  | 3146                   | 3055 | 4.32                                   | 3.87 | 1513                  | 1837 | 6424                   | 7204  | 4.24                                   | 3.92 |
| 18   | 1213                  | 1468 | 5453                   | 5515 | 4.49                                   | 3.76 | 1045                  | 1249 | 4861                   | 4953  | 4.65                                   | 3.96 |
| 19   | 1088                  | 1323 | 5142                   | 5372 | 4.72                                   | 4.06 | 1011                  | 1126 | 4342                   | 4365  | 4.29                                   | 3.87 |

|       |        |       |          |        |      |      |         |       |            |          |      |      |
|-------|--------|-------|----------|--------|------|------|---------|-------|------------|----------|------|------|
| 20    | 1157   | 1281  | 5258     | 5644   | 4.54 | 4.41 | 642     | 982   | 2954       | 3889     | 4.6  | 3.96 |
| 21    | 1328   | 1628  | 5919     | 6394   | 4.45 | 3.93 | 721     | 524   | 3334       | 2109     | 4.62 | 4.02 |
| 22    | 1447   | 1601  | 6373     | 6461   | 4.4  | 4.04 | 1466    | 1832  | 6611       | 7345     | 4.5  | 4.00 |
| 23    | 974    | 1212  | 4202     | 4584   | 4.31 | 3.78 | 811     | 931   | 3532       | 3461     | 4.35 | 3.71 |
| 24    | 731    | 857   | 3214     | 3278   | 4.39 | 3.82 | 871     | 960   | 4036       | 3932     | 4.63 | 4.09 |
| 25    | 1204   | 715   | 5061     | 4059   | 4.2  | 5.68 | 691     | 731   | 2893       | 2761     | 4.18 | 3.77 |
| 26    | 1359   | 1195  | 7810     | 5973   | 5.74 | 4.99 | 768     | 819   | 3182       | 3105     | 4.14 | 3.79 |
| 27    | 594    | 501   | 2601     | 2072   | 4.37 | 4.14 | 649     | 769   | 2794       | 2908     | 4.3  | 3.78 |
| 28    | 767    | 992   | 4247     | 4318   | 5.53 | 4.35 | 1146    | 1312  | 5113       | 5175     | 4.46 | 3.94 |
| 29    | 1006   | 1175  | 4375     | 4734   | 4.34 | 4.03 | 1546    | 1944  | 6939       | 7812     | 4.48 | 4.01 |
| 30    | 1085   | 1506  | 4994     | 6148   | 4.6  | 4.08 | 1264    | 1525  | 5647       | 5966     | 4.46 | 3.91 |
| 31    | 767    | 954   | 3321     | 3723   | 4.32 | 3.90 | 37, 838 | 44397 | 1, 70, 206 | 1,77,259 | 4.49 | 3.99 |
| 32    | 880    | 1038  | 3648     | 3957   | 4.14 | 3.81 |         |       |            |          |      |      |
| 33    | 1133   | 1389  | 5079     | 5572   | 4.48 | 4.01 |         |       |            |          |      |      |
| Total | 35 630 | 41347 | 1 62 187 | 166867 | 4.55 | 4.03 |         |       |            |          |      |      |

Source: Computed by author using Census data, 2001 & 2011

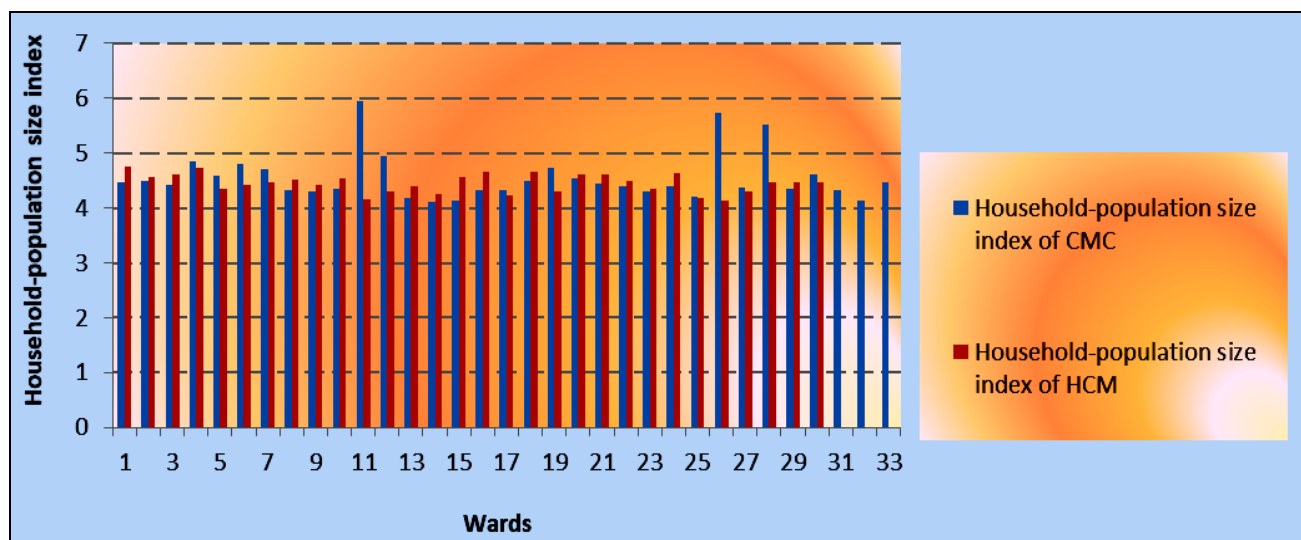


Fig 6: Household-population size index of CMC & HCM, 2001

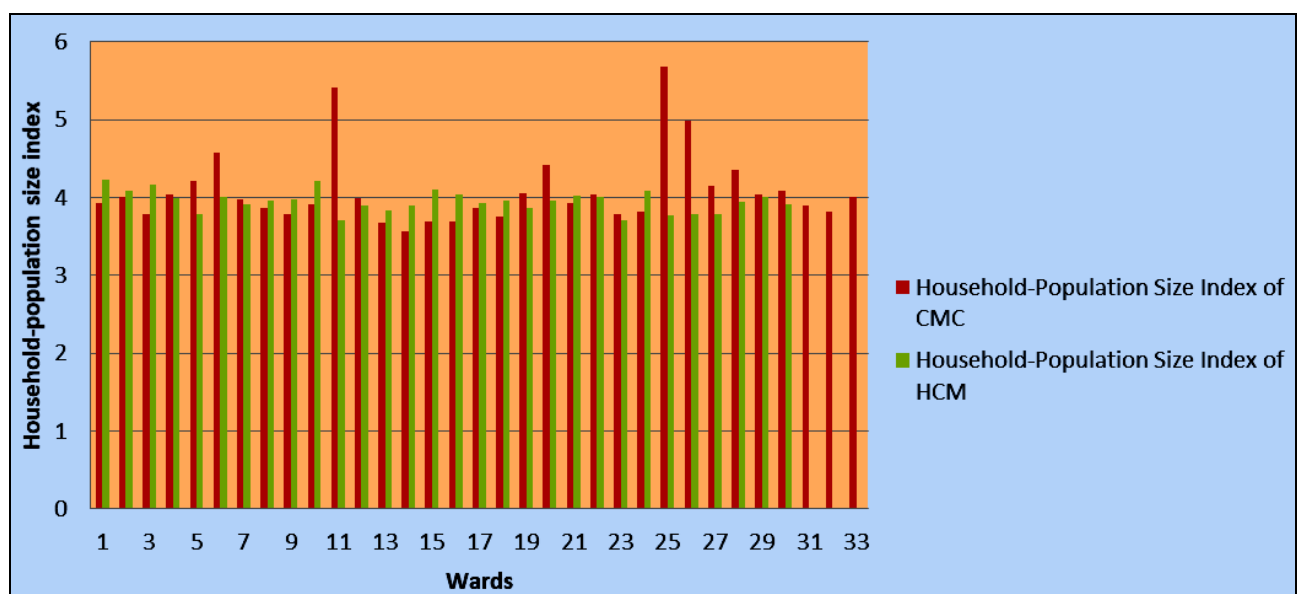


Fig 7: Household-Population Size Index of CMC & HCM, 2011

### 3.4 Population projection

Population projection is the estimation of future population size of a place keeping with some inferences. Population projections are estimates of the total size or composition of the population at future dates <sup>[11]</sup>. Future population size is

projected based on the population growth rate. Population projections appear to be mathematically complicated; we should remember that the validity of mathematics depends on the validity of the basic assumptions <sup>[12]</sup>. Population projection helps to get an idea about the future population

pressure which is very much essential for sustainable management of a city. Population growth rate is very much fluctuating mainly in CMC and in HCM also. That is why the annual growth rates of the cities have been estimated by using the population size of 1961 and 2011. Therefore, the growth rate shows the average of 50 years which helps to broaden the base and to minimize the fluctuation effect in the calculation. The annual growth rate (AGR) has been calculated following the formula:

$$\text{AGR} = \frac{(\text{population size of 2011} - \text{population size of 1961})}{\text{population size of 1961}} \times 100$$

The estimated annual growth rate of CMC and HCM is 2.98% and 2.26% respectively. From the growth rate, population projection has been done for both the cities. Here population projection has been prepared from the year 2015 to 2050 with an interval of 5 years. It is observed that the population size of CMC crosses the population size of HCM in between the year 2020 to 2025 as the annual growth rate is higher in CMC than HCM. The population size would be 4, 94,005 for CMC and 4, 08,825 for HCM in 2050 (Table - 5; Figure - 8).

**Table 5:** Projected population of CMC and HCM

| Year | Projected population of CMC | Projected population of HCM |
|------|-----------------------------|-----------------------------|
| 2015 | 186849                      | 193228                      |
| 2020 | 214689                      | 215063                      |
| 2025 | 246678                      | 239365                      |
| 2030 | 283433                      | 266414                      |
| 2035 | 325665                      | 296518                      |
| 2040 | 374189                      | 330025                      |
| 2045 | 429943                      | 367318                      |
| 2050 | 494005                      | 408825                      |

Source: Computed by author

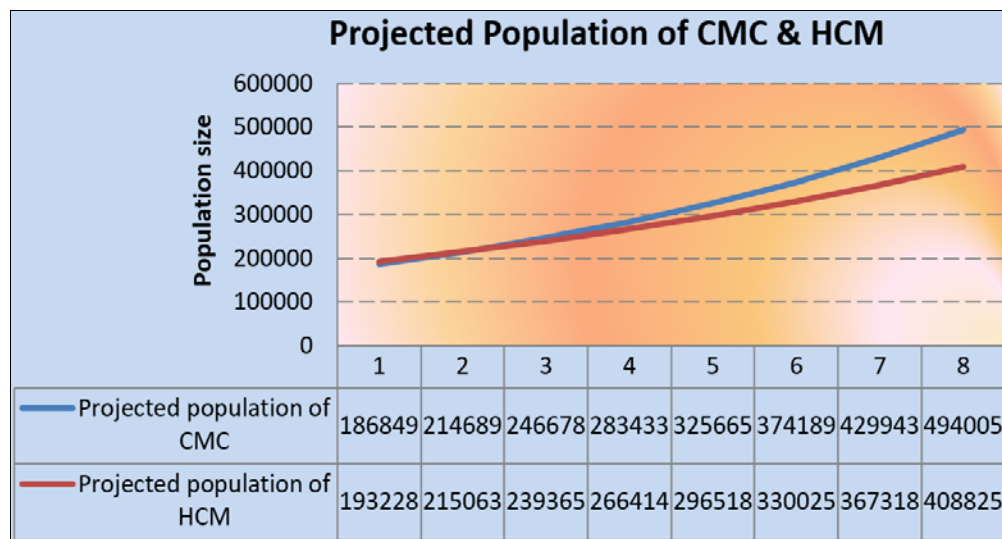


**Fig 8:** Projected population of CMC & HCM

#### 4. Conclusion

Chandernagore Municipal Corporation and Hooghly-Chinsurah Municipality are twin city of Hooghly district. Though they have situated in the similar Geographical environment but they have some uniqueness because of different colonial background of the cities. The present research work tries to compare demographic profile between the cities. Since independence both the cities are gone through different changes like ward number, geographical area, growth rate, population size, population density, household-population size index etc differently. In spite of that they have some similarities also it is because of their same Geographical location. Since independence population density is increasing in HCM, but in CMC there is a fall of population density in 2001 because of areal expansion of CMC. Decadal population growth rate of CMC is also very much fluctuating than HCM because of massive areal

expansion of CMC. Annual growth rate of population size is very much irregular in CMC than HCM because of redistribution and formation of new wards. There is a large disparity found in household-population size index in CMC than HCM. Both the cities are facing reduction of household size which means that family size is getting smaller. However, demographic profile of the cities demonstrates a holistic picture regarding population parameters of the area.

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