

Chapter 4

Relationship between Health Expenditure and Economic Growth in Haryana: A Case Study with Special Reference to Mahendergarh District

Introduction

The present study has three broad objectives. First objective is examine the causal relationship between health expenditure and economic growth in Haryana. Second objective is study the recent trend and pattern of health and economic growth (GSDP) in Haryana. Third objective is study the recent trend and pattern of health and economic growth in Mahendergarh District. On the basis of objectives this present chapter has been divided into three parts as following: - 4.1. Examine causal relationship between health expenditure and economic growth in Haryana. 4.2 Study the recent trend and pattern of health and economic growth (GSDP) in Haryana. 4.3 study the recent trend and pattern of health and economic growth in Mahendergarh district.

4.1. Causal relationship between health expenditure and economic growth in Haryana

Table 4.1 ADF Unit Root Test Result a at level

Variables	Test-Statistics	Mackinnon approximate P- Values	ADF Model	Critical Values		
				At 1%	At 5%	At 10%
GSDP	3.679	0.0044	Only Intercept	3.750	3.000	2.630
	4.205	0.0044	Trend and intercept	4.380	3.600	3.240
PSHE	3.260	0.0168	Only Intercept	3.750	3.000	2.630
	4.592	0.0011	Trend and intercept	4.380	3.600	3.240

(Source: calculated by Researcher by STATA.)

Table 4.1 reveals that GSDP and PSHE data is non-stationarity. After makes data first difference at zero level. In term of GSDP in only intercept equation t- value (3.679) is greater than critical value (3.000) at 1% level of significance that makes data is stationarity. And PSHE in equation only intercept t- value (3.260) is greater than critical value (3.000) at 1% level of significance that means data is stationarity. At the same level with equation trend and intercept GSDP t- value (4.205) is greater than critical value (3.600) at 5% level of significance. In equation trend and intercept PSHE t- value (4.592) is greater than critical value (4.380) at 1% level of significance. That means at all variable of null hypothesis is rejected. Than data is stationary after that will be used co-integration test.

Table4.2 Granger Causality Test

Equation	Exclude	Chi- square test	Probability test
GSDP	PSHE	.99644	0.910
PSHE	GSDP	149.52	000

(Source: calculated by Researcher by STATA.)

(Note- Model estimation at lags 5)

The table 4.2 shows that causal relationship between GSDP (Gross State Domestic Product) and PSHE (Public State Health Expenditure). This data is taken on difference. In term of GSDP is cause effect the PSHE, P- Value (0.910) is greater than 5% level of significance, therefore null hypothesis is GSDP Granger Cause do not PSHE, that means null hypothesis is do not rejected. It means GSDP is not cause to PSHE. In term of PSHE is causes effect the GSDP, it means p- value (000) is less than 5% level of significance. That means null hypothesis is PSHE Granger Cause do not GSDP is rejected. That called PSHE effect the GSDP. The entire table shows that the uni – directional relationship as PSHE cause GSDP. But GSDP not cause PSHE. It means GSDP not directly effect to PSHE.

Table 4.3 Descriptive statistics between SGDP and PSHE

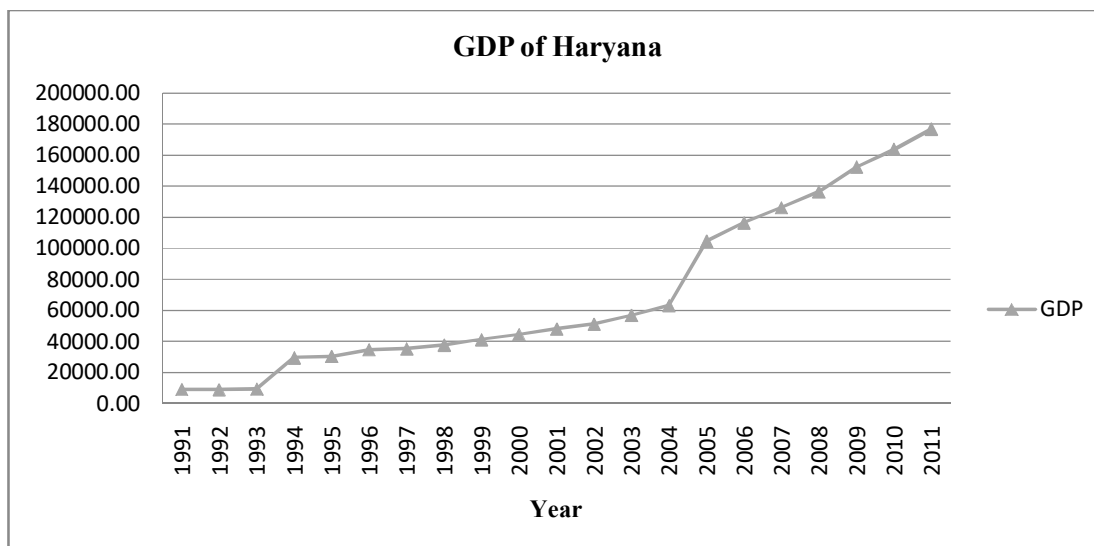
Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
SGDP	21	70353.35	53976.95	8944.21	176917
PSHE	21	388.2119	310.4309	103.82	1144.4

(Sources: Researcher Calculation)

Table 4.3 shows that from year 1991 to 2011 (21 Observations) the summary of SGDP and PSHE is as follows: SGDP is average on Rs. 70353.35 crore. Its standard deviation is 53976.95. SGDP maximum is Rs. 176917 and minimum is Rs. 8944.21 crore rupees. PSHE is average on Rs. 388.2119 rupees and standard deviation is Rs. 310.4309, as minimum is Rs. 103.82 crore and maximum is Rs. 1144.4 crore.

4.2 Recent trend and pattern of health and economic Growth (GSDP) of Haryana.

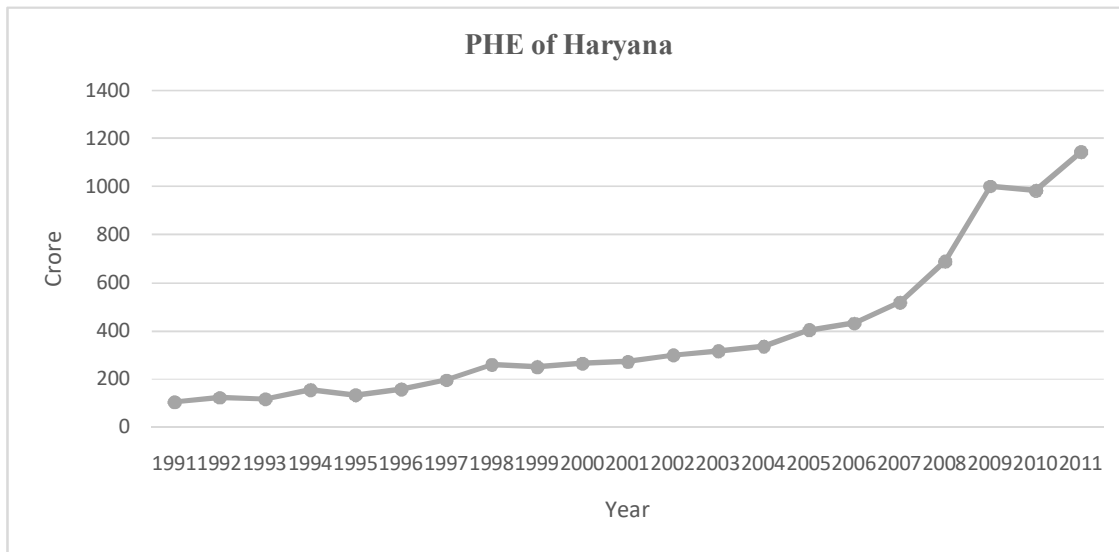
Figure 4.1



(Sources: Statistical Abstract of Haryana)

The figure 4.1 shows that GDP pattern of Haryana. In year 1991 GDP is Rs. 9070.25 crore. It average till on 1993. But year 1993 to 1994 is increase from Rs.9463.84 to 29551.87 respectively. After that year 1994 to 2004 increase continuously. Year 2004 to 2005 highly increase from Rs. 63256.80 to 104609.80 respectively. After in year 2005 increase highly GDP growth. The entire figure reveals that more fluctuates in GDP.

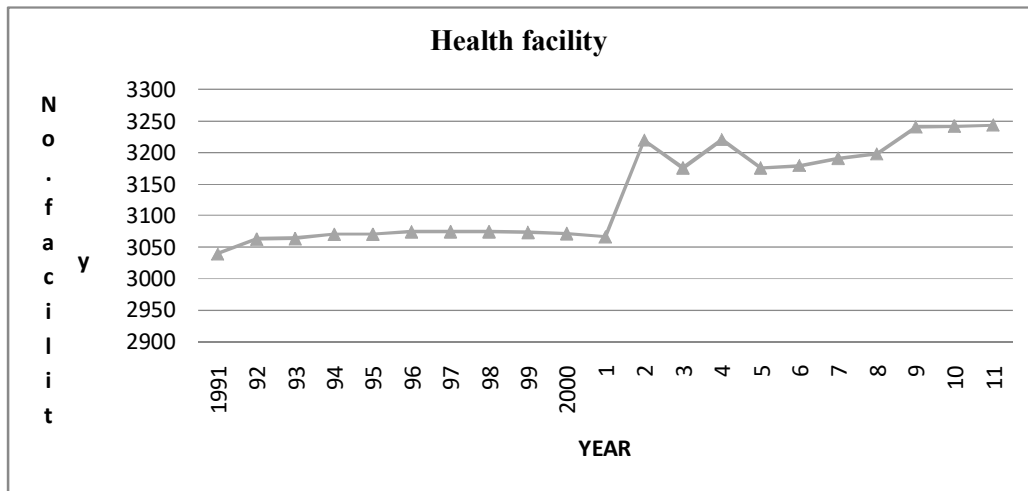
Figure4.2



(Sources: Statistical Abstract of Haryana)

The figure 4.2 reveals that trend Public health expenditure (PHE) of Haryana. In year 1991 PHE is Rs. 103.82 crore rupees. It is increase continues slowly till on year 1997. After that 1997 to 1998 increase from Rs. 195.54 to 259. But 1998 to 2006 is increase from 259 to 431.86 respectively. In year 2007 to 2009 highly increase is Rs. 519.09, 687.87, 1001.64 crore rupees. Because Govt. was invest large amount in health sector i.e. duration time period was proposed Sakshar Mahila Smooth (JachaBacha Scheme), new medical open at Mewat and Sonipat and reform of recruitment in medical officers etc. After that year 2009 to 2010 decrease PHE. After in year 2010 to 2011 increase highly PHE growth. The entire figure reveals that more fluctuates in PHE of Haryana.

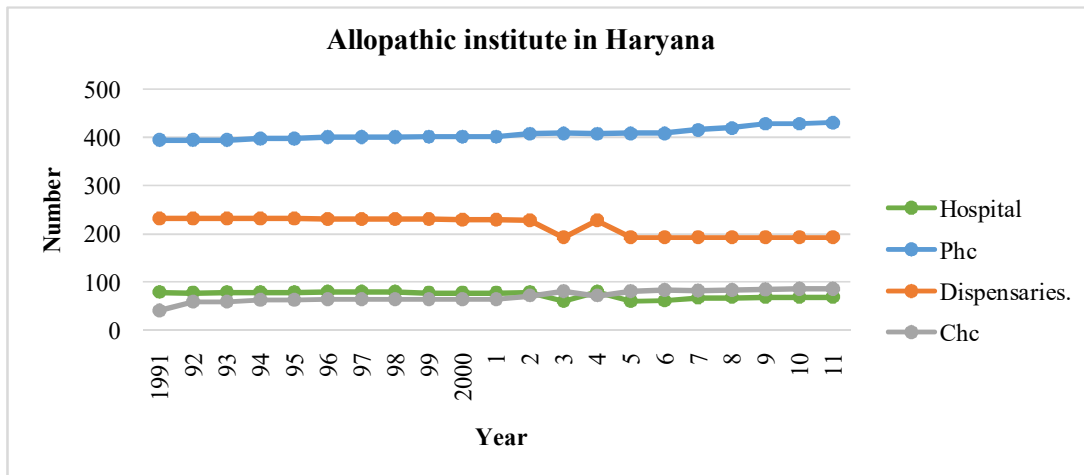
Figure 4.3



(Sources: Statistical Abstract of Haryana)

The figure 4.3 shows that health facility of trend of Haryana. Health facility refers to the hospitals, PHC, CHC, and sub-centre. In year 1991 health facility is 3040. After slowly increase up to 2003. It from 2003 to 2004 highly increase 3079 to 3220. Because Govt. more focus and money spend in health facility in this year i.e. Plus polio programme implemented on 4 sub National and one National rounds conducted, C.T scan facility provide at Panchukula and Sirsa. The Revised National Tuberculosis Control Programme (RNTCP), The scheme was extended to the Districts of Karnal and Jind in March, 2003 in the 2nd phase. SWASTHYA AAPKE DWAR” has been launched in the State from 1st November, 2003. Year 2005 is decreasing from 3220 to 3176. After that time slight increase still year 2011.

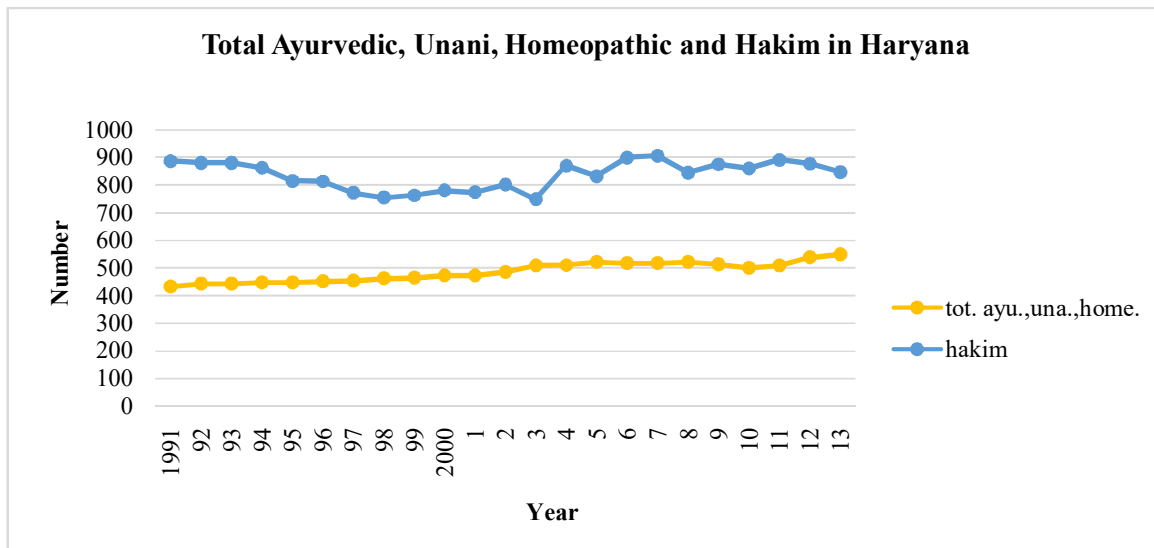
Figure 4.4



(Sources: Statistical Abstract of Haryana)

This figure 4.4 shows that the number of, Hospitals, Primary Health Centre, Community health centre, Dispensaries. The number of PHC in 1991 is 395 and its increase continuously is 431 in 2011. Because government new open in rural area. In term of CHC in year 1991 is 41 and its 1991 to 1992 there is small change, after 1992 is 59, its constant continuous till 2001. And after that number of CHC change 72 in year 2002 to 81 in year 2003. Its continuously increased till on 2011. In year 2011, CHC is 86. The entire number of CHC line increase by time to time. In term of hospitals in year 1991 is 79 till year 1995. And after this time from year 1995 to 1998 is 80. In year 1999 continuously increased, its 60 in year 2003. In year 2004 is 80, this year number of hospital is good. And after that CHC continuously decrease till year 2011. In term of Dispensaries, number of dispensaries is 232 in 1991, its constant till year 1995. After that time decrease from year 1997 to 2002 is respectively is 231 to 228. In year 2003 is 193 and up in year 2004. Because Govt. Spend money on opened new Dispensaries in Kurukshetra. Again decrease from year 2005 to 2011 is 193. Hospital from 1991 to 2002 is on average. After 2002 is decreased number of hospital. Because Govt. old infrastructure such that deprecation exists therefore stopped the hospital. Therefore reduce the number of hospitals. After year 2005 Govt increase the hospital graph.

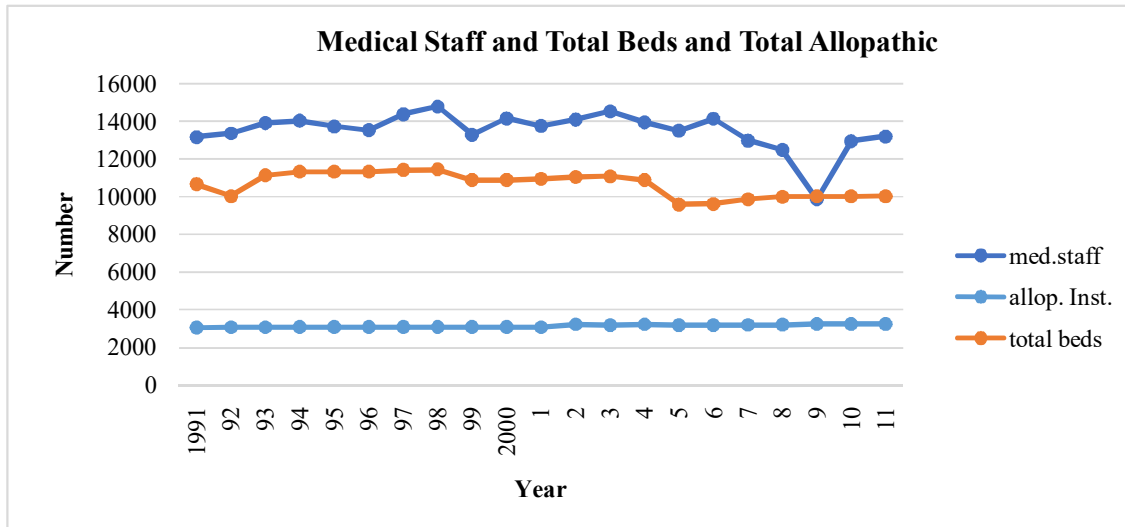
Figure4.5



(Sources: Statistical Abstract of Haryana)

The figure 4.5 shows that total number of Ayurvedic and Unani and hakim in Haryana state. The number of total AUH (Ayurvedic, Unani, and Homeopathic) is 433 in 1991. After that times from year 1993 to 2009 increase continuously as well as in year 1994 is 447, in year 1995 is 448, in 2000 is 474. It does increase continuous. And in year 2013 is 549. In year 1991, number of Hakim is 887. It does increase till on 1998. After that time year 2002 to 2003 decrease from 802 to 749. But up to 2011 fluctuates in number of hakim. Because Govt. not budget allocate on Hakim.

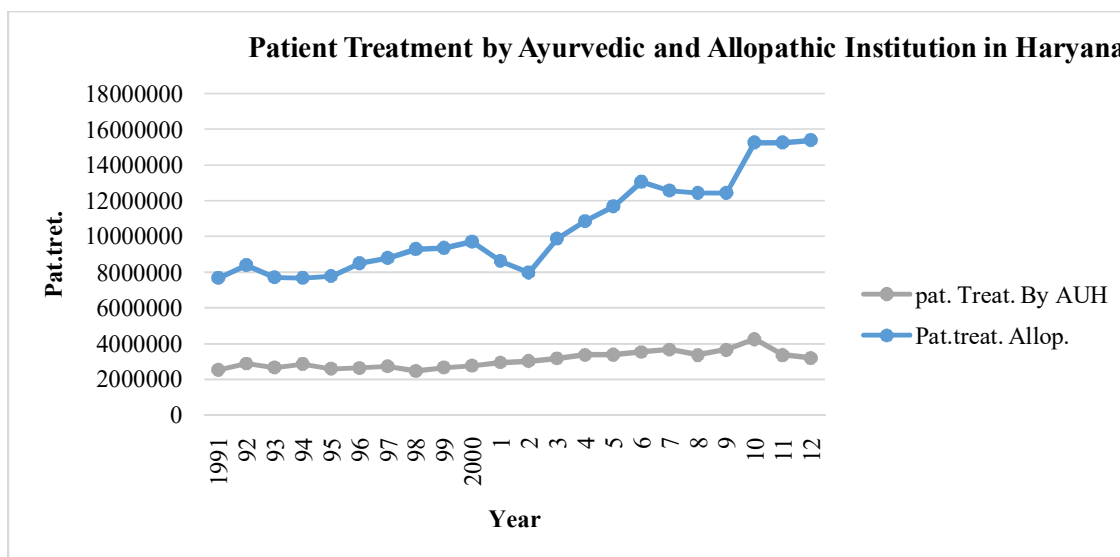
Figure4.6



(Sources: Statistical Abstract of Haryana)

The figure 4.6 reveals that trend Medical staff and total allopathic institution and total beds. In 1991 Medical staff is 13155. It's after year1991 increase continuously till 1994. It's after 1994 decrease up to 1997. Then its up down till on year 2009. After Med. Staff, 2009 slight increase up to 2011. Because Govt. recruitment process was ongoing and doctors do not take interest and work in private hospital. Number of Total beds pattern is 10667 in 1991 and after 1991 its decrease in year 1992 is 10022. After year 1992 its increase continuously till on 1998. After that time number of total beds graph has decrease. Because Govt. did decrease number of hospital. Number of total allopathic institution is 3040 in year 1991. It's after that time increase in year till on year 1999. . It's after year 1999 decrease and again slowly- slowly increase up to 2011.

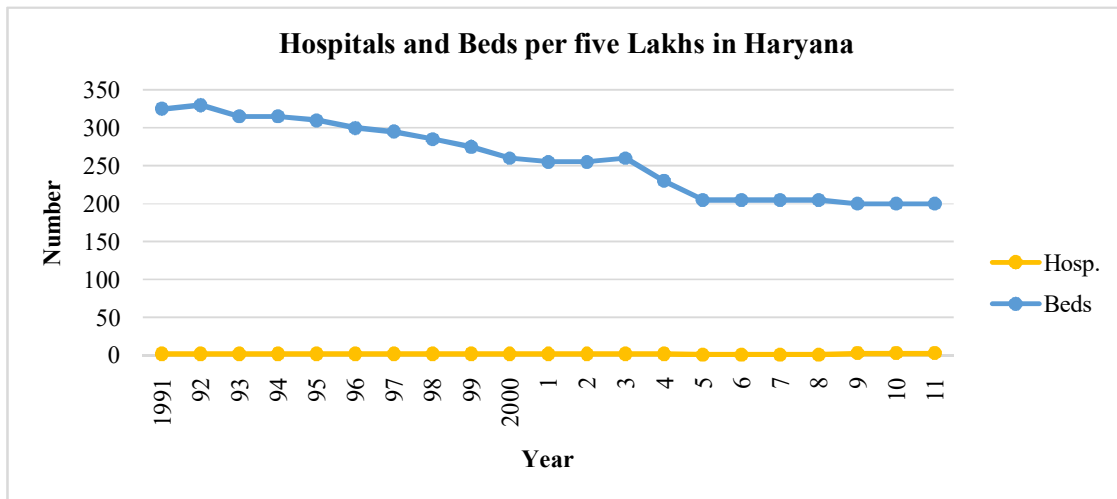
Figure4.7



(Sources: Statistical Abstract of Haryana)

This figure 4.7 reveals that patient treatment by Allopathic and AUH (Allopathic, Unani and Homeopathic) institution. Number of treatment by allopathic institution in 1991 is 7680666, in 1992 to 1993 decrease from 8411467 to 7721914. It increases continuous up to year2000. It decreases in year 2000 to 2002. Because number of Allopathic institution slightly up and down. It does year 2002 to 2006 increase from 7987909 to 13058910. Because Govt. new scheme launches i.e. Swasthya Aapke Dawar , Plus polio programme, T.B. control programme, etc. After 2006 is decrease year 2006 to 2009 from13058910 to 12447885. After that it does increase still on 2010. Because purchase new machinery and equipment. It does in year 2010 to 2011 stable of patient treatment by Allopathic institution. In term of patient treatment by AUH in year 1991 is 2519169 and its slightly increase and decrease still on 2001. It does increase continuously from year 2001 to 2007. Because opened the new AUH institution, Dispensaries in different district i.e. Kurukshetra , sonipat and other district. Because Govt. was invest large amount in health sector i.e. duration time period was proposed Sakshar Mahila Smooth (Jacha Bacha Scheme), new medical open at Mewat and Sonipat and reform of recruitment in medical officers etc.

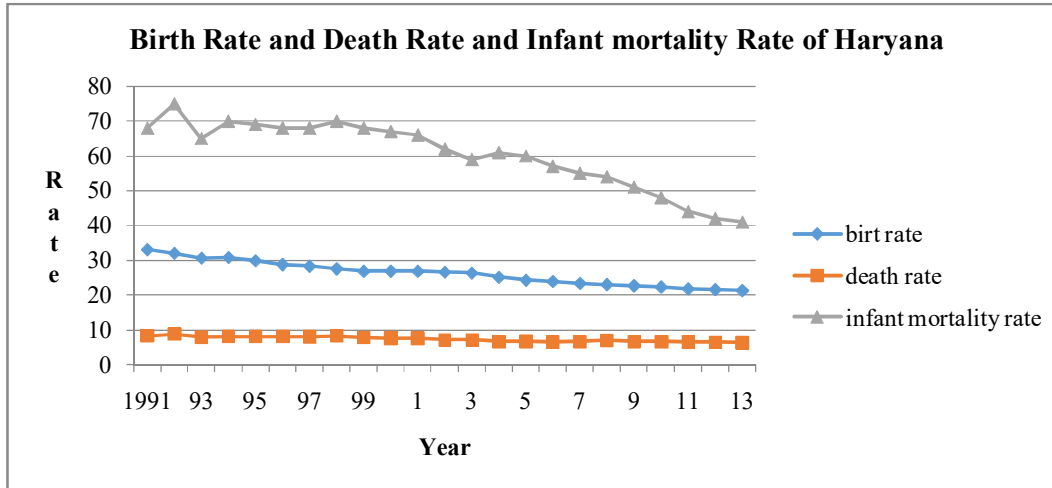
Figure 4.8



(Sources: Statistical Abstract of Haryana)

This figure 4.8 shows that per five lakhs lives number of hospital and beds. Number of beds in Haryana, in year 1991 is 325 and 1992 is 330, its continuous decrease up to year 2001 and from year 2001 to 2003 is stable. But again year 2003 to 2005 is decrease. After that time slightly change up to 2011. The entire figure shows that number beds per five lakhs decrease. Because number of hospital per five lakhs not increase and increase the population is main factor of this reason. Number of hospital per five lakhs is stable from 1991 to 2011. Because that number of population increase and not opened new hospitals, only some college open such as only studies purpose.

Figure 4.9



(Sources: Statistical Abstract of Haryana)

The figure 4.9 reveals that Infant Mortality rate and Death rate and Birth rate. This rate is per thousand. In year 1991, IMR is 68, in 1992 decrease the 75 to 65, in year 1993 increase is 65 to 70. It continuously decreases. It means good performance of IMR. Birth rate is decreasing continuously as in 1991 is 33.1, in 1992 is 32, as well as decrease up to 2013. And Death rate in 1991 is 8.2, in 1992 is 8.7, in 1993 is 7.8, in 1994 to 1996 stable is 8.1. After that time its continuously decrease up to 2013. Because increase health budget year by year. And awareness scheme launched time to time.

4.3 Recent trend and pattern of health and growth in Mahendergarh

Table 4.4 Simple Regression Model

Dependant variable	Coefficient	Standard error	P. Value	R square	Adjust R square
DGDP	1546887	197828.5	0.000	0.7629	0.7504
Constant	-75417.85	31383.52	0.027	-	-

(Sources:- Researcher calculation)

Note- Denotes significant at 5% significant level.

Above table reveals the regression result of DGDP and DHI from 1991 to 2011. Which shows that a positive and statistically significant relationship between DGDP and DHI. These imply that as the independent variable (DHI) increased, DGDP increased during the period studies. If 1% increased the DHI then DGDP increased the 1546887 rupees. The value of R square is 0.7629, which shows that 76% variation in dependant variable is explained by independent variable. The value of adjustment R square 0.75, it means fitness of regression is good. The entire result shows that DHI effect on DGDP. But DGDP is not effect DHI. Because result found statistically insignificant and DGDP not effect DHI.

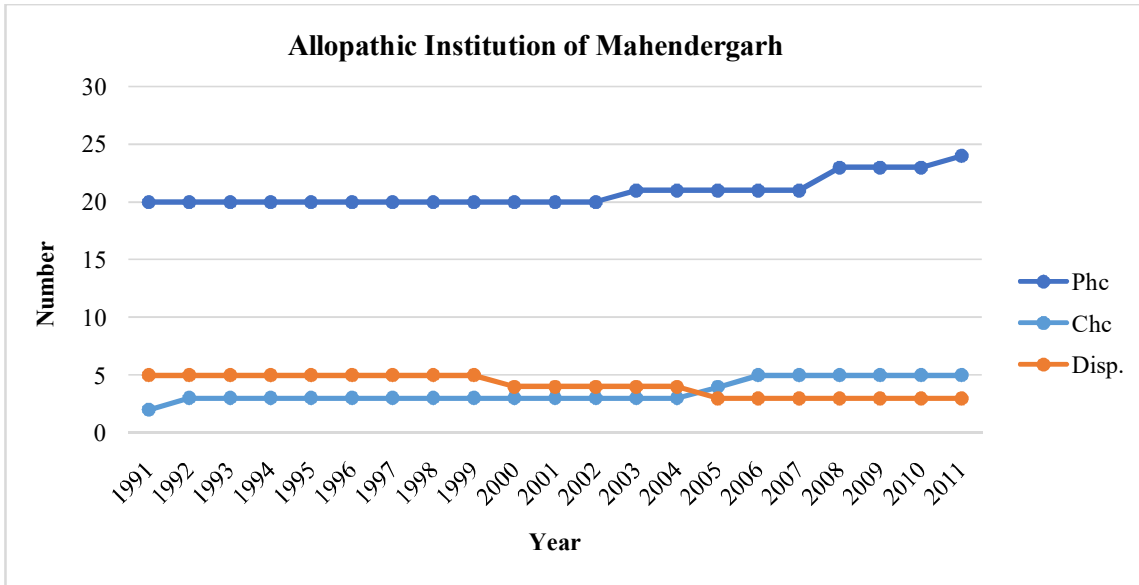
Table 4.5 Descriptive Statistics (Health Index and DGDP of Mahendergarh)

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Health index	21	.1471429	.607571	.05	.27
DGDP	21	152195.5	107600.9	8076.66	33508.6

(Source: Researcher Calculation)

Table 4.5 show that from 1991 to 2011(21 Observation) summary of DGDP and Health Index. DGDP is average on 152195.5 lakhs rupees. Its standard deviation is 107600.9. DGDP maximum is 33508.6 and minimum is 8076.66 lakhs rupees. Health index value lies 1 to 0. Its average on .1471429 and standard deviation is .607571, as minimum is .05 and maximum is .27.

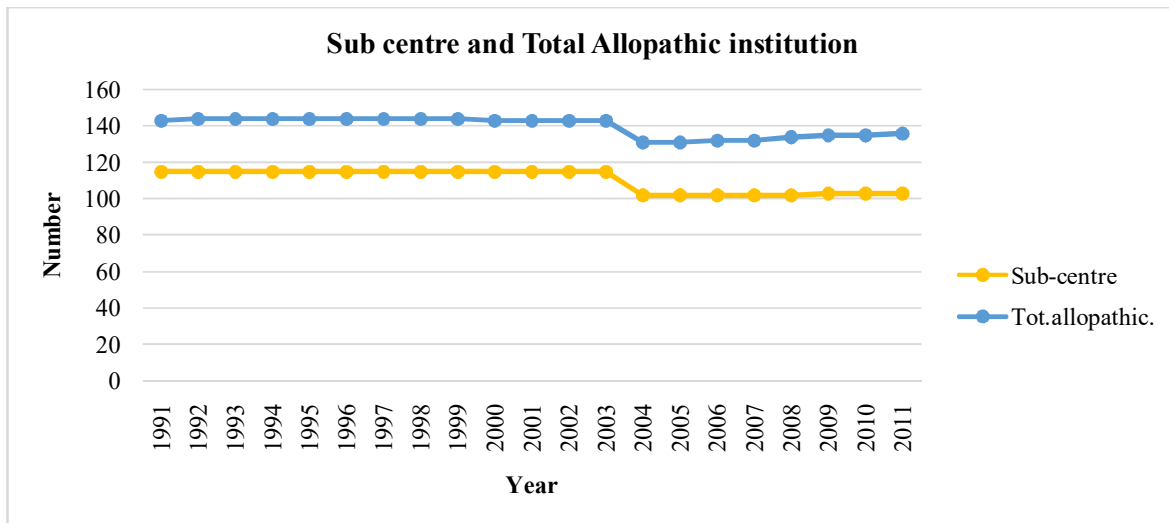
Figure 4.10



(Source: Statistical Abstract of Haryana)

The figure 4.10 shows that the number of Primary Health Centre is on its average till the year 2002. After that the number of PHC has increased from 21 to 22 and it increases continuously till 2007. At the current time in the year 2011 its number of PHC is 24. The PHC line shows that from year 1991 to 2011 there is a small change in number of PHC it changes from 20 in 1991 to 24 in year 2011. The community health centre in 1991 is 2 and its 1991 to 1992 there is small change, after 1992 constant continuously till 2004. And it's after that number of CHC change 4 in 2004 to 5 in 2011. In term of Dispensaries is on its average till the year 1999. After those dispensaries has decreased from 5 to 4 and its constant continuously till year 2004. After that time decrease the 3 in 2005 and up to year 2011.

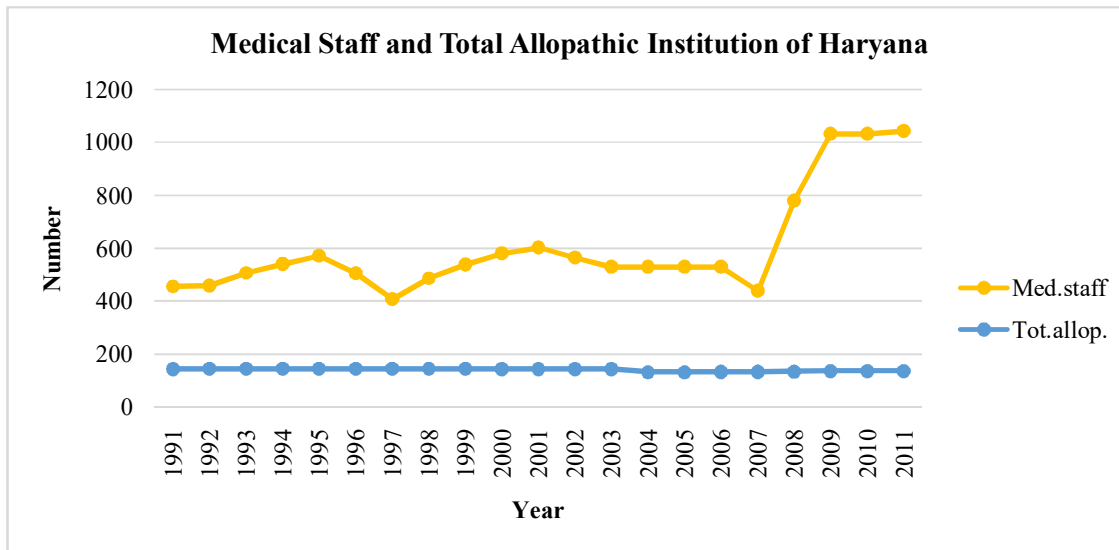
Figure 4.11



(Sources: Statistical Abstract of Haryana)

The figure 4.11 reveals pattern of total allopathic institution and sub- centre. Number of total allopathic institution is 143 in year 1991. After that year 1991 up to 2003 slightly change. In 2004, allopathic institution has decrease 131. After year 2004 continuously increase till year 2011. Number of sub-centre is 115 in year 1991 up to year 2003. Its after 2003 decrease 115 to 102. In 2004 it continuous moves constant. Simultaneously change sub centre and total allopathic institution. Sub-centre exits in rural areas.

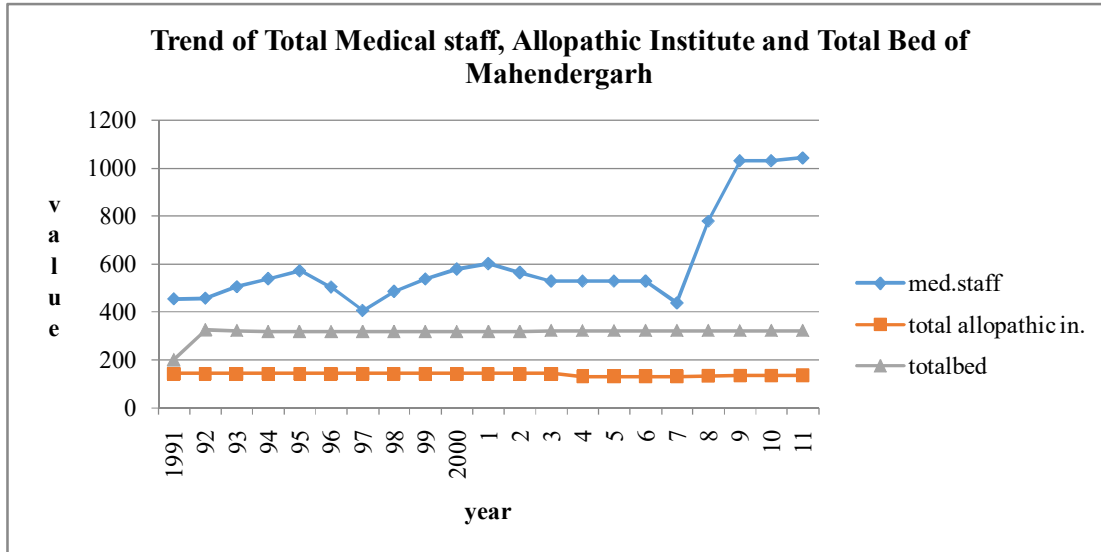
Figure 4.12



(Sources: Statistical Abstract of Haryana)

The figure 4.12 reveals that trend Medical staff and total allopathic institution. In 1991 Medical staff is 455. It's after 1991 year increase continuously till 1995. It's after 1995 decrease up to 1997. Then it's up down till 2007. It's after 2007 jump 438 to 1032. its means fast grow. It slight increased till on year 2011. Number of total allopathic institution is 143 in year 1991. After that year 1991 up to 2003 slightly change. In 2004, allopathic institution has decrease 131. After that it increased continuously from 2004 to 2011.

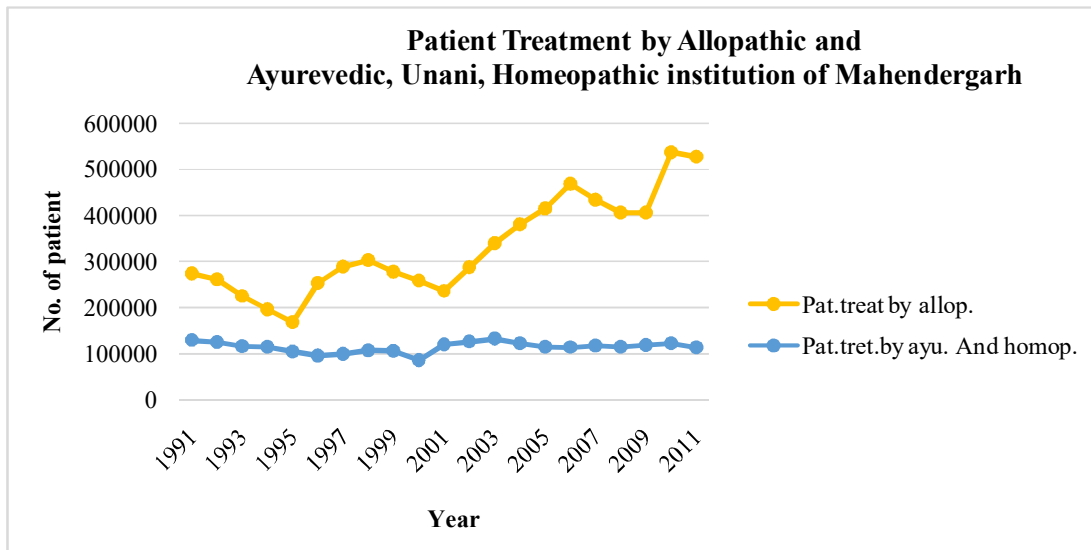
Figure 4.13



(Sources: Statistical Abstract of Haryana)

The figure 4.13 reveals that trend Medical staff and total allopathic institution. In 1991 Medical staff is 455. It's after 1991 year increase continuously till 1995. It's after 1995 decrease up to 1997. Then its up down till 2007. It's after 2007 jump 438 to1032.its means fast grow. After 2009 slight increase up to 2011.Number of Total beds pattern 202in 1991 and after 1991 its increase in 1992 is 326. After 1992 its constant. Beds and allopathic institution situation is not correct. Number of total allopathic institution was143 in 1991. It's after 1991 up to 2003 slightly change. It's after 2003 decrease and again slowly- slowly increase up to 2011. But not better gain comparison to back year 1991 to 2003 because its constant with increase time and population.

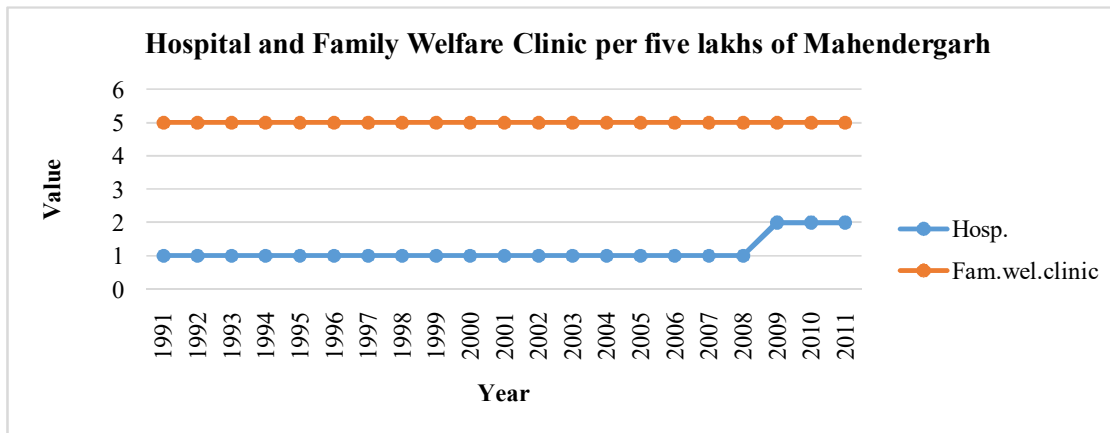
Figure 4.14



(Source: Statistical Abstract of Haryana)

This figure 4.14 shows that patient treatment by allopathic institution, Ayurvedic and homeopathic institution. Number of treatment allopathic institution is more comparison to Ayurvedic and homeopathic institution. Because number of allopathic institution is more than Ayurvedic institution. In 1991 total number of patient treatment is 273996. Its after 1992 decrease up to 1995. After 2006 again decrease on 2009. And this allopathic patient increase by time to time. But patient treatment performance is good. In term of patient treatment by Ayurvedic and homeopathic institution trend mostly slightly change with constant. in 1991 is 130000, but after 1991 decrease up to 2000. Its After 2000 its move constant.

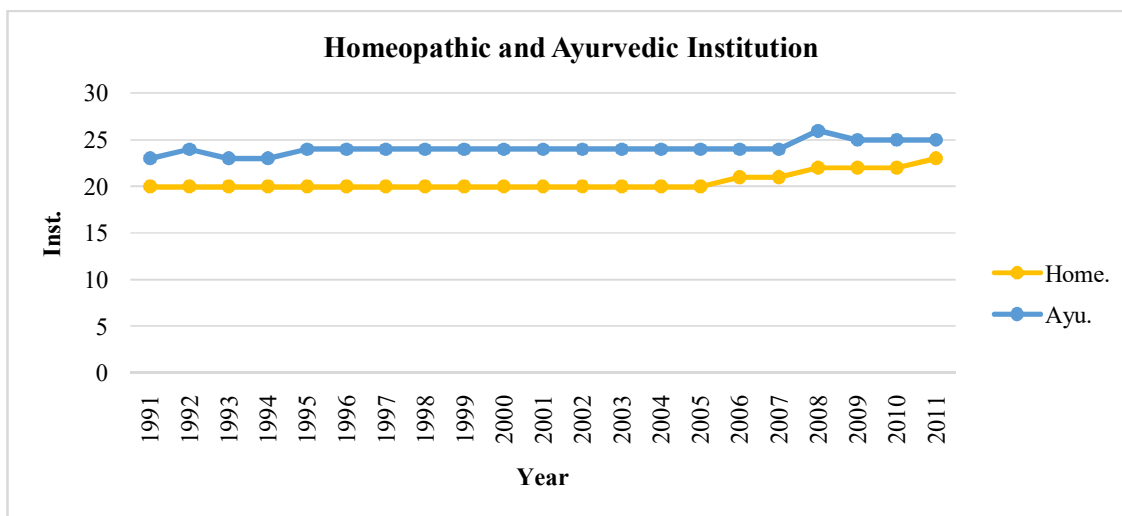
Figure 4.15



(Sources: Statistical Abstract of Haryana)

This figure 4.15 shows that per five lakhs lives hospital and family welfare clinic. Family welfare clinic in Mahendergarh district is constant, it's not good because population more and family health clinic less and number of patient more. Hospitals in Mahendergarh district in year 1991 to 2008 is 1 and after 2008 has increased from 1 to 2. After that number of hospital 2009 to 2011 is stable.

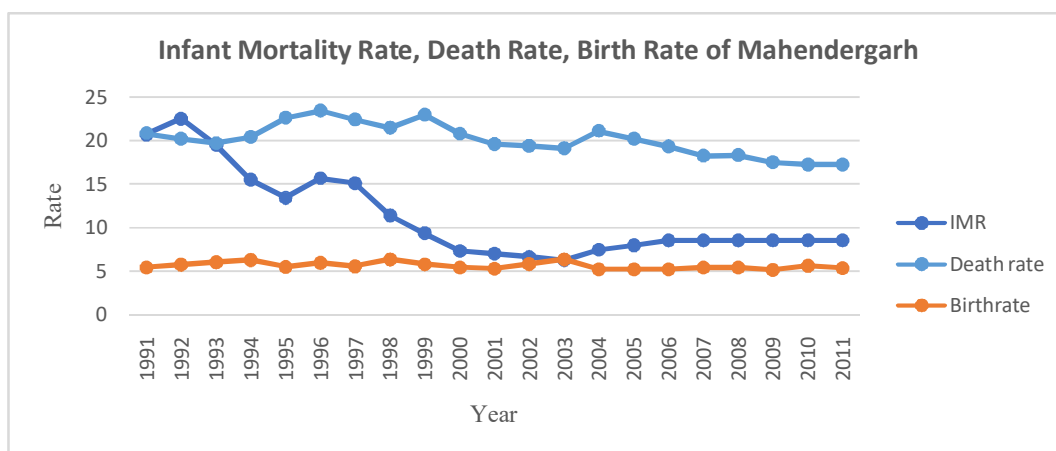
Figure 4.16



(Sources: Statistical Abstract of Haryana)

The figure 4.16 shows that trend of Homeopathic and Ayurvedic institution in Mahendergarh district. In 1991, Homeopathic institution is 20 up to 2005. After that in year 2005 increase is 21. Its number of Homeopathic institution is continuously increased till year 2011. In 2011 is 23. In term of Ayurvedic institution is 23 in 1991 and 24 change in 1992. After that its decrease from 1992 to 1993 is 23. And same is 1994. But 1995 to 2007 is 24, its move constant. Its increase in 2008 is 26. After that 2008 is decreased is 25.

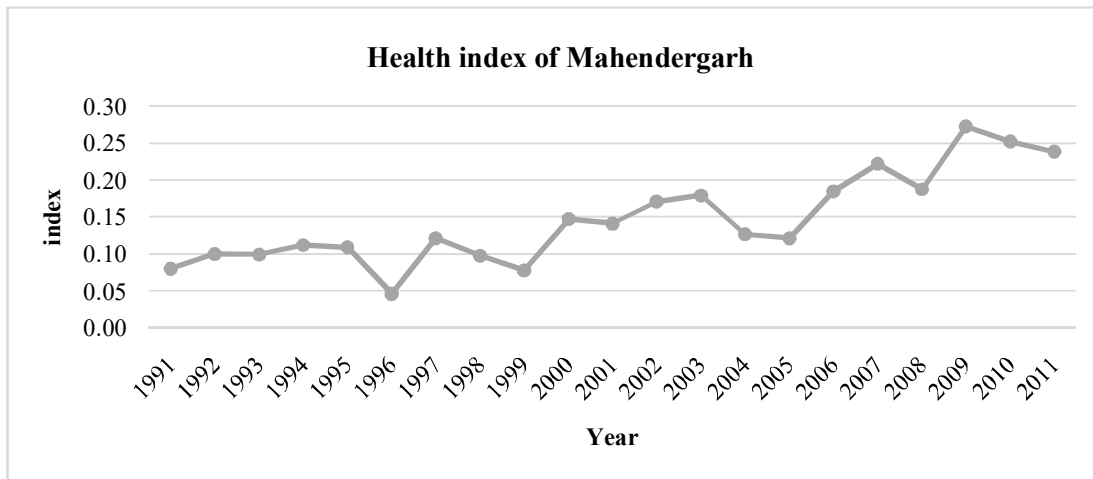
Figure 4.17



(Source:- Statistical Abstract of Haryana)

The figure 4.17 shows that Infant mortality rate, Death rate and Birth rate. This rate is per thousand. In term of infant mortality rate in 1991 is 20.86 and its increase in 1991 to 1992 from 20.86 to 22.54. its continuously decrease up to 1995. And IMR increased 13.45 to 15.95 from year 1995 to 1996. After that IMR has decreased year 1996 to 2003 from 15.95 to 6.38. It increased from 2003 to 2006. After that IMR is stable from 2006 to 2011. Birth rate, in year 1991 is 5.44 and its slight change up to 1994. After that birth rate up and down still year 2001. In year 2001 to 2003 increased from 5.32 to 6.83. Its decreased in 2003 to 2004 is 6.38 to 5.25. After that Birth rate stable up to 2008. . Death rate in year 1991 is 20.86 after that 1991 to 1993 has decreased from 20.86 to 19.92. After that 1993 to 1996 increased from 19.92 to 23.46. its decrease in 1998 is 21.5. In year 1999 to 2003 decreased from 22.96 to 19.14. Its decreased year 2004 to 2011 from is 21.13 to 17.26.

Figure4.18



(Sources: Statistical Abstract of Haryana)

The figure 4.18 shows that health index. Its value refers to 1 to 0. In health index nine variables includes as PHC, CHC, dispensaries, institution per lakhs, beds per lakhs, hospitals per lakhs, birth rate per thousand, death rate per thousand, infant mortality rate per thousand. Health index value in 1991 is 0.08, its continuously slight change up to 1995. After that health index has decreased from 0.11 to 0.05 in year 1995 to 1996. Its has increased to 1996 to 1997. Health index decreased 1997 to 1999 is 0.12 to 0.08. It continuously decreased from 1999 to 2003. In year 2005 to 2007 has increased 0.12 to 0.22. After that decrease in 2007 to 2008 is 0.22 to 0.19. And again increased the 0.27 in 2009. But after that has decreased.