

Comparison of Family Structure in Rohtak and Sonipat City

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Introduction

The expansion of an urban town is driven by various factors such as socio-economic condition, cultural, administration, and political factors. Administration factors include policies such as restrictions on the structure for residential purpose. For example in smaller cities which in most of the cases have restrictions on height of the buildings so to accommodate increasing population spatial expansion is required (Alonso, 1964). This expansion as already discussed in the previous chapter can be planned and unplanned. The planned growth is driven by the government agencies and unplanned by the small builders taking advantage of loopholes in the system as well as need of population having not so good financial condition and as well as migrants. In the government plans, land beyond municipal committee is always proposed and this helps in the expansion of city by engulfing the rural areas around the city (Harvey, 2000).

Once the area expands and residential societies or colonies come into existence it's the administration responsibilities to provide necessary services to these newly developed areas. Once the services are provided expansion takes place and even if the areas are not well developed due to lower prices in the vicinity the residential areas come into existence (Hall, 2002).

Another important factor in the expansion is the desire among the already existing populations for larger homes as well as to live in open areas instead of crowded densely populated areas of the city, as a result expansion of the city takes place. This is driven by social status since the larger houses are seen as symbol of financial well-being. Also, in many cases the family's economic well-being makes them enable to purchase larger spacious houses. Along with this the family structures are changing and culture of nuclear families are increasing which also result in requirement of more number of houses (Dreze and Sen, 2013). Also, Modern lifestyle preferences that prioritize comfort, privacy, and personal space further drive the demand for larger homes, leading to suburbanization and urban sprawl.

The pursuit of bigger houses results in the areas where the land prices are low and housing is saleable along with all the facilities as a result the city spatially expands in the suburban areas. These suburban areas are close to rural areas which gets included in the municipal area

due to revised boundary and end up in the conversion of agriculture land into residential zone (Bertaud, 2018). Though this hampers the ecosystems and food production but also helps in the revenue generation for the city thru real estate. If this expansion is sudden then it can put pressures on the existing infrastructure and the administration may fail to provide essential services such as water, electricity, waste management leading to unsustainable development. Moreover, the expansion of urban areas has negative impact on the environment due to generation of pollutant originating from dust due to construction or carbon emission due to vehicular pollution (Glaeser, 2011).

Another reason for the expansion is related to increasing purchasing power associated with vehicle ownership. As individual families can afford to have private vehicles, the residents do not feel need of proper transport facilities to reach their homes from the city (Soja, 2001). This along with the desire of bigger houses enable population to live farther from city densely populated areas and this shift contributes to the expansion of urban area towards the suburbs where housing is affordable or quality of life can be better. Having ownership of private vehicles makes the population less reliant on public transportation (Sassen, 2001).

But these issues of bigger houses in the sub-urb and having private ownership of vehicles is posing severe threat to environment as well as creating socioeconomic divide in the society (Lefebvre, 1991). This is leading to unsustainable development due to disruption ecosystem and needs to tackle efficiently otherwise it can create non-livable condition (Jacobs, 1961) where the air quality remains hazardous throughout the year, ground water contaminated, roads infrastructure is overburdened resulting in bad transportation system (Davis, 2006).

Thus administration needs to step up for planned growth instead of urban sprawl like situation (Seto, 2012). They government agencies should make sure to preserve green cover to reduce the affect of pollution, should develop good transportation system so that the population do not buy vehicles more than required (Brueckner, 2000). They should also encourage the residents for usage of solar power electricity such that existing system is not under pressure (Neuman, 2005).

Family size

Family size in one of the most important factors for the expansion of an urban area and affects the development process as well. As the family size increases directly resulting in growth of population, the urban areas observe an increase in demand for housing which in turn needs infrastructure and availability of basic facilities (Dyson and Moore, 1983). The size of family directly impacts the need of housing since larger families tend to have more living space in comparison to smaller families. Even smaller families with stable and high income tend to have large houses. This results in increased demand of housing units (**Visaria, 1996**). Larger houses can be accommodated in smaller space by building high rise apartments but in smaller cities like Rohtak and Sonipat, residents do not like to live in apartments (**Guilmoto and Rajan, 2001**).

The average household or family size in Haryana was 6.3 which include both rural and urban areas in 1991 census. Due to increased living cost in urban areas, the family size was reported

to be smaller which was 6.6 for rural and 5.5 for urban. Surprisingly the average household size decreased to 5.7 in 2001 census in Haryana and if further bifurcation is performed then the rural household size stands at 5.9 and urban comes at 5.2. This number has significantly reduced further to 5.2 for whole Haryana and 5.4 for rural and 4.9 for urban. However, this number of urban household size is not uniform in Haryana and mostly dominated by the larger and most populated cities like Faridabad, Panchkula and Gurgaon. The average household size is reported to be higher than national average in all 3 censuses of 1991, 2001 and 2011 which indicate that the state has a culture of combined family. One of the reason for decreasing family size lower child mortality rate due to better health facilities and due to increased living cost, families tend to have 1 or 2 children.

In 1991, census the average household size in Rohtak municipal was reported to be 6.01 and the city was divided into 35 wards with an average population of 6174 and average household size of 1042. The highest population was reported 8676 of the ward 21 having 1530 number of total households but the maximum number of households were 1622, reported in ward number 31 with a population of 8332. The minimum population was reported in ward number 7 with total number of people were around 4833 living in 773 houses whereas minimum number of households were reported to be 730 in ward number 33 with a total population of 5350.

In Sonipat city, during 1991 census, ward 30 had the highest population reported with 8443 residents and ward 25 had the lowest population having 1,703 residents. Similar to the population ward 30 had the highest number of households reported with 1478 households meanwhile ward 25 had the lowest number with 302 households. The main workers data shows a wide range variation with roughly 25 percent of the population involved as main workers. Similarly, the average size of households varies from a maximum value of 6.22 to lowest value of 4.51 with a variation of roughly 1.7. The mean value of average size of household was reported to be 5.6.

Both in Rohtak and Sonipat city the varying number of household and population in different has resulted in various household size. However, there is no correlation found that if the population is high then the household size is maximum as well and vice-versa. Even for few wards the trend is slightly opposite where the population is lower the household size is larger in comparison to other wards.

Similarly, the number of workers vary in between the wards and maximum of number of working populations 2122 was reported in ward 11 and minimum number 1200 was reported in ward number 22. Interestingly, there is a good correlation between the family size and size of worker for each ward in 1991 census in Rohtak city (see Figure 5.1). In most of the wards larger the size of the household a greater number of worker are found in that family. This clearly indicates that in 1991, the financial condition of families in each ward was good due larger earnings for larger families. A nice correlation is observed in between the average size of a household and number of workers and it is found that larger households have a greater number of working people. This indicates a better and uniform distribution of working-class population. This correlation is not found in Sonipat city and random population distribution is found indicating an uneven distribution of job generated wealth and economical condition of

the family. Though there is a correlation but not as good as Rohtak city. The correlation is better for social structure since an uneven distribution of wealth can create problem in the social structure and brings hierarchy in the society. Also, this can create the gap in the wealth where poor go to extreme poverty and government needs to step in to resolve this disparity.

Over the times a significant rise in working class population and a decrease in size of the family is observed in both Rohtak and Sonipat city. In Rohtak city, ward 1 and 22 have population larger than 15000 and ward 18 has minimum population of 5648 other wards have population around 10000. This distribution of population has resulted in various number of households in the city and most populous ward has maximum number of households 3271 in ward 1 and ward 18 has 1009 households. Similarly, highest number of workers 5165 are found in ward 1 and minimum number of workers, 1567 are found in ward 18. This correlation does not result in uniform distribution of average household size, average number of workers in each ward. For example, ward 18 does not have largest average family size and reported to be only 5.86 meanwhile the largest family size in 6.9 found in ward 2 which had population 7689.

Census Year	Rohtak			Sonipat		
	1991	2001	2011	1991	2001	2011
Average family size	6.01	6	4.96	5.62	5.43	5.99
Average main workers in the city	25 %	29.5%	30.2	25.1 %	29.6 %	32.9
Average Number of main worker in household	1.5	1.6	1.5	1.40	1.6	1.64

Source: Census Tables 1991, 2001, 2011

In Sonipat municipal, maximum population was found 11850 in ward 31 followed by ward 10 which had a population of 11835. Minimum population is found in ward 26 which had a population of 4737. A similar trend is observed in number of households where a clear correlation is found larger the population more number of households are found and this clearly indicate that average size of households remains almost constant. The correlation is not as good as with the number of worker in wards however overall trend is same that larger the population more number of workers are present. If we look for the percentage of workers in each ward, the correlation is not found as one can see that in ward 10 which had highest population does not have highest number of main workers in fact ward 9 which had 3rd highest population only had 27 % of the main workers in the ward and ward 26 had 27.8 % of

workers. The largest size of household was reported to be 6.6 in ward 6 which had a population of 7795. Interestingly, ward 10 which had highest population but one of smallest family size at a value 4.7 which is next to ward 21 which had a size of 4.72. The correlation between average household size in the wards and average number of working people in the family do not have a clear value and remains random. This again like 1991 census data indicate that there is disparity in the worker population which is related to economic well-being of a family and can create social-economical divide in the society This anti-correlation is surprising that the most populous wards had smaller family and it could be realized that these are the wards which are found in the older city area and several generations were living in one building but are cooking separately which makes it a separate household according to the definition of a household defined in the Census of India booklet.

Household, Population and workers in 2011

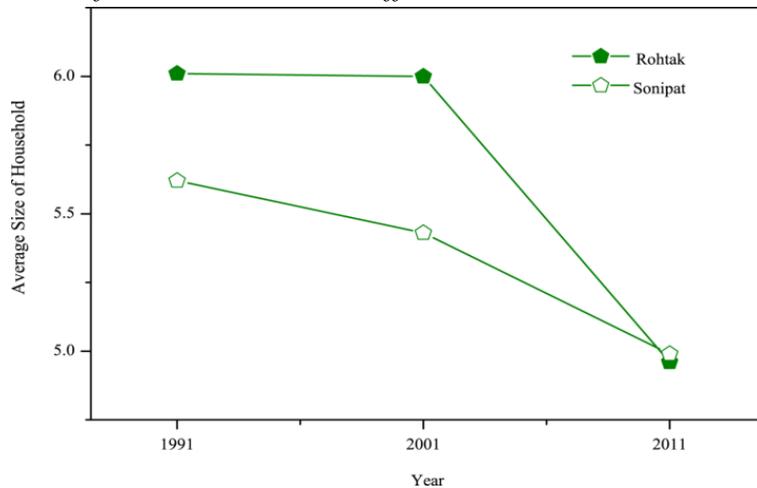
In 2011, the population is reported to be increased but at a faster rate it was anticipated in national capital region (NCR) plan. The population of Rohtak city was reported to be 374292 in 2011 spread over 31 wards. This has again resulted in uneven distribution of population in different wards. A maximum population of 27023 is observed in ward number 9 followed by 21476 in ward number 22 whereas ward 31 comes third on the list with a population of 19066. Minimum population was found in ward in ward 25 at 7984. Similar to previous censuses there is nice correlation that wards with higher population have higher number of households and smaller population wards possess lesser number of households. This indicates that average size of household is constant. Interestingly, this correlation is maintained in number of main workers which means that high population results in main worker population in proportion. But this does not give an idea so one should consider percentage of main workers in the wards and it is found that the correlation is completely lost since percentage of main workers varies from a low value of 25 percent in ward number 4 to a larger percentage of 35 % in ward 9. Also, there is no correlation found between the average size of household and percentage of workers in the ward similar to number of workers in the household. In fact, in few wards a reverse trend is found which means that houses with the larger number of workers are smallest for example ward 14 had a population of 9922 had working class population of 35 percent and average family size of 4.4 which is smallest in the city. This indicates that nuclear families are increasing in number over period of time.

Similarly, the population of Sonapat reported to be increased to 28933 living in 33 wards with various distributions. A highest population of 15391 was living in ward number 29 followed by 14377 in ward number 31. The lowest number of people were found to live in ward 2 and number was reported to be 3588. Thus the number varies 3588 to 15391 which has resulted in different households in different wards but a well correlated data is observed having larger number of households in most populous wards but this does not mean the number of main worker should follow the trend but it is observed that the correlation holds for the number of main workers. However, this is obvious that larger the population more is main working population but if we check percentage of number of workers the correlation is lost and there no guarantee that most populous wards have larger percentage.

Family size comparison

When comparing the average family sizes of Rohtak and Sonipat over the three census years—1991, 2001, and 2011—several trends and differences emerge that reflect the socio-economic and cultural evolution of these two cities.

Figure 1: Average size of household in three different censuses in Rohtak and Sonipat

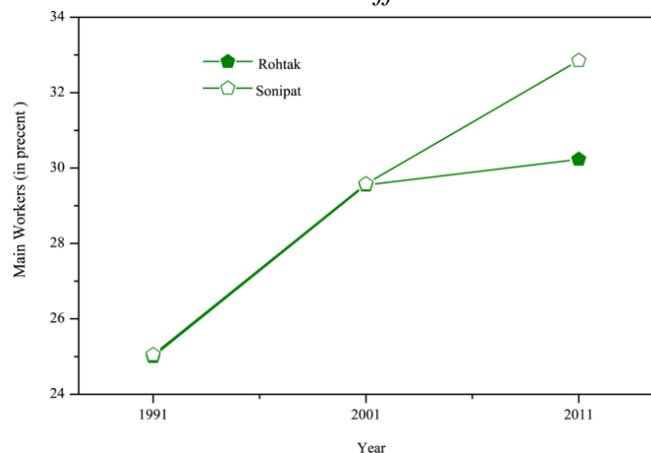


Source: Table 1

In 1991, Rohtak had a larger average family size of 6.01 members, compared to Sonipat’s 5.62 members. This suggests that Rohtak, at the time, had a more traditional family structure with larger, joint families, which is often associated with agrarian societies where extended families live together. Sonipat, with a slightly smaller average family size, may have already begun to experience some of the early influences of urbanization or economic factors that promote smaller family units.

By 2001, both cities saw a reduction in average family size, but the decrease was more pronounced in Sonipat. Rohtak’s average family size dropped only slightly to 6 members, indicating a slower shift towards nuclear families. In contrast, Sonipat’s average family size reduced more significantly to 5.43 members. This suggests that Sonipat may have been more affected by urbanization, migration for employment, or educational advancements, leading to smaller household sizes (Bhagat and Mohanty, 2009).

Figure 2: Main workers in a household in three different censuses in Rohtak and Sonipat

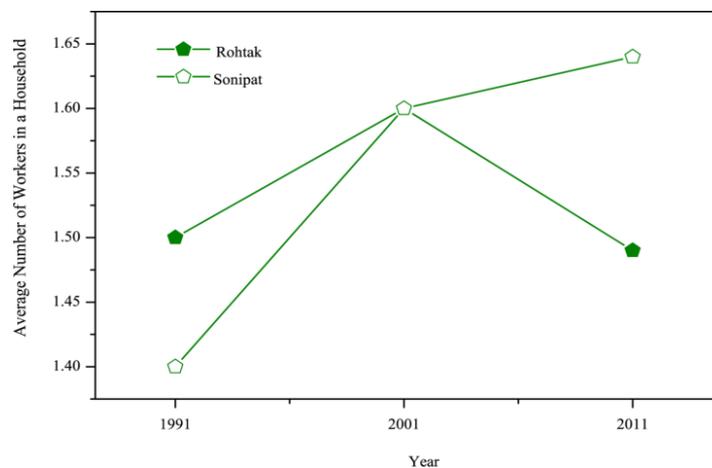


Source: Table 1

The most notable changes occurred by 2011. Rohtak experienced a sharp decline in average family size, dropping to 4.96 members, reflecting a major shift towards nuclear family structures. This decline was more dramatic than the previous decade, indicating accelerated socio-economic changes. Interestingly, Sonipat's average family size, which had been consistently smaller than Rohtak's in earlier years, was slightly higher at 4.99 members in 2011. This convergence suggests that while Sonipat continued to experience a decrease in family size, the rate of change in Rohtak caught up, leading to similar family structures in both cities by 2011.

The worker percentage in Rohtak and Sonipat for the years 1991, 2001, and 2011 reveals interesting insights into the workforce participation trends in these two districts, reflecting their economic development and societal changes over the decades (Desai and Vanneman, 2015).

Figure 3: Average number of workers in a household in three different censuses in Rohtak and Sonipat



Source: Table 1

In 1991, the worker percentage in Rohtak was 25%, closely mirrored by Sonipat at 25.05%. This near-identical figure indicates that both districts had similar levels of workforce participation at the beginning of the 1990s (Kannan and Breman, 2013). The low worker percentage reflects the agrarian-based economies, where a significant portion of the population may have been engaged in subsistence farming or other non-formal employment sectors, with many individuals not counted as formal workers (Reddy and Sharma, 2019). By 2001, both Rohtak and Sonipat experienced a notable increase in worker percentages, with Rohtak rising to 29.55% and Sonipat to 29.58%. This increase suggests a shift in the economic activities of the regions, likely influenced by the gradual urbanization and industrialization processes. The growth in workforce participation during this decade could be attributed to more people entering formal employment, possibly due to better educational opportunities and a growing industrial base that created more job opportunities. The most significant changes occurred by 2011. Rohtak's worker percentage increased marginally to 30.23%, indicating a steady but slow rise in workforce participation. Sonipat, however, saw a more substantial jump, with the worker percentage rising to 32.85%. This suggests that Sonipat may have experienced more rapid economic growth or industrial expansion

compared to Rohtak during this period, leading to a higher proportion of its population being engaged in formal work.

In comparing the two districts, it is evident that while both Rohtak and Sonipat started with similar worker percentages in 1991 and continued to follow a parallel path in 2001, by 2011, Sonipat had pulled ahead in terms of workforce participation. The higher worker percentage in Sonipat by 2011 could indicate a more dynamic economic environment, possibly due to factors like better infrastructure, greater industrial investments, or more effective labor policies. Rohtak, while also improving, did so at a slower pace, suggesting either a more gradual economic transformation or a larger portion of its population remaining in non-formal employment sectors. Overall, the data reflects how both Rohtak and Sonipat have evolved economically, with increasing workforce participation over the years. However, Sonipat's more significant rise in worker percentage by 2011 highlights a faster pace of economic development compared to Rohtak, marking a divergence in their economic trajectories as both districts adapted to the changing socio-economic landscape.

In 1991, the average number of workers per household in Rohtak was 1.5, while in Sonipat it was slightly lower at 1.4. This suggests that, on average, households in Rohtak had marginally more people engaged in work compared to Sonipat. The similarity in these figures indicates that both districts had a comparable economic structure at the time, with households typically relying on one or two members for earning an income, possibly reflecting traditional family roles and a largely agrarian or semi-urban economy.

By 2001, the average number of workers per household in both Rohtak and Sonipat had equalized, with both districts reporting an average of 1.6 workers per household. This increase indicates that more members of households were entering the workforce, likely driven by economic pressures, educational advancements, and the gradual shift towards nuclear family structures where both men and women might seek employment. The equalization of this figure between the two districts also suggests a convergence in economic conditions and societal trends, with both regions experiencing similar patterns of workforce engagement.

In 2011, the trends began to diverge slightly. In Rohtak, the average number of workers per household decreased slightly to 1.49, while in Sonipat, it increased to 1.64. This divergence indicates that Sonipat households, on average, had more members participating in the workforce compared to Rohtak. The decrease in Rohtak might reflect a stabilization or slight decline in economic activity, or possibly an increase in non-working dependents within households. In contrast, the rise in Sonipat suggests continued economic growth, with more household members contributing to the income, possibly due to increased employment opportunities and industrialization in the area.

Comparing these trends, it is clear that while both Rohtak and Sonipat saw a similar rise in the average number of workers per household between 1991 and 2001, their trajectories differed by 2011. Sonipat's increase in average workers per household in 2011 highlights a more dynamic economic environment, where the need or opportunity for multiple earners in a household became more pronounced. Rohtak, on the other hand, saw a slight reduction, which could indicate differing economic pressures or demographic changes, such as an aging population or a rise in the number of non-working dependents.

Conclusions

While both Rohtak and Sonipat exhibited similar trends in the average number of workers per household through the 1990 and early 2000, by 2011, Sonipat had moved ahead, reflecting a higher level of workforce participation at the household level. This divergence points to Sonipat's faster pace of economic development and greater integration into formal employment sectors compared to Rohtak, where the average household maintained a slightly smaller workforce. The increasing financial situation of the families is proving to be an important factor in the expansion of both cities. Though Sonipat in terms of area has not increased as much as Rohtak but Sonipat extended area is larger and extended until Kundli.

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