



Fertility Levels and Geographical Patterns: A Geographical Study of Himachal Pradesh.

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Abstract: Himachal Pradesh is a state of India, in which most of the population is rural. It is commonly seen that facilities in the countryside are low. Despite having a large rural population, Himachal Pradesh is one such state in India, which still has a low birth rate. Therefore, the existing perusal compares study area fertility rates with national average as well as study fertility levels and geographical patterns in Himachal Pradesh. This reading is established on secondary records, available in Sample registration system report and census of India website. As far as approach is affined, direct measures of birth rates have been used at district stratum. The analysis exhibit that the high birth rates have been note down in Bilaspur, Solan and Sirmaur. While, the lowermost fertility rates are chronicled in Lahul & Spiti and Kinnaur.

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Key words: Fertility levels, Geographical Patterns, Crude Birth Rate, Cohort, Total Fertility Rate

Introduction

The decline in birth rate has been a generic phenomenon that is seen in developed as well as developing nations (Bongaarts, 2008; Shakya & Gubhaju, 2016). Guilmoto & Rajan (2002) study point out that our nation is going through the phase of change. Indian Government is continuously trying to control the mounting population by reduction in the fertility rate (Chaurasia, 2011). In certain states of our nation, birth rate is very high and there are some states which also provide an example of low fertility rate (Guilmoto & Rajan 2013). Different circumstances of those states are responsible for such reproductive behavior. Several states like Goa, Kerala, Tamil Nadu, Andhra Pradesh, Himachal Pradesh, etc. are a specific example. As far as that Himachal Pradesh is affined, many changes have taken in the state especially in the preceding twenty years. As a result, now the state is moving in the direction of population steadiness (Gupta et al. 2013). An important point is also that while comparing the birth rates of the states of North India with the states of South India, study area emerges as distinctive case (Tomar, 2009).

Objective:

The prime intention of the present reading is as follows:

- To compare study area fertility rates with national average.

- To study fertility levels and geographical patterns in Himachal Pradesh in 2011.

Hypothesis:

For the present reading, one hypothesis has been outlined:

- Fertility levels and geographical patterns always have a county divide.

Study Area:

Himachal Pradesh is a hilly state to be found in Himalayan range with twelve districts i.e.; Chamba, Kangra, Hamirpur, Una, Bilaspur, Solan, Sirmaur, Shimla, Mandi, Kullu, Kinnaur and Lahul & Spiti. The study area is eminent for its greenery and beauty. Kinnaur and Lahul & Spiti districts are the districts with cold desert climate.

Database and Methodology:

This study is founded on secondary data, available on census of India website and Sample registration system report of 2011. For the existing study, direct measures of birth rates have been used at district stratum. These measures reckon on crude birth rate, age-specific birth rate and total fertility rate.

Results and discussion:

Table 1 shows contrast of crude birth rate in Himachal Pradesh and India. It is clearly presenting that crude birth rate in Himachal Pradesh is much inferior to the nationwide average. Similar results are also seen in the fertility rates of urban areas and rural

areas. The maximum contrast is making a note in urban areas crude birth rate that is 6.4.

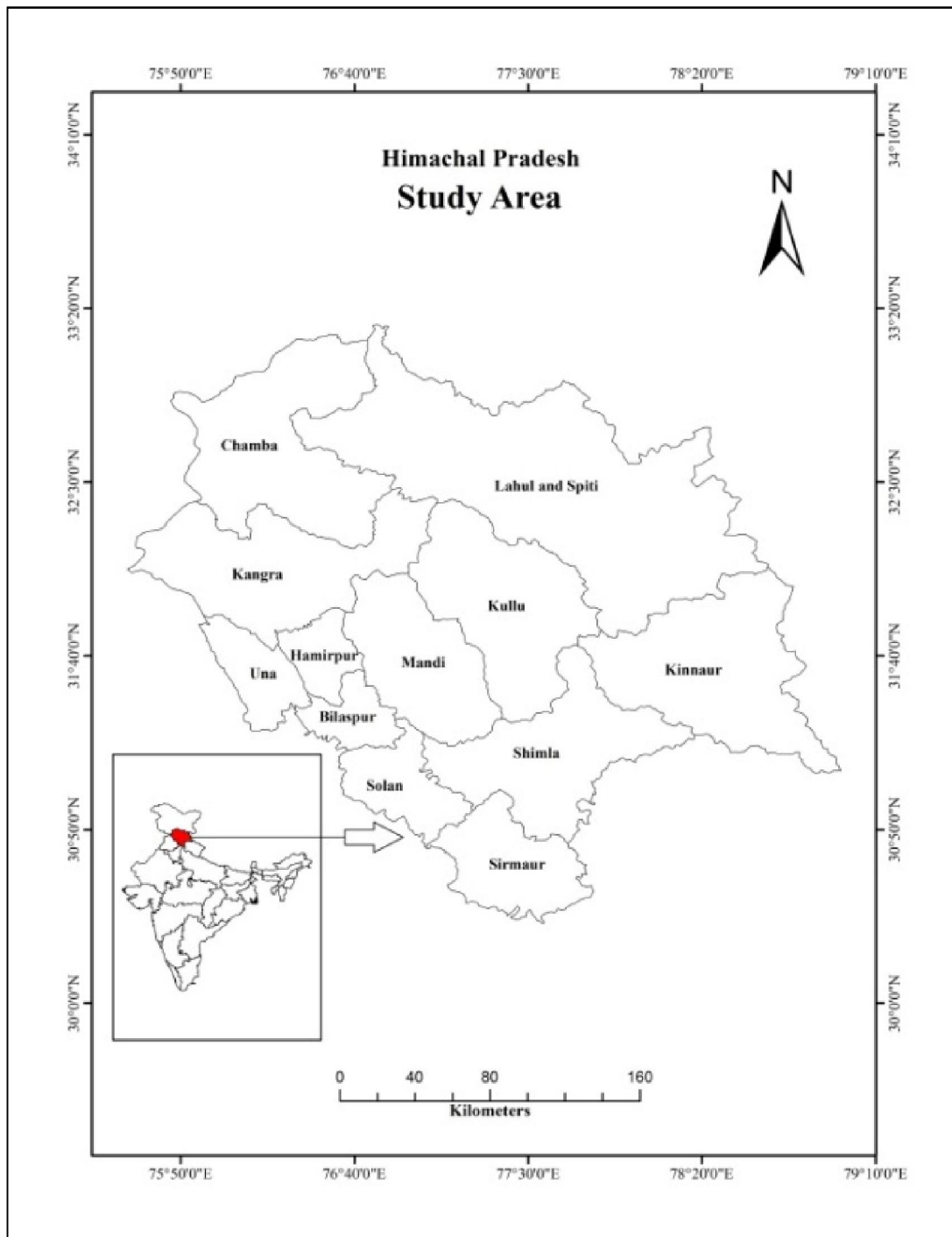


Table 1: crude birth rate comparison (2011)

Area	India (CBR)	Himachal Pradesh (CBR)
Total	21.8	16.5
Rural	23.3	17.1
Urban	17.6	11.2

Source: Sample Registration System Statistical Report (2011).

Crude birth rate in Himachal Pradesh (2011):

Map 1 displays crude birth rate in Himachal Pradesh at district stratum for the year 2011. As per this map, Bilaspur, Solan and Sirmaur are lying in 17.12 to 19.28 birth rate category, which is the highest class. Lahul & Spiti, Kinnaur and Shimla are in very low category of birth rate. Kangra, Hamirpur and Una lie in medium and Chamba, Kullu and Mandi lie around in low fertility rate class. This map displays that northern districts fertility level and geographical pattern have a large county divide than the southern districts, which is proving our outlined hypothesis.

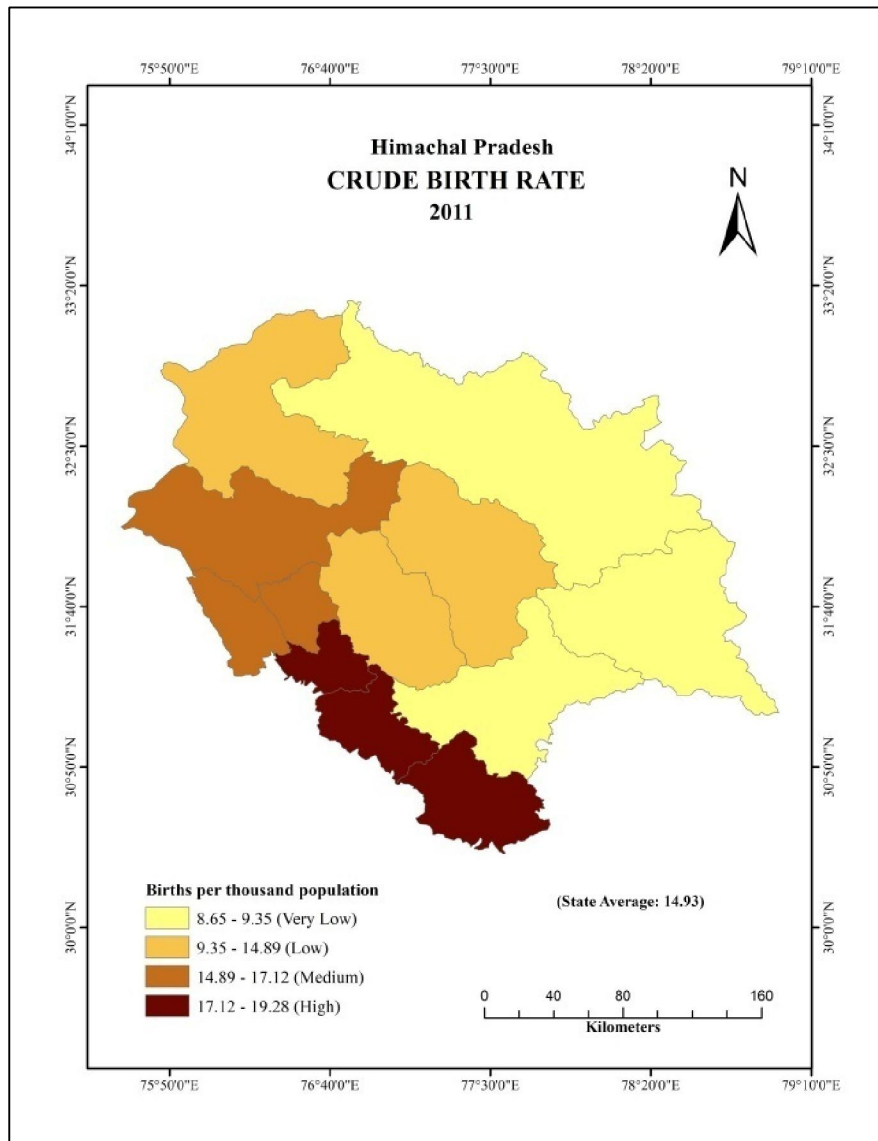
Scatter diagram 1 presents rural and urban areas crude birth rates in Himachal Pradesh for the year 2011. It is ostensible from this scatter diagram that all districts of the study area are falling under the line of

equal distribution. The important point here is that Lahul & Spiti and Kinnaur do not have urban population. But, these districts have chronicled low crude birth rate than the other districts, where borough population is relatively high.

Comparison of age specific fertility rates in Himachal Pradesh and India (2011):

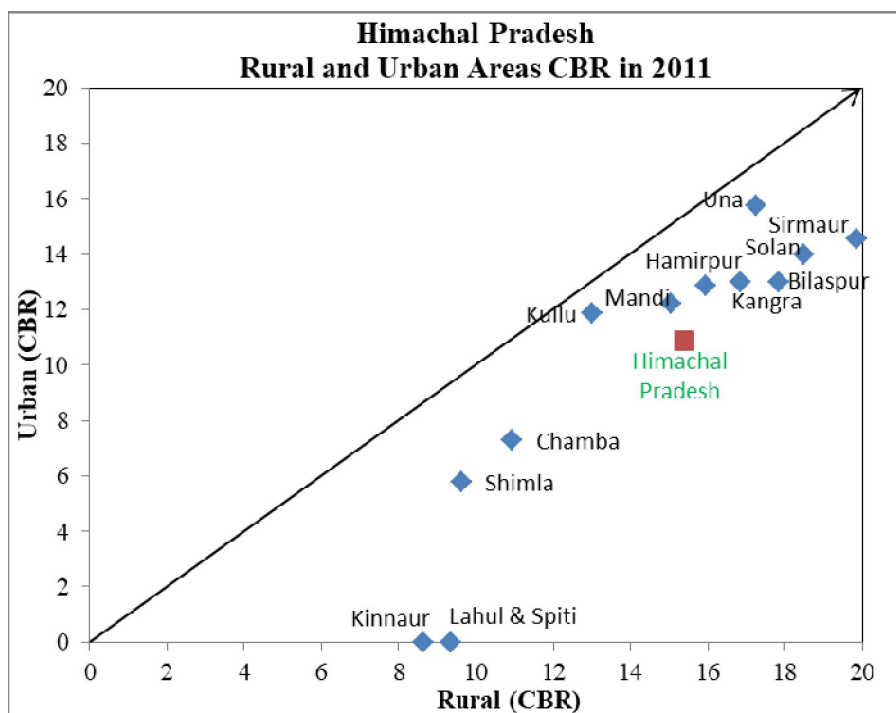
Table 2 shows a comparison of cohort fertility rates in Himachal and India. As per this table, Himachal Pradesh has low cohort fertility rate in rural as well as in borough areas. When, we compare the level of urbanization in Himachal Pradesh with national average. Level of urbanization is much inferior in Himachal Pradesh than the nationwide average.

Map: 1



Data Source: Census of India, 2001 and 2011

Scatter diagram: 1



Data Source: Census of India, 2011

Table 2: Comparison of age specific fertility rates in Himachal and India (2011)

Age groups	India			Himachal Pradesh		
	Total	Rural	Urban	Total	Rural	Urban
15-19	30.7	35.3	16.5	12.3	12.8	7.2
20-24	196.7	216.8	143.8	162.6	171.5	67.3
25-29	153.4	163.7	129.6	122.7	125.8	93.5
30-34	69.8	74.6	58.8	40.3	38.8	53.6
35-39	26.4	30.2	16.8	10.5	9.0	23.2
40-44	8.7	10.9	3.6	1.5	1.2	4.4
45-49	2.8	3.6	1.0	1.1	1.3	0.0

Source: Sample Registration System Statistical Report (2011).

Table 3

ASFRs in Himachal Pradesh (2011)							
DISTRICT	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Bilaspur	9.44	136.41	142.51	58.43	21.59	13.78	36.69
Chamba	7.07	80.88	82.14	35.92	14.06	13.48	24.22
Hamirpur	6.59	116.24	138.29	51.80	15.45	8.08	27.73
Kangra	4.32	98.79	150.64	71.02	25.10	11.80	23.33
Kinnaur	21.30	75.15	62.91	31.67	15.56	8.71	8.13
Kullu	20.20	111.85	81.30	33.86	13.22	12.62	21.53
Lahul & Spiti	3.97	46.19	83.23	53.08	28.61	13.65	8.31
Mandi	18.43	137.02	100.41	36.55	12.83	13.40	29.49
Shimla	8.10	60.27	65.52	29.35	11.25	8.86	14.76
Sirmaur	16.35	144.02	150.31	70.57	27.94	23.56	40.33
Solan	10.47	137.75	133.96	59.21	21.44	17.01	35.86
Una	3.84	104.93	165.88	78.05	23.16	10.64	23.10
HIMACHAL PRADESH	10.21	108.97	120.59	53.01	18.90	12.79	26.09

Data source: Census of India, 2011

Table 3 demonstrates age specific fertility rates in Himachal Pradesh. It articulates that Kinnaur, Kullu, Mandi and Solan districts have chronicled topmost fertility rates in 20-24 cohort, whereas, Bilaspur, Hamirpur, Chamba, Kangra, Lahul & Spiti, Sirmaur, Shimla and Una in 25 to 29 age cohort. In the first

agglomeration (i.e. 15 to 19), crowning rate is in Kinnaur followed by Kullu, Mandi and Sirmaur district, while, in 45 to 49 conglomeration, topmost birth rates logged in Sirmaur, Bilaspur and Solan.

ASFRs in urban and rural parts of Himachal Pradesh (2011):

Table 4: ASFRs in rural and urban parts of Himachal Pradesh (2011)

DISTRICT	15-19		20-24		25-29		30-34		35-39		40-44		45-49	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Bilaspur	9.49	8.67	140.13	80.78	144.44	114.02	58.69	55.11	21.85	18.34	13.89	12.46	37.59	24.54
Chamba	7.17	5.36	83.62	36.40	82.86	72.62	36.14	33.27	13.94	15.42	13.95	7.66	25.31	11.44
Hamirpur	6.56	6.97	118.85	77.96	138.94	128.84	51.97	49.45	15.00	20.72	8.22	6.46	28.38	19.04
Kangra	4.21	6.16	100.74	64.73	153.01	110.67	70.85	73.66	24.85	29.15	11.86	10.87	24.06	11.25
Kinnaur	21.30	0.00	75.15	0.00	62.91	0.00	31.67	0.00	15.56	0.00	8.71	0.00	8.13	0.00
Kullu	21.15	8.76	115.39	72.40	79.66	96.54	31.77	51.54	12.81	16.42	12.41	14.38	21.90	18.33
Lahul & Spiti	3.97	0.00	46.19	0.00	83.23	0.00	53.08	0.00	28.61	0.00	13.65	0.00	8.31	0.00
Mandi	18.90	10.66	141.06	70.41	100.38	100.79	34.66	63.12	12.12	22.07	13.88	7.22	30.59	15.77
Shimla	9.59	3.71	71.04	30.50	72.08	45.15	29.82	27.98	11.96	9.35	10.02	5.54	17.36	6.78
Sirmaur	17.24	7.33	151.60	78.40	155.14	115.28	70.43	71.50	28.50	24.40	25.29	11.50	42.80	22.03
Solan	11.04	7.07	149.41	82.03	139.51	109.57	57.37	67.54	20.47	26.09	17.59	14.16	38.92	19.64
Una	3.75	4.98	107.02	82.68	167.99	143.72	77.36	85.62	22.59	29.06	10.39	13.21	22.99	24.16
HIMACHAL PRADESH	10.63	6.16	114.49	58.91	123.94	91.05	52.92	53.74	18.84	19.42	13.20	9.39	27.40	14.51

Data source: Census of India, 2011

Table 4 displays cohort fertility rates in the study area at district stratum in rural parts and urban parts. It is ostensible from this table; urban parts of Himachal Pradesh have chronicled low birth rates, except the cohort of 30-34 and 35-39. At district stratum, in most of the districts, urban parts have logged low fertility rates. In the cohort of 15-19, highest rate is charted in rural parts of Kinnaur i.e. 21.30, while, 10.66 in urban parts of Mandi district. In the 45 to 49 cohort, the highest rate is monitored in Sirmaur rural parts, while, 24.54 in urban parts of Bilaspur district. In both of the

cases, the peak is reached in 25-29 cohort of Himachal Pradesh.

Total fertility rate comparison (2011)

Table 5 displays contrast of total fertility rate in Himachal Pradesh and India. It is evidently screening that total fertility rate in Himachal Pradesh is much inferior to the nationwide average. Alike outcomes are also seen in the birth rates of borough parts and rural areas. The maximum contrast is making a note in countryside areas total fertility rate (that is approximately one child per woman).

Table 5: Total fertility rate comparison (2011)

Total/Rural/Urban	India (TFR)	Himachal Pradesh (TFR)
Total	2.4	1.8
Rural	2.7	1.8
Urban	1.9	1.2

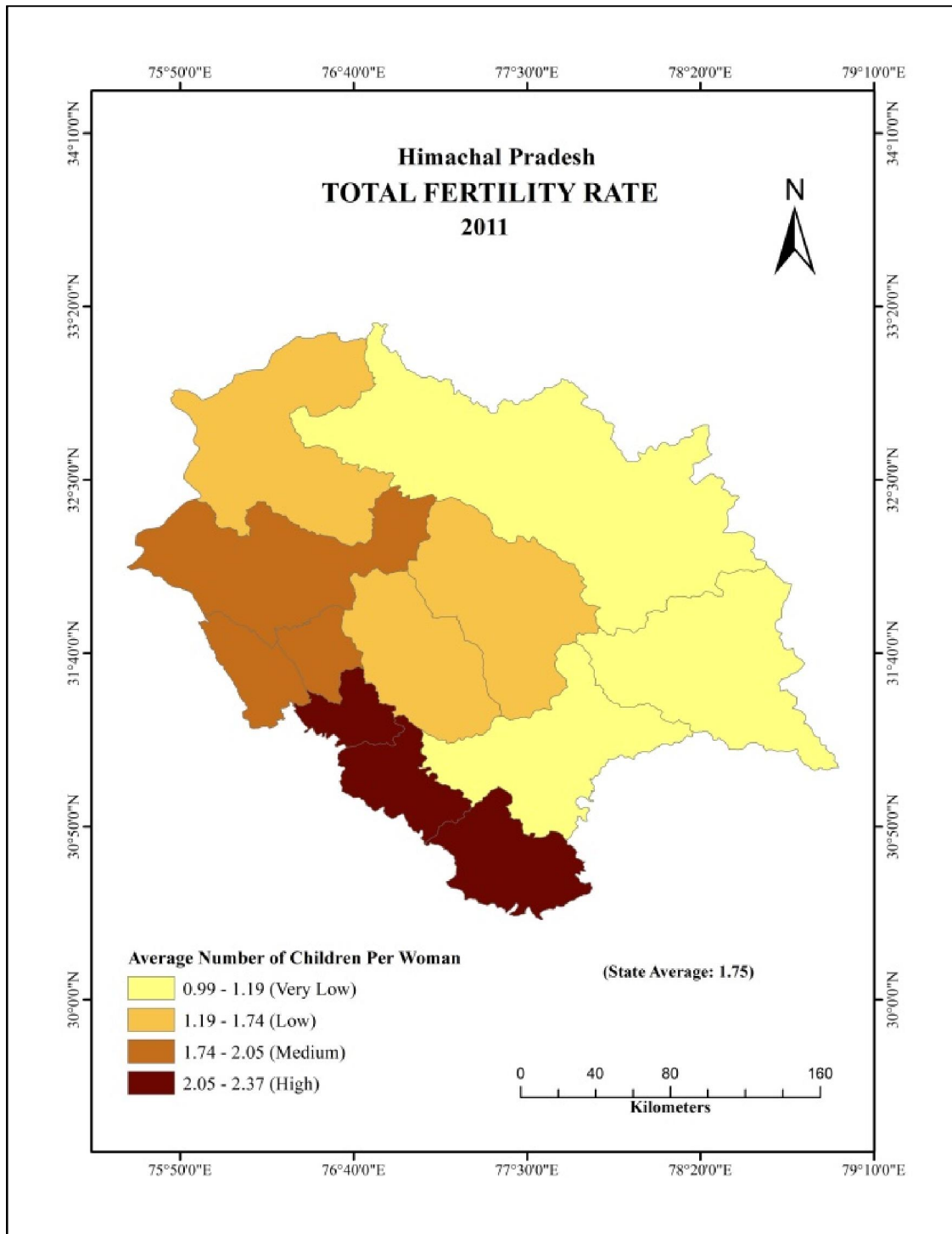
Source: Sample Registration System Statistical Report (2011).

Total fertility rate in Himachal Pradesh (2011):

Map 2 expresses total fertility rate in Himachal Pradesh at district stratum for 2011. Just similar to crude birth rate map, this map displays that Solan, Bilaspur and Sirmaur are in high (i.e. 2.05-2.37) birth rate class. Lahul & Spiti, Kinnaur and Shimla are in very low cluster (i.e. 0.99 to 1.19) of birth rate. Kangra,

Hamirpur and Una lie in medium and Chamba, Kullu and Mandi lie around in low birth rate class. This map also demonstrates that northern districts fertility level and geographical pattern have a great county split than southern region.

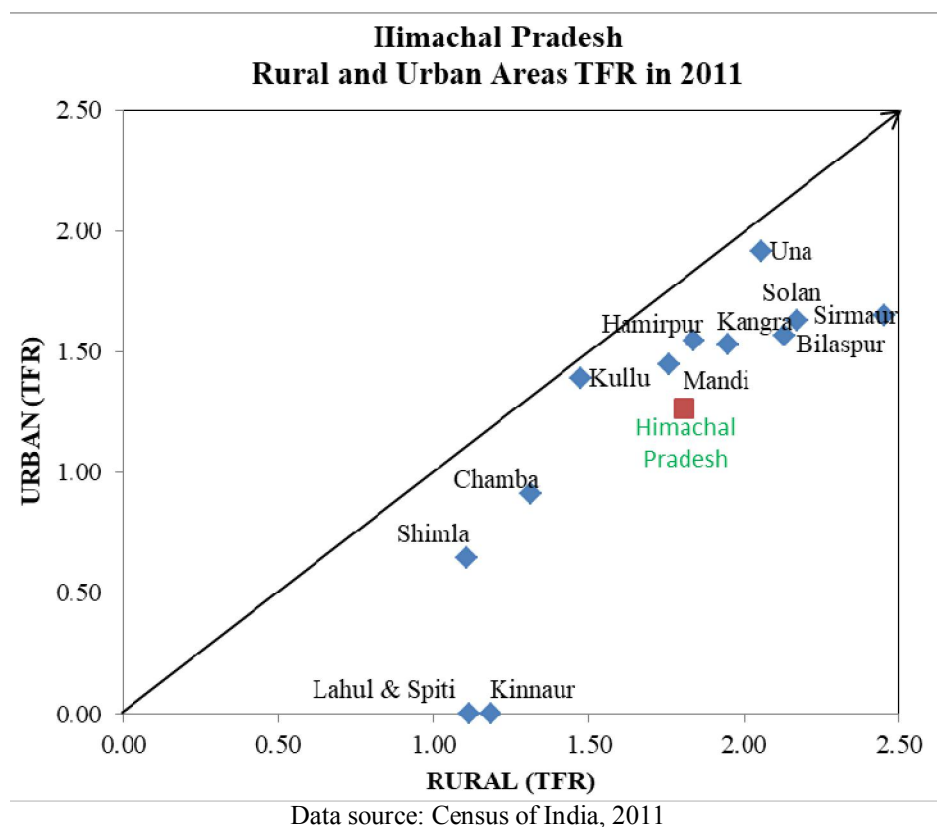
Map: 2



Data Source: Census of India, 2011

Scatter diagram 2 presents urban and rural parts total fertility rate at district stratum. It is ostensible from this diagram that all districts of the study area are falling under the line of equal distribution, which means that all the districts have noted high fertility in

countryside. The important point here is that Kinnaur and Lahul & Spiti do not have urban population. But, these districts have chronicled low total fertility than the other districts, those have borough population is relatively high.

Scatter diagram: 2**Conclusion**

Based on the used procedure, it can be clinched that the birth rate in Bilaspur, Solan and Sirmour is high. An appraisal of the literature, articulates us in this perspective that there are innumerable social as well as economic sake behind it. As far as the low fertility rates of Lahul & Spiti and Kinnaur are anxious, climate can be presume a key reason. The commendable thing is that despite having a large rural population, Himachal Pradesh is one such state in India which still has a low birth rate. Many states of our country can learnt from this.

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