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Estimation of Age-Specific Fertility Rates for Districts in India from Median Age of the total Population: A New Approach

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Abstract: In the present paper an attempt has been made to prove that given the information on Median Age of the Total Population (MEDATP) one can easily estimate various age-specific fertility rates (ASFRs) from it, using simple regression models, where the Sample registration system (SRS) data of India and its states has been used in deriving the various empirical models. Also following Bogue, a reference table has been prepared to estimate various fertility measures from the given MEDATP. Using the above reference table and the given MEDATP of 2011 of various districts in India a set of regression based indirect estimates of fertility were derived and further discussed in this paper. It is realised the present state based regression models of fertility of India were proved to be very useful for deriving below state level estimates of fertility for India and its districts. However, as they are indirectly estimated may be used only to cluster the districts in India based on their fertility levels, instead using them to understand exact levels of fertility of districts in India for obvious reasons.

Keywords: ASFRs, Districts, India, MEDATP, Regression models, SRS.

Introduction

Most of the time researchers prefer to derive age-specific fertility rates (ASFRs) (or schedule of ASFRs) by fitting mathematical models, that includes various parametric, non-parametric and polynomial functions, as ASFRs always follow a bell shaped pattern. For instance, in a recent study Mishra et al., (2017) attempted to suggest Skew-Logistic distribution function to derive ASFRs for different states in India. They further provided a systematic review of articles that uses various mathematical models. Singh et al. (2014) study entitled "Modeling Fertility Curves in India: A Comparison of Four Mathematical Models" is yet such another attempt.

However, in the literature we may also come across few studies that use simple regression models to estimate the schedule of ASFRs using various simple fertility indicators. As an example, we may refer to the studies made by Bogue and Palmore (1964), Premi (1974) and Soren (2013). Following the few studies mentioned here, it is attempted in the present paper to derive the ASFR from the information on Median Age of the Total Population (MEDATP). A schedule of ASFRs provides a complete picture of the age-patterns of fertility of the unit of study under consideration than that of the any summary measure including the TFRs. The present study is an outcome of understanding of the fact (1) there is a high correlation between the various measures of fertility and the measure MEDATP; and (2) one can easily derive MEDATP for states in India for various singles years from the percent age distribution of the population, for which fertility measures are also available from the SRS data of various years of the Registrar General of India. Thus said, in the following sections the data and methods used and the analysis and discussion part of the paper is provided in some detail.

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The two specific objectives of the present paper are: (1) To suggest a new methodology to provide a model set of ASFRs using the only information on the median age of the total population (MEDATP); (2) To derive the model based estimates of ASFRs for districts in India using a general model that uses the state level ASFRS of major states over time.

Data

The essential data needed for deriving MEDATP and ASFRS are collected for each major state in India and India as a whole over time from 1985 to 2015 from various SRS reports of the Registrar General and Census Commissioned of India (RGCCI (no date)). It is to state while ASFRs are readily available; there happened a need to derive the MEDATP from the percent age distribution of the total population of each state overtime. Further to state, a time series of data of ASFRs and MEDATP of 15 major states and India for 31 consecutive years were used here to derive the general model. It is noted, state specific models are also attempted by the researcher.

Methods

A look into the reported ASFRs of different states and India indicates that each state follows a different fertility pattern based on the progress in the demographic transition of each state. Earlier studies made by researchers like Bhat (1996), Guilmoto and Rajan (2001), Gupta (2012), James (2011), Mohanty et al. (2016), Srinivasan (2017), Singh et al. (2017) also clearly indicates fertility transition is good in progress in India and it has varied not only by age but also by different characteristics such as religion, rural-urban, and other factors. Thus there seems a need here also to provide fertility models for each of the state and India as a whole. Further it may be interesting to have a general model based on all observations of India and its states, which can be used to derive fertility schedules even for smaller state, UTs and districts in India. One who is interested may use in fact the state based models for each of the state. However, for drawing a general comparative picture it seems always better to use the general model provided in the present paper. Thus said, several regression models were made as needed and provided in Appendix Table A.

Reference tables for estimating ASFRs from MEDATP

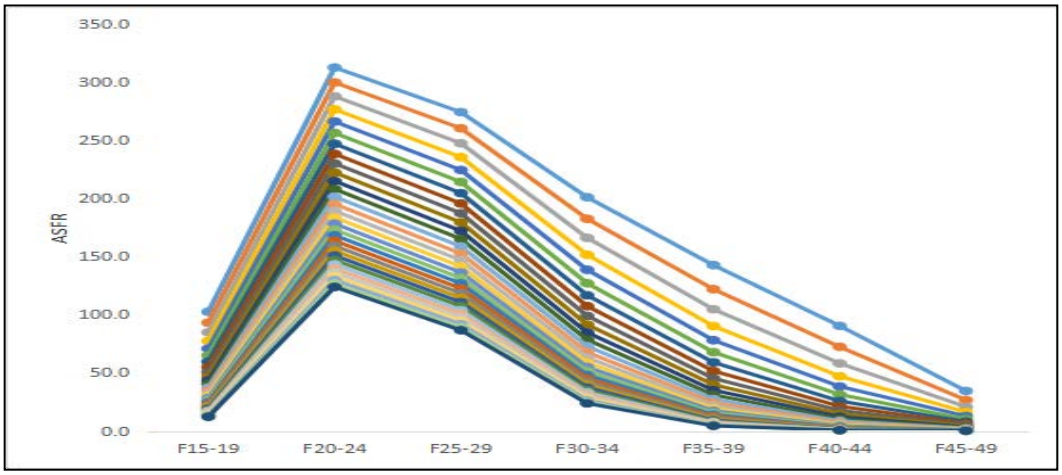
The following Table 1 and accompanying Figure 1 is an attempt to provide ready reference table in order to estimate the fertility schedules at once for any unit of analysis, given the only information on observed MEDATP. This table was derived using the regression models of the General model given in Appendix Table A. Given MEDATP of any state, district and India or any other sub-unit, read the values of ASFRs corresponding to it, whatever the year of reference between 1985 to 2015, as they were derived using the time series of ASFRs that were pooled of different states and India that refers to 31 times periods namely 1985 to 2015. All the regression coefficients given in Appendix Table A are observed to be significant by having a t-statistic of more than 2.0, however not given in the table for ease of presentation. Appendix Table B of the paper provides the regression based estimates of ASFRs for India, states, UTs, various 640 districts in India derived using MEDATP of 2011 census age data and the General model. A detailed discussion of the results is made in the following section.

Table 1: Reference table for estimating ASFRs from a given MEDATP

MEDATP	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49
18.0	102.6	312.7	274.3	201.1	142.7	90.4	34.4
18.5	93.1	299.9	260.4	182.6	122.0	72.3	26.6
19.0	84.8	288.0	247.6	166.2	104.7	58.2	20.7
19.5	77.4	276.8	235.6	151.6	90.2	47.1	16.2
20.0	70.8	266.3	224.6	138.7	78.1	38.3	12.8
20.5	64.9	256.4	214.3	127.1	67.8	31.3	10.1
21.0	59.6	247.2	204.7	116.7	59.0	25.7	8.1
21.5	54.9	238.4	195.7	107.4	51.6	21.2	6.5
22.0	50.6	230.2	187.3	99.1	45.2	17.6	5.2
22.5	46.8	222.4	179.5	91.5	39.8	14.6	4.2
23.0	43.3	215.1	172.2	84.7	35.1	12.2	3.4
23.5	40.2	208.2	165.3	78.5	31.0	10.3	2.8
24.0	37.3	201.6	158.8	72.9	27.5	8.6	2.3
24.5	34.7	195.3	152.7	67.8	24.4	7.3	1.9
25.0	32.3	189.4	146.9	63.1	21.7	6.2	1.6
25.5	30.1	183.7	141.5	58.8	19.4	5.3	1.3
26.0	28.1	178.4	136.4	55.0	17.4	4.5	1.1
26.5	26.3	173.3	131.5	51.4	15.6	3.9	0.9
27.0	24.6	168.4	126.9	48.1	14.0	3.3	0.8
27.5	23.1	163.7	122.6	45.1	12.6	2.8	0.6
28.0	21.7	159.3	118.4	42.3	11.4	2.5	0.5
28.5	20.4	155.0	114.5	39.7	10.3	2.1	0.5
29.0	19.2	151.0	110.8	37.4	9.3	1.8	0.4
29.5	18.0	147.1	107.3	35.2	8.4	1.6	0.3
30.0	17.0	143.4	103.9	33.2	7.7	1.4	0.3
30.5	16.1	139.8	100.7	31.3	7.0	1.2	0.2
31.0	15.2	136.4	97.6	29.5	6.3	1.1	0.2
31.5	14.3	133.1	94.7	27.9	5.8	0.9	0.2
32.0	13.6	129.9	91.9	26.4	5.3	0.8	0.2
32.5	12.8	126.9	89.2	25.0	4.8	0.7	0.1
33.0	12.2	123.9	86.7	23.7	4.4	0.6	0.1

Source: General Model of Appendix Table A

Figure 1: ASFRs corresponding to a given MEDATP



Source: Table 1
Note: F15-19 refer to ASFR of age group 15-19; Similar is the case with F20-24, etc.

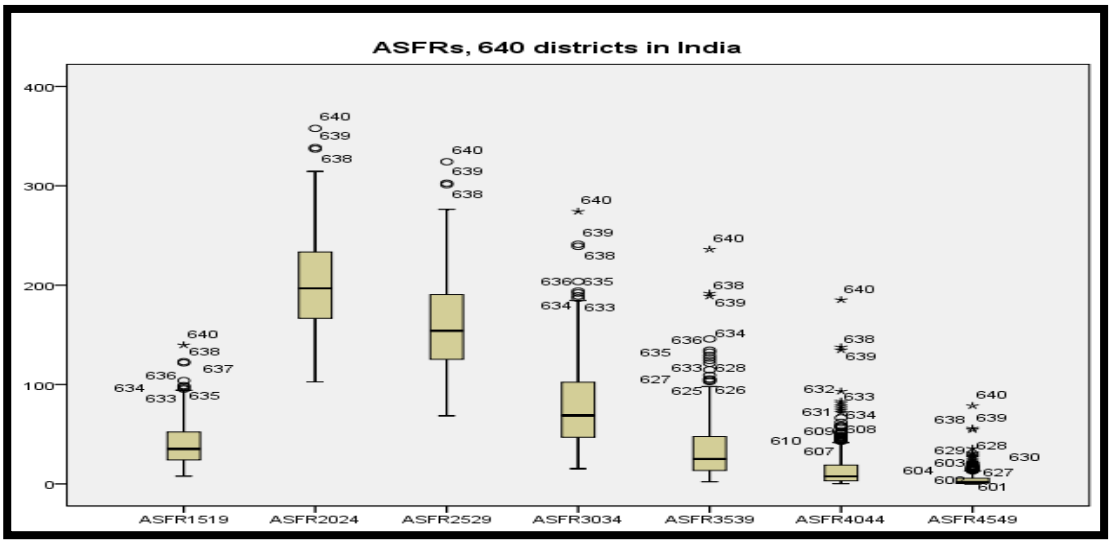
Results and Discussion

Regression estimates of ASFRs for districts in India during 2011

From the box plot presentation of the ASFRs of the 640 districts in India (See Figure 2) it is seen that, maximum fertility is seen to be taking place in majority of districts in India (when aggregated) even in around the year 2011 at the age group of 20-24, followed by 25-29. In the other age groups, the corresponding fertility is seen to be comparatively low. Relevant data used in deriving the box plots given in Figure 2 can be seen in Appendix Table B. For a further understanding of the derived ASFRs, this table also provides the Mean age at childbearing (MACB) derived from the corresponding ASFRs. To state herewith further, to the reasons unknown to the researcher, in only three of the 640 districts India, namely that of Mewat (Haryana), Kurung Kumey (Arunachal Pradesh), West Khasi Hills (Meghalaya), the estimated age-specific fertility rates are observed to be estimated very high from the present general model and may be unacceptable when compared to other districts to some extent.

The above findings may be reflective of the fact that majority of the states in India and India as a whole may be experiencing their peak fertility at age 20-24 followed by 25-29. It is realised district level mapping of the fertility of each age group or clustering the districts by some other sophisticated analysis like cluster analysis procedure perhaps may provide a better picture in fact. Only few districts are seen to be outside the box plots of each age group of fertility, as out-layers. Median of the fertility distribution of each of the age group is reflected by the middle bar of the each box plot. In case of the age groups 15-19, 35-39, 40-44 and 45-49 the median bar is seen to be lower side of the box reflecting the fact that fertility is almost very low in these ages/age groups compared to the age groups 20-24, 25-29 and 30-34, where the fertility is still very high.

Figure 2: Box-plot representation of regression based estimates of age-specific fertility measures (derived using General Model) for 640 districts in India, 2011



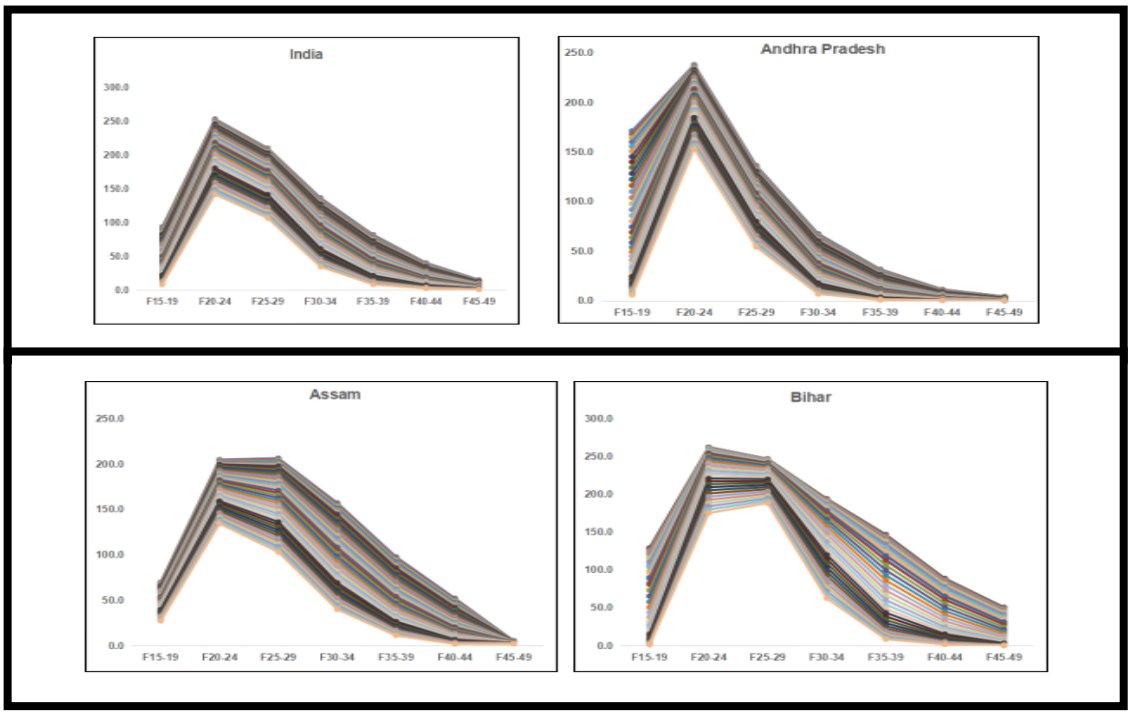
Regression estimates of ASFRs for India and states during 1985 to 2026

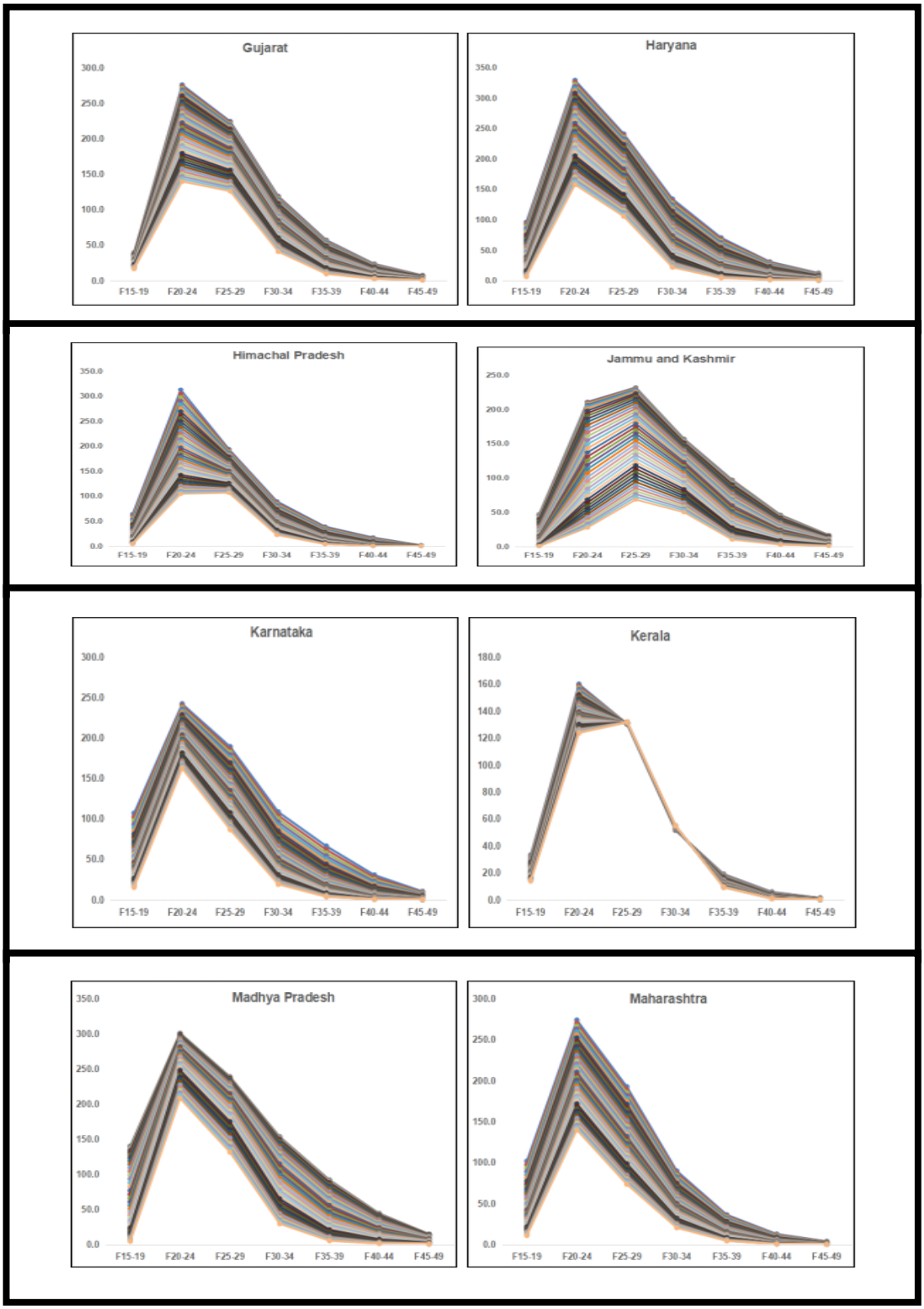
Figure 3 below gives the ASFRs graphs over time from 1985 to 2015 and the projected period of 2016 to 2026 for India and its major sates. MEDATP of 2016 to 2026 derived earlier by the second researcher (not given here) were used as input in deriving the ASFRs for the projected periods and it is noticed here that state specific regression models

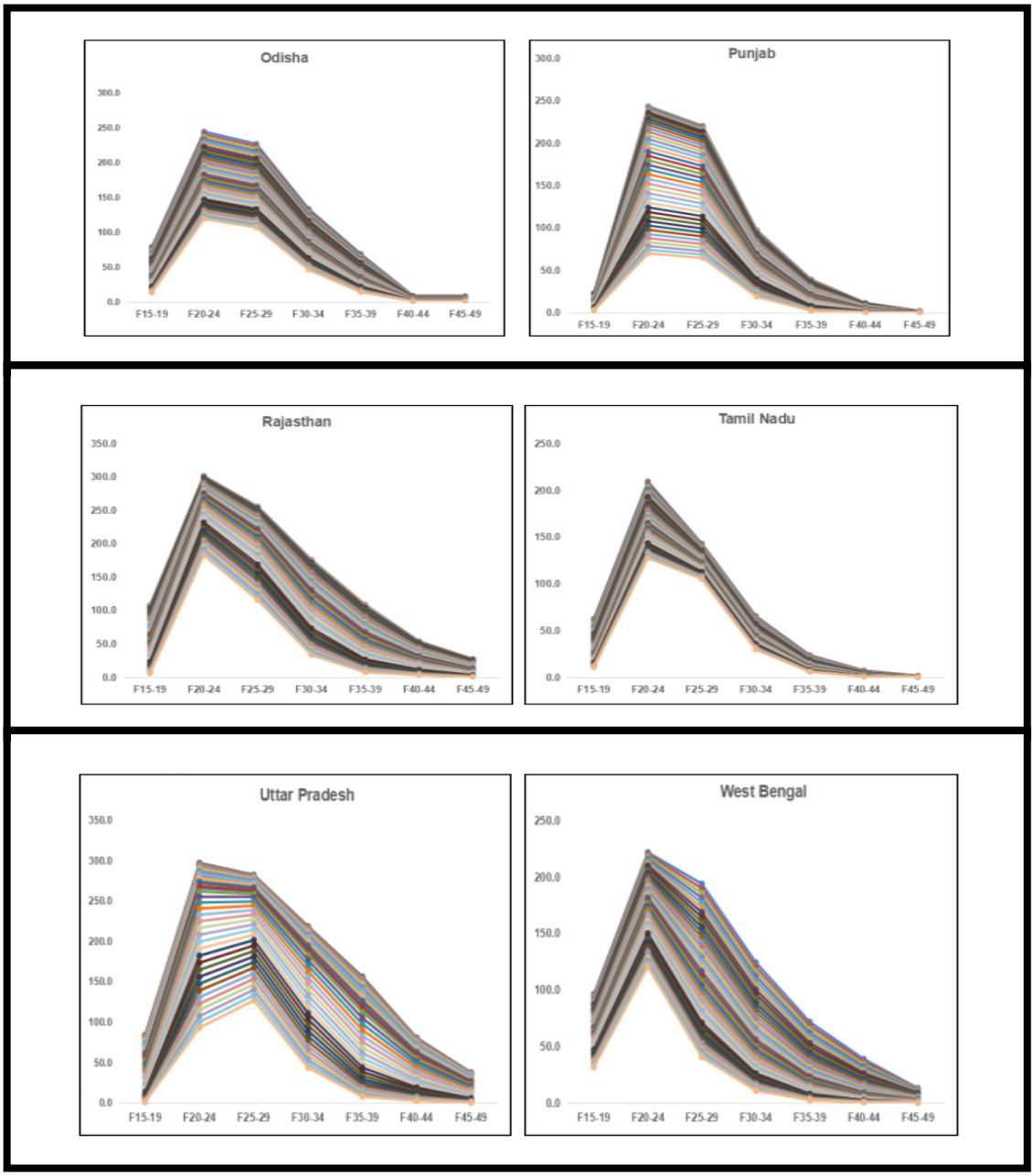
were used to derive the same, unlike the districts level figures provided in Appendix Table B. A keen observation of the various ASFR schedules of India and states given below indicates the following important points:

1. India as a whole (as in case of the general model see Figure 1) experiencing its high fertility in the ages of 20-24 followed by 25-29.
2. The same is said to be true in majority of states like old Andhra Pradesh (present newly formed state of Andhra Pradesh plus Telangana state), and others.
3. The fertility situation of Kerala seen to be comparatively different from India and other states also.
4. States like Bihar, UP where the fertility is still very high seen to be experiencing high fertility both at 20-24 and 25-29 ages, but interestingly in these two states, it is observed that the peak fertility is seen to be moving from 20-24 to 25-29 with time. Interestingly, the same is said to be true in case of Kerala and Himachal Pradesh, where in the projected time the peak fertility is seen in those states in the ages 25-29.
5. Jammu and Kashmir seen to be having a unique nature as here we may see fertility is peaked at ages 25-29 and also fertility is seen to be high in the neighbouring ages of 20-24 and 30-34 reflecting a very broad peak fertility situation even in the projected time period.
6. A further keen observation of the various diagrams seen to indicate that the fertility peak in case of majority of the states may be shifting from the present peak age of 20-24 to 25-29 with time, that which cannot be keenly observed in case of India as a whole, obviously it gives the reflective picture of various sub-units like districts in India as seen from the box plot diagram Figure 2 above.
7. Among the states, Kerala and Andhra Pradesh seen to be reflecting completely a different picture and may be due to obvious reasons.

Figure 3: Estimates of age-specific fertility rates, India and major states, 1985 to 2026




Gujarat
Haryana
Himachal Pradesh
Jammu and Kashmir
Karnataka
Kerala
Madhya Pradesh
Maharashtra
F15-19
F20-24
F25-29
F30-34
F35-39
F40-44
F45-49



Conclusions

In the present paper an attempt has been made to provide at first some regression models to estimate fertility from the only given information on MEDATP for different states and India. A detailed analysis carried out using different results indicates that age-specific fertility has varied by states, districts and over time and also there seems to be an indication of the fact that fertility peak may be moving from age groups 20-24 to 25-29 with time. Thus, the present paper seems to fulfil the said objective of one can estimate fertility from MEDATP and get meaningful estimates, to study at least the aggregated levels of fertility and changes in it, over time. Importantly the present paper gives the finding that there seems a shift in the peak fertility of different states in India over time obviously with a progress in the demographic transition. Finally, it is to conclude that as the estimates derived here are indirect, may be used only to cluster the districts in India based on their fertility levels, instead using them to understand exact levels of fertility of districts in India for obvious reasons.

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Appendix Table A: SRS based - state specific and general - regression models for estimating age-specific fertility measures

Indicator	Constant (a)	Coefficient (b)	R	R-Square	N
		INDIA			
ASFR(15-19)	22.814	-6.030	.939	.882	31
ASFR(20-24)	9.818	-1.413	.968	.938	31
ASFR(25-29)	10.352	-1.651	.973	.947	31
ASFR(30-34)	15.054	-3.345	.945	.894	31
ASFR(35-39)	21.358	-5.594	.972	.944	31
ASFR(40-44)	24.887	-6.993	.962	.925	31
ASFR(45-49)	25.606	-7.554	.926	.858	31
		ANDHRA PRADESH			
ASFR(15-19)	23.005	-5.806	.932	.869	31
ASFR(20-24)	7.783	-.751	.874	.764	31
ASFR(25-29)	9.779	-1.581	.740	.548	31
ASFR(30-34)	16.389	-3.959	.776	.602	31
ASFR(35-39)	23.634	-6.560	.831	.691	31
ASFR(40-44)	25.480	-7.494	.746	.557	31
ASFR(45-49)	38.427	-12.030	.805	.648	31
		ASSAM			
ASFR(15-19)	11.260	-2.344	.650	.422	31
ASFR(20-24)	8.450	-1.045	.793	.629	31
ASFR(25-29)	10.484	-1.722	.885	.784	31
ASFR(30-34)	15.250	-3.405	.970	.940	31
ASFR(35-39)	20.812	-5.422	.946	.895	31
ASFR(40-44)	29.591	-8.565	.903	.815	31
ASFR(45-49)	8.629	-2.337	.274	.075	31
		BIHAR			
ASFR(15-19)	46.387	-14.184	.853	.727	31
ASFR(20-24)	8.874	-1.129	.605	.366	31
ASFR(25-29)	7.721	-.756	.441	.195	31
ASFR(30-34)	14.551	-3.171	.699	.489	31
ASFR(35-39)	28.547	-8.047	.838	.702	31
ASFR(40-44)	38.711	-11.691	.872	.760	31
ASFR(45-49)	57.864	-18.425	.903	.815	31
		GUJARAT			
ASFR(15-19)	9.919	-2.050	.604	.365	31
ASFR(20-24)	10.504	-1.604	.927	.858	31
ASFR(25-29)	9.548	-1.358	.880	.774	31
ASFR(30-34)	12.472	-2.527	.891	.794	31
ASFR(35-39)	17.067	-4.278	.940	.884	31
ASFR(40-44)	19.686	-5.431	.949	.901	31
ASFR(45-49)	19.907	-5.888	.872	.761	31
		HARYANA			
ASFR(15-19)	22.320	-6.012	,930	.865	31
ASFR(20-24)	10.564	-1.614	.912	.831	31
ASFR(25-29)	10.843	-1.814	.902	.814	31
ASFR(30-34)	16.686	-3.991	.955	.912	31
ASFR(35-39)	22.489	-6.175	.954	.910	31
ASFR(40-44)	24.584	-7.164	.916	.838	31
ASFR(45-49)	29.069	-8.995	.785	.616	31

Appendix Table A: SRS based - state specific and general - regression models for estimating age-specific fertility measures (Continued)

Indicator	Constant (a)	Coefficient (b)	R	R-Square	N
		HIMACHAL PRADESH			
ASFR(15-19)	18.186	-4.707	.925	.856	31
ASFR(20-24)	11.316	-1.869	.975	.950	31
ASFR(25-29)	8.318	-1.023	.901	.812	31
ASFR(30-34)	11.623	-2.392	.878	.771	31
ASFR(35-39)	15.501	-3.971	.934	.872	31
ASFR(40-44)	25.195	-7.498	.843	.711	31
ASFR(45-49)	15.544	-5.044	.455	.207	31
		JAMMU & KASHMIR			
ASFR(15-19)	27.767	-8.009	.969	.938	17
ASFR(20-24)	14.821	-3.171	.965	.931	17
ASFR(25-29)	11.118	-1.899	.978	.957	17
ASFR(30-34)	10.382	-1.783	.901	.812	17
ASFR(35-39)	15.197	-3.556	.918	.844	17
ASFR(40-44)	17.575	-4.602	.963	.927	17
ASFR(45-49)	18.083	-5.112	.885	.783	17
		KARNATAKA			
ASFR(15-19)	17.705	-4.322	.714	.510	31
ASFR(20-24)	8.164	-.887	.929	.863	31
ASFR(25-29)	10.477	-1.736	.953	.908	31
ASFR(30-34)	16.350	-3.868	.975	.951	31
ASFR(35-39)	23.675	-6.461	.945	.893	31
ASFR(40-44)	32.184	-9.541	.895	.802	31
ASFR(45-49)	35.443	-10.990	.785	.616	31
		KERALA			
ASFR(15-19)	8.956	-1.754	.733	.537	31
ASFR(20-24)	6.702	-.523	.806	.649	31
ASFR(25-29)	4.798	.023	.044	.002	31
ASFR(30-34)	3.539	.130	.139	.019	31
ASFR(35-39)	7.566	-1.487	.655	.430	31
ASFR(40-44)	13.676	-3.839	.765	.585	31
ASFR(45-49)	16.000	-5.090	.606	.367	31
		MADHYA PRADESH			
ASFR(15-19)	32.502	-9.185	.958	.917	31
ASFR(20-24)	8.695	-.996	.801	.642	31
ASFR(25-29)	10.319	-1.614	.922	.850	31
ASFR(30-34)	18.367	-4.444	.938	.880	31
ASFR(35-39)	27.447	-7.641	.965	.930	31
ASFR(40-44)	31.431	-9.213	.931	.867	31
ASFR(45-49)	28.272	-8.526	.866	.749	31
		MAHARASHTRA			
ASFR(15-19)	22.803	-5.915	.925	.855	31
ASFR(20-24)	11.093	-1.783	.931	.866	31
ASFR(25-29)	13.120	-2.557	.953	.909	31
ASFR(30-34)	16.567	-3.927	.921	.848	31
ASFR(35-39)	20.612	-5.538	.930	.866	31
ASFR(40-44)	26.460	-7.780	.869	.755	31
ASFR(45-49)	27.583	-8.532	.758	.574	31

Appendix Table A: SRS based - state specific and general - regression models for estimating age-specific fertility measures (Continued)

Indicator	Constant (a)	Coefficient (b)	R	R-Square	N
		ODISHA			
ASFR(15-19)	17.891	-4.460	.835	.697	31
ASFR(20-24)	10.923	-1.789	.943	.889	31
ASFR(25-29)	11.106	-1.874	.976	.953	31
ASFR(30-34)	12.935	-2.652	.969	.940	31
ASFR(35-39)	16.317	-3.987	.949	.901	31
ASFR(40-44)	18.923	-5.52	.853	.728	31
ASFR(45-49)	15.660	-4.469	.814	.663	31
		PUNJAB			
ASFR(15-19)	17.683	-4.670	.870	.757	31
ASFR(20-24)	13.529	-2.580	.975	.950	31
ASFR(25-29)	13.286	-2.534	.959	.920	31
ASFR(30-34)	15.229	-3.421	.865	.749	31
ASFR(35-39)	22.021	-5.894	.873	.762	31
ASFR(40-44)	24.060	-6.943	.831	.691	31
ASFR(45-49)	10.244	-3.086	.319	.102	31
		RAJASTHAN			
ASFR(15-19)	23.640	-6.428	.939	.881	31
ASFR(20-24)	8.956	-1.101	.801	.641	31
ASFR(25-29)	10.688	-1.744	.882	.777	31
ASFR(30-34)	16.030	-3.682	.888	.789	31
ASFR(35-39)	22.062	-5.891	.903	.816	31
ASFR(40-44)	23.129	-6.490	.896	.802	31
ASFR(45-49)	29.587	-8.909	.908	.825	31
		TAMIL NADU			
ASFR(15-19)	18.153	-4.470	.910	.827	31
ASFR(20-24)	9.255	-1.247	.921	.849	31
ASFR(25-29)	7.400	-.777	.790	.624	31
ASFR(30-34)	10.428	-1.992	.820	.672	31
ASFR(35-39)	14.352	-3.567	.850	.722	31
ASFR(40-44)	19.396	-5.550	.818	.668	31
ASFR(45-49)	18.743	-5.817	.593	.351	31
		UTTAR PRADESH			
ASFR(15-19)	29.811	-8.634	.842	.710	31
ASFR(20-24)	12.435	-2.293	.936	.876	31
ASFR(25-29)	10.288	-1.580	.890	.793	31
ASFR(30-34)	14.764	-3.190	.765	.585	31
ASFR(35-39)	22.644	-5.985	.840	.705	31
ASFR(40-44)	24.430	-6.819	.812	.660	31
ASFR(45-49)	30.044	-8.990	.874	.764	31
		WEST BENGAL			
ASFR(15-19)	11.730	-2.348	.741	.550	31
ASFR(20-24)	9.313	-1.282	.875	.766	31
ASFR(25-29)	15.323	-3.296	.968	.936	31
ASFR(30-34)	20.483	-5.133	.979	.959	31
ASFR(35-39)	26.245	-7.203	.981	.962	31
ASFR(40-44)	31.890	-9.255	.959	.920	31
ASFR(45-49)	30.656	-9.210	.912	.832	31
		GENERAL (India and all above states)			
ASFR(15-19)	14.796	-3.517	.612	.375	544
ASFR(20-24)	10.159	-1.527	.757	.572	544
ASFR(25-29)	11.109	-1.901	.822	.675	544
ASFR(30-34)	15.501	-3.528	.831	.691	544
ASFR(35-39)	21.514	-5.727	.878	.771	544
ASFR(40-44)	28.090	-8.160	.878	.771	544
ASFR(45-49)	30.685	-9.392	.793	.628	544

Note: Example: LN(ASFR(15-19)) = a + b * LN(MEDATP); *: Multiplication sign; LN: Natural Logarithm; Andhra Pradesh (= Andhra Pradesh + Telangana)

Source: Basic input data: Various SRS reports from the Registrar General and Census Commissioner of India.

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
INDIA (IN)	32.6	190.0	147.5	63.6	22.0	6.3	1.6	26.2
JAMMU & KASHMIR (JK)	40.9	209.8	166.9	79.9	31.9	10.7	3.0	26.5
Kupwara (JK)	96.5	304.6	265.5	189.2	129.2	78.5	29.2	28.9
Badgam (JK)	77.7	277.2	236.0	152.1	90.7	47.4	16.4	28.1
Leh(Ladakh)(JK)	19.4	151.7	111.5	37.8	9.5	1.9	0.4	25.6
Kargil (JK)	34.8	195.7	153.0	68.0	24.6	7.4	1.9	26.3
Punch (JK)	53.8	236.4	193.6	105.3	50.0	20.3	6.2	27.1
Rajouri (JK)	45.8	220.4	177.4	89.6	38.4	13.9	4.0	26.8
Kathua (JK)	31.4	187.0	144.7	61.3	20.8	5.8	1.5	26.1
Baramula (JK)	46.3	221.3	178.4	90.5	39.0	14.2	4.1	26.8
Bandipore (JK)	53.1	234.9	192.1	103.8	48.8	19.6	5.9	27.1
Srinagar (JK)	25.0	169.5	128.0	48.9	14.4	3.4	0.8	25.9
Ganderbal (JK)	56.4	241.3	198.6	110.5	54.0	22.6	7.0	27.2
Pulwama (JK)	38.4	204.0	161.2	75.0	28.8	9.2	2.5	26.4
Shupiyan (JK)	49.7	228.4	185.5	97.2	43.9	16.8	5.0	26.9
Anantnag (JK)	64.0	254.8	212.6	125.3	66.2	30.3	9.8	27.5
Kulgam (JK)	46.8	222.4	179.5	91.5	39.7	14.6	4.2	26.8
Doda (JK)	52.2	233.2	190.4	102.1	47.5	18.8	5.7	27.0
Ramban (JK)	69.3	263.7	221.9	135.6	75.3	36.4	12.1	27.8
Kishtwar (JK)	50.2	229.3	186.4	98.2	44.5	17.2	5.1	26.9
Udhampur (JK)	37.3	201.6	158.8	72.9	27.5	8.7	2.3	26.4
Reasi (JK)	54.2	237.2	194.4	106.1	50.6	20.6	6.3	27.1
Jammu (JK)	21.2	157.8	117.1	41.4	11.0	2.3	0.5	25.7
Samba (JK)	25.0	169.3	127.8	48.7	14.3	3.4	0.8	25.8
HIMACHAL PRADESH (HP)	21.4	158.3	117.5	41.7	11.1	2.4	0.5	25.7
Chamba (HP)	33.8	193.1	150.5	66.0	23.4	6.9	1.8	26.2
Kangra (HP)	18.2	147.6	107.7	35.5	8.5	1.6	0.3	25.5
Lahul & Spiti (HP)	18.0	146.8	107.0	35.0	8.4	1.6	0.3	25.5
Kullu (HP)	25.5	170.8	129.2	49.7	14.8	3.6	0.8	25.9
Mandi (HP)	20.4	155.1	114.5	39.8	10.3	2.1	0.5	25.6
Hamirpur (HP)	16.1	139.9	100.8	31.4	7.0	1.2	0.2	25.4
Una (HP)	20.4	155.1	114.6	39.8	10.3	2.1	0.5	25.6
Bilaspur (HP)	18.0	146.8	107.0	35.0	8.4	1.6	0.3	25.5
Solan (HP)	24.2	166.9	125.6	47.2	13.6	3.2	0.7	25.8
Sirmaur (HP)	32.0	188.6	146.1	62.5	21.4	6.1	1.5	26.2
Shimla (HP)	19.8	153.0	112.7	38.6	9.8	2.0	0.4	25.6
Kinnaur (HP)	17.4	144.8	105.2	33.9	7.9	1.5	0.3	25.5
PUNJAB (PB)	23.5	164.9	123.6	45.8	12.9	3.0	0.7	25.8
Gurdaspur (PB)	23.9	166.3	124.9	46.7	13.3	3.1	0.7	25.8
Kapurthala (PB)	21.6	158.9	118.1	42.1	11.3	2.4	0.5	25.7
Jalandhar (PB)	20.6	155.8	115.3	40.2	10.5	2.2	0.5	25.7
Hoshiarpur (PB)	20.4	155.2	114.7	39.8	10.3	2.1	0.5	25.6
SBS Nagar (PB)	20.0	153.7	113.3	39.0	9.9	2.0	0.4	25.6
Fatehgarh Sahib (PB)	21.6	158.9	118.1	42.1	11.3	2.4	0.5	25.7
Ludhiana (PB)	22.6	162.3	121.3	44.2	12.2	2.7	0.6	25.7
Moga (PB)	22.8	162.8	121.7	44.5	12.3	2.8	0.6	25.8
Firozpur (PB)	29.7	182.6	140.4	58.0	19.0	5.1	1.3	26.1
Muktsar (PB)	24.2	167.1	125.7	47.2	13.6	3.2	0.7	25.8
Faridkot (PB)	23.6	165.3	124.0	46.1	13.1	3.0	0.7	25.8
Bathinda (PB)	22.8	162.6	121.6	44.4	12.3	2.7	0.6	25.7
Mansa (PB)	24.3	167.4	126.0	47.5	13.7	3.2	0.7	25.8
Patiala (PB)	23.7	165.6	124.3	46.3	13.2	3.0	0.7	25.8
Amritsar (PB)	25.0	169.5	128.0	48.9	14.4	3.4	0.8	25.9
Tarn Taran (PB)	30.4	184.4	142.2	59.4	19.7	5.4	1.3	26.1
Rupnagar (PB)	21.9	159.9	119.0	42.7	11.5	2.5	0.6	25.7
SAS Nagar (PB)	22.5	162.0	120.9	44.0	12.1	2.7	0.6	25.7
Sangrur (PB)	23.8	165.9	124.6	46.5	13.2	3.1	0.7	25.8
Barnala (PB)	22.8	162.9	121.8	44.6	12.4	2.8	0.6	25.8
CHANDIGARH (CH)	26.0	172.2	130.5	50.7	15.2	3.7	0.9	25.9
Chandigarh (CH)	26.0	172.2	130.5	50.7	15.2	3.7	0.9	25.9
UTTARAKHAND (UT)	37.1	201.2	158.4	72.6	27.3	8.6	2.3	26.4
Uttarkashi (UT)	42.6	213.5	170.6	83.2	34.1	11.8	3.3	26.6

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Chamoli (UT)	34.1	193.8	151.2	66.6	23.7	7.0	1.8	26.2
Rudraprayag (UT)	35.2	196.7	154.0	68.8	25.0	7.6	2.0	26.3
Tehri Garhwal (UT)	39.0	205.6	162.8	76.3	29.6	9.6	2.6	26.5
Dehradun (UT)	28.0	178.0	136.0	54.7	17.2	4.5	1.1	26.0
Garhwal (UT)	28.0	178.1	136.1	54.8	17.3	4.5	1.1	26.0
Pithoragarh (UT)	29.5	182.1	139.9	57.6	18.8	5.0	1.2	26.1
Bageshwar (UT)	31.2	186.4	144.1	60.9	20.5	5.7	1.4	26.1
Almora (UT)	31.7	188.0	145.6	62.0	21.1	6.0	1.5	26.1
Champawat (UT)	40.6	209.1	166.2	79.3	31.5	10.5	2.9	26.5
Nainital (UT)	33.4	192.2	149.6	65.3	23.0	6.7	1.7	26.2
Udham Singh Nagar (UT)	46.9	222.7	179.7	91.7	39.9	14.7	4.3	26.8
Hardwar (UT)	49.3	227.6	184.7	96.4	43.3	16.5	4.9	26.9
HARYANA (HR)	33.3	192.0	149.5	65.1	22.9	6.7	1.7	26.2
Panchkula (HR)	23.8	165.9	124.6	46.5	13.2	3.1	0.7	25.8
Ambala (HR)	23.2	164.2	123.0	45.4	12.7	2.9	0.7	25.8
Yamunanagar (HR)	28.3	178.8	136.8	55.2	17.5	4.6	1.1	26.0
Kurukshetra (HR)	28.4	179.1	137.1	55.5	17.7	4.6	1.1	26.0
Kaithal (HR)	32.7	190.4	147.9	63.9	22.2	6.4	1.6	26.2
Karnal (HR)	32.2	189.1	146.7	62.9	21.6	6.2	1.6	26.2
Panipat (HR)	38.0	203.3	160.5	74.3	28.4	9.0	2.4	26.4
Sonipat (HR)	32.7	190.3	147.8	63.8	22.1	6.4	1.6	26.2
Jind (HR)	33.4	192.2	149.7	65.3	23.0	6.7	1.7	26.2
Fatehabad (HR)	33.8	193.2	150.6	66.1	23.4	6.9	1.8	26.2
Sirsa (HR)	30.8	185.5	143.1	60.1	20.1	5.5	1.4	26.1
Hisar (HR)	31.6	187.6	145.2	61.7	21.0	5.9	1.5	26.1
Bhiwani (HR)	33.1	191.5	148.9	64.7	22.7	6.6	1.7	26.2
Rohtak (HR)	28.3	178.9	136.8	55.3	17.6	4.6	1.1	26.0
Jhajjar (HR)	28.7	179.8	137.8	56.0	17.9	4.7	1.1	26.0
Mahendragarh (HR)	30.1	183.7	141.5	58.8	19.4	5.3	1.3	26.1
Rewari (HR)	29.1	181.0	138.8	56.8	18.3	4.9	1.2	26.0
Gurgaon (HR)	27.2	175.6	133.8	53.0	16.4	4.1	1.0	25.9
Mewat (HR)	*139.7*	*357.7*	*324.2*	*274.2*	*236.0*	*185.2*	*78.6*	*30.6*
Faridabad (HR)	35.1	196.4	153.8	68.7	24.9	7.5	2.0	26.3
Palwal (HR)	61.8	251.0	208.6	120.9	62.5	27.9	8.9	27.4
NCT OF DELHI (DL)	27.5	176.7	134.7	53.7	16.8	4.3	1.0	26.0
North West (DL)	29.8	183.0	140.8	58.3	19.1	5.2	1.3	26.1
North (DL)	26.4	173.6	131.9	51.6	15.7	3.9	0.9	25.9
North East (DL)	38.6	204.5	161.7	75.4	29.0	9.3	2.5	26.4
East (DL)	23.7	165.7	124.4	46.3	13.2	3.0	0.7	25.8
New Delhi (DL)	21.3	158.0	117.2	41.5	11.0	2.4	0.5	25.7
Central (DL)	22.4	161.7	120.7	43.8	12.0	2.7	0.6	25.7
West (DL)	23.3	164.4	123.2	45.5	12.8	2.9	0.7	25.8
South West (DL)	25.1	169.8	128.3	49.0	14.4	3.5	0.8	25.9
South (DL)	28.4	179.1	137.1	55.5	17.7	4.6	1.1	26.0
RAJASTHAN (RJ)	47.4	223.8	180.9	92.8	40.7	15.1	4.4	26.8
Ganganagar (RJ)	34.7	195.4	152.8	67.9	24.5	7.3	1.9	26.3
Hanumangarh (RJ)	37.2	201.5	158.7	72.8	27.4	8.6	2.3	26.4
Bikaner (RJ)	58.7	245.5	202.9	114.9	57.5	24.8	7.8	27.3
Churu (RJ)	52.0	232.9	190.1	101.7	47.2	18.7	5.6	27.0
Jhunjhunun (RJ)	41.5	211.1	168.2	81.1	32.7	11.1	3.1	26.6
Alwar (RJ)	51.2	231.3	188.4	100.1	46.0	18.0	5.4	27.0
Bharatpur (RJ)	62.6	252.3	210.0	122.5	63.8	28.7	9.2	27.5
Dhaulpur (RJ)	78.7	278.8	237.8	154.2	92.7	48.9	17.0	28.2
Karauli (RJ)	61.2	249.9	207.5	119.7	61.5	27.2	8.7	27.4
Sawai Madhopur (RJ)	48.5	226.0	183.1	94.9	42.2	15.9	4.7	26.9
Dausa (RJ)	58.1	244.4	201.8	113.7	56.6	24.2	7.5	27.3
Jaipur (RJ)	40.6	209.1	166.2	79.3	31.5	10.5	2.9	26.5
Sikar (RJ)	47.0	222.9	180.0	92.0	40.1	14.8	4.3	26.8
Nagaur (RJ)	49.9	228.8	185.9	97.6	44.2	17.0	5.0	26.9
Jodhpur (RJ)	52.4	233.7	190.9	102.6	47.9	19.1	5.7	27.0
Jaisalmer (RJ)	73.4	270.5	229.0	143.8	82.8	41.6	14.1	27.9
Barmer (RJ)	78.3	278.2	237.1	153.4	92.0	48.3	16.7	28.1

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Jalor (RJ)	65.9	258.1	216.0	129.0	69.4	32.4	10.6	27.6
Sirohi (RJ)	52.0	232.8	190.0	101.7	47.2	18.7	5.6	27.0
Pali (RJ)	42.7	213.7	170.8	83.4	34.2	11.8	3.3	26.6
Ajmer (RJ)	38.7	204.8	161.9	75.6	29.2	9.4	2.5	26.4
Tonk (RJ)	44.4	217.4	174.5	86.8	36.5	13.0	3.7	26.7
Bundi (RJ)	43.0	214.3	171.4	84.0	34.6	12.0	3.4	26.6
Bhilwara (RJ)	39.2	206.0	163.1	76.6	29.8	9.7	2.6	26.5
Rajsamand (RJ)	39.2	206.0	163.1	76.6	29.8	9.7	2.6	26.5
Dungarpur (RJ)	57.4	243.0	200.4	112.2	55.4	23.5	7.3	27.2
Banswara (RJ)	63.7	254.3	212.0	124.7	65.7	29.9	9.6	27.5
Chittaurgarh (RJ)	30.5	184.6	142.4	59.5	19.8	5.4	1.3	26.1
Kota (RJ)	35.6	197.4	154.7	69.5	25.4	7.7	2.0	26.3
Baran (RJ)	45.4	219.6	176.7	88.8	37.9	13.7	3.9	26.7
Jhalawar (RJ)	39.1	205.8	163.0	76.5	29.7	9.7	2.6	26.5
Udaipur (RJ)	43.5	215.4	172.5	85.0	35.2	12.3	3.5	26.7
Pratapgarh (RJ)	51.1	231.1	188.3	100.0	45.9	18.0	5.4	27.0
UTTAR PRADESH (UP)	56.3	241.0	198.3	110.1	53.7	22.5	6.9	27.2
Saharanpur (UP)	56.7	241.7	199.1	110.9	54.3	22.8	7.1	27.2
Muzaffarnagar (UP)	59.6	247.1	204.6	116.7	59.0	25.7	8.1	27.3
Bijnor (UP)	66.4	258.9	216.8	129.9	70.2	32.9	10.8	27.6
Moradabad (UP)	77.1	276.3	235.2	151.1	89.7	46.7	16.1	28.1
Rampur (UP)	79.8	280.5	239.6	156.4	94.9	50.6	17.6	28.2
Jyotiba Phule Nagar (UP)	72.7	269.3	227.8	142.4	81.5	40.7	13.7	27.9
Meerut (UP)	48.7	226.3	183.4	95.2	42.4	16.1	4.7	26.9
Baghpat (UP)	50.4	229.8	186.9	98.7	44.9	17.4	5.2	27.0
Ghaziabad (UP)	44.3	217.2	174.2	86.6	36.3	12.9	3.7	26.7
Gautam Buddha Nagar (UP)	42.8	214.0	171.1	83.7	34.4	11.9	3.3	26.6
Bulandshahr (UP)	57.2	242.7	200.1	112.0	55.2	23.3	7.2	27.2
Aligarh (UP)	60.6	248.9	206.4	118.6	60.6	26.7	8.4	27.4
Mahamaya Nagar (UP)	60.2	248.1	205.6	117.8	59.9	26.2	8.3	27.4
Mathura (UP)	61.6	250.7	208.3	120.6	62.2	27.7	8.8	27.4
Agra (UP)	57.6	243.4	200.8	112.6	55.7	23.7	7.4	27.3
Firozabad (UP)	63.1	253.3	211.0	123.5	64.7	29.3	9.4	27.5
Mainpuri (UP)	59.0	246.0	203.5	115.5	58.0	25.1	7.9	27.3
Budaun (UP)	85.2	288.5	248.2	166.9	105.5	58.8	21.0	28.4
Bareilly (UP)	71.2	267.0	225.3	139.5	78.8	38.8	13.0	27.8
Pilibhit (UP)	63.0	253.1	210.8	123.3	64.5	29.2	9.4	27.5
Shahjahanpur (UP)	70.9	266.4	224.6	138.8	78.1	38.3	12.8	27.8
Kheri (UP)	64.3	255.3	213.1	125.9	66.7	30.6	9.9	27.5
Sitapur (UP)	62.3	251.9	209.6	122.0	63.4	28.5	9.1	27.5
Hardoi (UP)	60.4	248.5	206.1	118.2	60.2	26.5	8.4	27.4
Unnao (UP)	49.6	228.2	185.3	97.1	43.7	16.8	5.0	26.9
Lucknow (UP)	33.7	192.8	150.3	65.8	23.3	6.8	1.8	26.2
Rae Bareli (UP)	50.3	229.4	186.6	98.3	44.7	17.3	5.1	26.9
Farrukhabad (UP)	61.6	250.6	208.2	120.6	62.2	27.7	8.8	27.4
Kannauj (UP)	61.4	250.4	208.0	120.3	62.0	27.5	8.8	27.4
Etawah (UP)	46.8	222.5	179.5	91.5	39.8	14.6	4.2	26.8
Auraiya (UP)	48.5	226.0	183.0	94.9	42.2	15.9	4.7	26.9
Kanpur Dehat (UP)	45.0	218.6	175.7	87.9	37.3	13.3	3.8	26.7
Kanpur Nagar (UP)	29.8	183.0	140.8	58.3	19.1	5.2	1.3	26.1
Jalaun (UP)	36.7	200.2	157.4	71.7	26.8	8.3	2.2	26.4
Jhansi (UP)	32.8	190.6	148.1	64.1	22.3	6.4	1.6	26.2
Lalitpur (UP)	58.4	244.9	202.3	114.2	57.0	24.5	7.6	27.3
Hamirpur (UP)	40.9	209.7	166.8	79.9	31.9	10.7	2.9	26.5
Mahoba (UP)	44.4	217.5	174.5	86.9	36.5	13.0	3.7	26.7
Banda (UP)	53.5	235.7	193.0	104.6	49.4	20.0	6.0	27.1
Chitrakoot (UP)	67.9	261.4	219.4	132.9	72.8	34.7	11.4	27.7
Fatehpur (UP)	50.7	230.3	187.5	99.2	45.3	17.6	5.2	27.0
Pratapgarh (UP)	54.7	238.0	195.3	107.0	51.2	21.0	6.4	27.1
Kaushambi (UP)	74.8	272.8	231.4	146.6	85.4	43.5	14.8	28.0
Allahabad (UP)	52.6	234.0	191.2	102.9	48.1	19.2	5.8	27.0
Bara Banki (UP)	59.8	247.4	204.9	117.0	59.2	25.8	8.1	27.4

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Faizabad (UP)	52.3	233.5	190.7	102.4	47.7	19.0	5.7	27.0
Ambedkar Nagar (UP)	54.5	237.7	194.9	106.7	51.0	20.9	6.4	27.1
Sultanpur (UP)	54.4	237.5	194.8	106.5	50.8	20.8	6.3	27.1
Bahraich (UP)	71.7	267.8	226.1	140.5	79.7	39.4	13.2	27.9
Shrawasti (UP)	65.7	257.7	215.6	128.6	69.0	32.1	10.5	27.6
Balrampur (UP)	77.7	277.3	236.2	152.3	90.9	47.5	16.4	28.1
Gonda (UP)	65.0	256.5	214.4	127.2	67.9	31.4	10.2	27.6
Siddharthnagar (UP)	81.4	282.9	242.2	159.5	98.0	52.9	18.6	28.3
Basti (UP)	62.5	252.2	209.9	122.4	63.7	28.7	9.2	27.5
Sant Kabir Nagar (UP)	69.0	263.2	221.4	135.0	74.8	36.0	11.9	27.7
Mahrajganj (UP)	59.4	246.8	204.3	116.3	58.7	25.5	8.0	27.3
Gorakhpur (UP)	48.7	226.3	183.4	95.3	42.4	16.1	4.7	26.9
Kushinagar (UP)	60.7	249.1	206.6	118.8	60.7	26.8	8.5	27.4
Deoria (UP)	55.7	240.0	197.3	109.1	52.9	22.0	6.8	27.2
Azamgarh (UP)	63.3	253.6	211.4	123.9	65.0	29.5	9.5	27.5
Mau (UP)	63.2	253.4	211.1	123.6	64.8	29.4	9.4	27.5
Ballia (UP)	49.3	227.5	184.6	96.4	43.3	16.5	4.9	26.9
Jaunpur (UP)	59.7	247.3	204.8	116.9	59.2	25.8	8.1	27.3
Ghazipur (UP)	55.9	240.2	197.5	109.3	53.1	22.1	6.8	27.2
Chandauli (UP)	52.7	234.1	191.3	103.0	48.2	19.3	5.8	27.0
Varanasi (UP)	44.4	217.4	174.5	86.8	36.5	13.0	3.7	26.7
SR Nagar (Bhadohi) (UP)	65.9	258.1	216.1	129.1	69.5	32.4	10.6	27.6
Mirzapur (UP)	56.5	241.4	198.7	110.5	54.0	22.7	7.0	27.2
Sonbhadra (UP)	61.6	250.6	208.3	120.6	62.2	27.7	8.8	27.4
Etah (UP)	65.0	256.5	214.3	127.2	67.8	31.3	10.2	27.6
Kanshiram Nagar (UP)	74.9	272.8	231.4	146.6	85.5	43.6	14.8	28.0
BIHAR (BR)	66.0	258.2	216.1	129.2	69.6	32.5	10.6	27.6
Pashchim Champaran (BR)	74.4	272.0	230.6	145.7	84.6	42.9	14.6	28.0
Purba Champaran (BR)	76.6	275.5	234.3	150.1	88.7	46.0	15.8	28.1
Sheohar (BR)	71.2	266.9	225.2	139.4	78.7	38.7	13.0	27.8
Sitamarhi (BR)	72.8	269.4	227.9	142.5	81.6	40.8	13.8	27.9
Madhubani (BR)	62.4	252.0	209.7	122.1	63.5	28.5	9.1	27.5
Supaul (BR)	73.1	270.1	228.5	143.3	82.3	41.3	14.0	27.9
Araria (BR)	87.1	291.3	251.1	170.6	109.3	61.9	22.2	28.5
Kishanganj (BR)	94.2	301.4	262.0	184.6	124.2	74.2	27.4	28.8
Purnia (BR)	85.1	288.4	248.0	166.8	105.3	58.7	20.9	28.4
Katihar (BR)	84.0	286.7	246.2	164.5	103.0	56.8	20.2	28.4
Madhepura (BR)	75.9	274.4	233.2	148.7	87.4	45.0	15.4	28.0
Saharsa (BR)	74.9	272.8	231.4	146.6	85.5	43.6	14.8	28.0
Darbhanga (BR)	66.9	259.8	217.8	131.0	71.2	33.6	11.0	27.7
Muzaffarpur (BR)	55.2	239.0	196.3	108.1	52.1	21.5	6.6	27.2
Gopalganj (BR)	72.0	268.2	226.6	141.1	80.3	39.8	13.4	27.9
Siwan (BR)	64.1	255.1	212.9	125.6	66.4	30.4	9.8	27.5
Saran (BR)	65.8	258.0	215.9	128.9	69.3	32.3	10.5	27.6
Vaishali (BR)	56.5	241.3	198.7	110.5	54.0	22.6	7.0	27.2
Samastipur (BR)	68.2	262.0	220.0	133.5	73.4	35.1	11.6	27.7
Begusarai (BR)	68.8	263.0	221.1	134.7	74.5	35.8	11.9	27.7
Khagaria (BR)	84.4	287.4	246.9	165.4	103.9	57.6	20.5	28.4
Bhagalpur (BR)	62.1	251.6	209.2	121.6	63.1	28.2	9.0	27.5
Banka (BR)	57.7	243.6	201.0	112.9	55.9	23.8	7.4	27.3
Munger (BR)	51.5	231.8	189.0	100.7	46.4	18.3	5.5	27.0
Lakhisarai (BR)	69.0	263.2	221.4	135.0	74.8	36.0	11.9	27.7
Sheikhpura (BR)	72.2	268.6	227.0	141.4	80.6	40.1	13.5	27.9
Nalanda (BR)	59.2	246.3	203.8	115.8	58.3	25.2	7.9	27.3
Patna (BR)	47.1	223.2	180.2	92.2	40.2	14.9	4.3	26.8
Bhojpur (BR)	55.8	240.2	197.5	109.2	53.0	22.0	6.8	27.2
Buxar (BR)	58.4	244.8	202.3	114.2	57.0	24.4	7.6	27.3
Kaimur (Bhabua) (BR)	68.9	263.1	221.2	134.9	74.6	35.9	11.9	27.7
Rohtas (BR)	56.8	242.0	199.4	111.2	54.5	23.0	7.1	27.2
Aurangabad (BR)	63.2	253.5	211.2	123.8	64.9	29.4	9.5	27.5
Gaya (BR)	67.9	261.4	219.5	132.9	72.9	34.7	11.4	27.7
Nawada (BR)	67.3	260.5	218.5	131.8	71.9	34.0	11.2	27.7

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Jamui (BR)	61.3	250.1	207.7	119.9	61.7	27.4	8.7	27.4
Jehanabad (BR)	58.5	245.1	202.5	114.5	57.2	24.6	7.7	27.3
Arwal (BR)	61.6	250.6	208.2	120.5	62.1	27.7	8.8	27.4
SIKKIM (SK)	30.8	185.4	143.1	60.1	20.1	5.5	1.4	26.1
North District (SK)	33.2	191.5	149.0	64.8	22.7	6.6	1.7	26.2
West District (SK)	38.0	203.2	160.4	74.2	28.3	9.0	2.4	26.4
South District (SK)	33.2	191.7	149.2	64.9	22.8	6.6	1.7	26.2
East District (SK)	27.0	175.1	133.2	52.6	16.2	4.1	1.0	25.9
ARUNACHAL PRADESH (AR)	54.1	237.0	194.2	105.9	50.4	20.5	6.2	27.1
Tawang (AR)	30.3	184.3	142.0	59.3	19.6	5.4	1.3	26.1
West Kameng (AR)	37.0	200.9	158.1	72.3	27.1	8.5	2.3	26.4
East Kameng (AR)	95.4	303.0	263.7	186.9	126.7	76.4	28.3	28.8
Papum Pare (AR)	56.6	241.6	198.9	110.7	54.2	22.7	7.0	27.2
Upper Subansiri (AR)	70.0	264.9	223.1	137.0	76.6	37.2	12.4	27.8
West Siang (AR)	45.2	219.1	176.2	88.4	37.6	13.5	3.9	26.7
East Siang (AR)	42.9	214.2	171.3	83.9	34.5	12.0	3.4	26.6
Upper Siang (AR)	37.8	202.8	160.0	73.9	28.1	8.9	2.4	26.4
Changlang (AR)	54.1	236.9	194.2	105.9	50.4	20.5	6.2	27.1
Tirap (AR)	62.0	251.3	208.9	121.3	62.8	28.1	9.0	27.4
Lower Subansiri (AR)	54.1	237.0	194.2	105.9	50.4	20.5	6.2	27.1
Kurung Kumey (AR)	*103.9*	*314.5*	*276.3*	*203.7*	*145.8*	*93.2*	*35.6*	*29.2*
Dibang Valley (AR)	41.1	210.3	167.4	80.4	32.2	10.8	3.0	26.6
Lower Dibang Valley (AR)	51.7	232.3	189.5	101.2	46.8	18.5	5.5	27.0
Lohit (AR)	53.4	235.6	192.8	104.5	49.3	19.9	6.0	27.1
Anjaw (AR)	51.9	232.6	189.8	101.5	47.0	18.6	5.6	27.0
NAGALAND (NL)	51.0	230.9	188.1	99.8	45.8	17.9	5.3	27.0
Mon (NL)	71.7	267.7	226.0	140.3	79.6	39.3	13.2	27.9
Mokokchung (NL)	28.3	178.7	136.7	55.2	17.5	4.5	1.1	26.0
Zunheboto (NL)	53.7	236.1	193.4	105.1	49.7	20.1	6.1	27.1
Wokha (NL)	45.5	219.7	176.8	89.0	38.0	13.7	3.9	26.7
Dimapur (NL)	41.2	210.5	167.6	80.5	32.3	10.9	3.0	26.6
Phek (NL)	62.3	251.9	209.5	121.9	63.4	28.4	9.1	27.5
Tuensang (NL)	80.2	281.0	240.1	157.0	95.5	51.0	17.8	28.2
Longleng (NL)	63.8	254.5	212.3	124.9	65.9	30.1	9.7	27.5
Kiphire (NL)	98.0	306.6	267.6	192.1	132.5	81.3	30.5	28.9
Kohima (NL)	44.4	217.4	174.5	86.8	36.5	13.0	3.7	26.7
Peren (NL)	65.8	258.0	215.9	128.9	69.3	32.3	10.5	27.6
MANIPUR (MN)	32.8	190.7	148.2	64.1	22.3	6.4	1.6	26.2
Senapati (MN)	49.4	227.7	184.8	96.6	43.4	16.6	4.9	26.9
Tamenglong (MN)	43.8	216.2	173.3	85.7	35.8	12.6	3.6	26.7
Churachandpur (MN)	37.3	201.7	158.9	73.0	27.5	8.7	2.3	26.4
Bishnupur (MN)	27.1	175.6	133.7	53.0	16.4	4.1	1.0	25.9
Thoubal (MN)	34.1	194.0	151.4	66.7	23.8	7.0	1.8	26.3
Imphal West (MN)	21.8	159.8	118.9	42.6	11.5	2.5	0.6	25.7
Imphal East (MN)	27.6	176.7	134.8	53.8	16.8	4.3	1.0	26.0
Ukhrul (MN)	41.4	211.0	168.1	81.0	32.6	11.0	3.1	26.6
Chandel (MN)	31.8	188.0	145.6	62.1	21.2	6.0	1.5	26.1
MIZORAM (MZ)	39.2	205.9	163.0	76.6	29.8	9.7	2.6	26.5
Mamit (MZ)	49.7	228.3	185.4	97.2	43.8	16.8	5.0	26.9
Kolasib (MZ)	40.0	207.7	164.8	78.1	30.7	10.1	2.8	26.5
Aizawl (MZ)	30.3	184.3	142.0	59.2	19.6	5.4	1.3	26.1
Champhai (MZ)	42.7	213.9	170.9	83.6	34.3	11.9	3.3	26.6
Serchhip (MZ)	36.9	200.5	157.8	72.0	27.0	8.4	2.2	26.4
Lunglei (MZ)	40.8	209.5	166.6	79.7	31.8	10.6	2.9	26.5
Lawngtlai (MZ)	65.2	256.8	214.7	127.6	68.2	31.6	10.3	27.6
Saiha (MZ)	55.2	238.9	196.2	108.0	52.0	21.5	6.6	27.2
TRIPURA (TR)	27.2	175.6	133.8	53.0	16.4	4.1	1.0	25.9
West Tripura (TR)	22.7	162.5	121.4	44.3	12.3	2.7	0.6	25.7
South Tripura (TR)	28.8	180.1	138.0	56.2	18.0	4.7	1.2	26.0
Dhalai (TR)	37.6	202.4	159.6	73.6	27.9	8.8	2.4	26.4
North Tripura (TR)	34.1	193.9	151.3	66.6	23.8	7.0	1.8	26.3
MEGHALAYA (ML)	75.5	273.8	232.5	147.9	86.7	44.4	15.2	28.0

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
West Garo Hills (ML)	63.5	254.0	211.7	124.3	65.4	29.7	9.6	27.5
East Garo Hills (ML)	71.6	267.5	225.9	140.2	79.4	39.2	13.2	27.9
South Garo Hills (ML)	77.1	276.2	235.1	150.9	89.6	46.6	16.0	28.1
West Khasi Hills (ML)	*121.8*	*337.0*	*301.1*	*239.0*	*188.9*	*134.8*	*54.5*	*29.9*
Ribhoi (ML)	92.9	299.6	260.0	182.1	121.4	71.9	26.4	28.7
East Khasi Hills (ML)	53.5	235.8	193.0	104.7	49.4	20.0	6.1	27.1
Jaintia Hills (ML)	123.0	338.4	302.6	241.2	191.8	137.7	55.9	29.9
ASSAM (AS)	37.8	202.7	159.9	73.8	28.1	8.9	2.4	26.4
Kokrajhar (AS)	42.4	213.1	170.1	82.8	33.8	11.6	3.2	26.6
Dhubri (AS)	60.8	249.3	206.8	119.1	60.9	26.9	8.5	27.4
Goalpara (AS)	51.0	230.9	188.0	99.7	45.7	17.9	5.3	27.0
Barpeta (AS)	47.7	224.4	181.4	93.3	41.1	15.3	4.5	26.8
Morigaon (AS)	51.0	231.0	188.1	99.8	45.8	17.9	5.3	27.0
Nagaon (AS)	46.1	221.0	178.1	90.2	38.8	14.2	4.1	26.8
Sonitpur (AS)	35.3	196.8	154.1	69.0	25.1	7.6	2.0	26.3
Lakhimpur (AS)	38.9	205.2	162.4	76.0	29.4	9.5	2.6	26.5
Dhemaji (AS)	43.9	216.4	173.5	85.9	35.9	12.6	3.6	26.7
Tinsukia (AS)	34.4	194.5	151.9	67.1	24.1	7.2	1.9	26.3
Dibrugarh (AS)	28.4	179.0	137.0	55.4	17.6	4.6	1.1	26.0
Sivasagar (AS)	26.0	172.3	130.6	50.7	15.2	3.7	0.9	25.9
Jorhat (AS)	24.1	166.9	125.5	47.1	13.5	3.2	0.7	25.8
Golaghat (AS)	30.9	185.9	143.5	60.4	20.3	5.6	1.4	26.1
Karbi Anglong (AS)	50.8	230.5	187.6	99.4	45.4	17.7	5.3	27.0
Dima Hasao (AS)	43.6	215.7	172.8	85.3	35.5	12.4	3.5	26.7
Cachar (AS)	36.9	200.6	157.9	72.1	27.0	8.4	2.2	26.4
Karimganj (AS)	49.6	228.2	185.3	97.1	43.8	16.8	5.0	26.9
Hailakandi (AS)	51.4	231.8	188.9	100.6	46.4	18.2	5.5	27.0
Bongaigaon (AS)	41.8	211.8	168.9	81.8	33.1	11.3	3.1	26.6
Chirang (AS)	43.2	214.8	171.9	84.4	34.9	12.2	3.4	26.6
Kamrup (AS)	31.4	187.0	144.7	61.3	20.8	5.8	1.5	26.1
Kamrup Metropolitan (AS)	19.9	153.5	113.1	38.8	9.9	2.0	0.4	25.6
Nalbari (AS)	27.8	177.3	135.4	54.2	17.0	4.4	1.0	26.0
Baksa (AS)	32.2	189.1	146.6	62.9	21.6	6.1	1.6	26.2
Darrang (AS)	46.4	221.6	178.7	90.7	39.2	14.3	4.1	26.8
Udalguri (AS)	34.5	194.8	152.1	67.3	24.2	7.2	1.9	26.3
WEST BENGAL (WB)	25.0	169.4	127.9	48.8	14.3	3.4	0.8	25.9
Darjiling (WB)	24.9	169.2	127.7	48.6	14.2	3.4	0.8	25.8
Jalpaiguri (WB)	30.8	185.5	143.2	60.1	20.1	5.5	1.4	26.1
Koch Bihar (WB)	29.9	183.0	140.8	58.3	19.1	5.2	1.3	26.1
Uttar Dinajpur (WB)	55.7	239.9	197.2	108.9	52.8	21.9	6.7	27.2
Dakshin Dinajpur (WB)	26.6	174.1	132.3	52.0	15.9	4.0	0.9	25.9
Maldah (WB)	48.1	225.1	182.2	94.1	41.6	15.6	4.6	26.9
Murshidabad (WB)	42.7	213.7	170.8	83.4	34.2	11.8	3.3	26.6
Birbhum (WB)	29.4	181.8	139.6	57.4	18.7	5.0	1.2	26.0
Barddhaman (WB)	22.0	160.4	119.5	43.0	11.7	2.5	0.6	25.7
Nadia (WB)	21.1	157.4	116.7	41.2	10.9	2.3	0.5	25.7
North 24 Parganas (WB)	18.2	147.8	107.9	35.6	8.6	1.6	0.3	25.5
Hugli (WB)	17.2	144.0	104.5	33.5	7.8	1.4	0.3	25.5
Bankura (WB)	22.7	162.4	121.4	44.3	12.2	2.7	0.6	25.7
Puruliya (WB)	30.1	183.5	141.3	58.7	19.3	5.2	1.3	26.1
Haora (WB)	21.4	158.3	117.5	41.7	11.1	2.4	0.5	25.7
Kolkata (WB)	12.5	125.2	87.8	24.3	4.6	0.7	0.1	25.3
South 24 Parganas (WB)	30.4	184.5	142.2	59.4	19.7	5.4	1.3	26.1
Paschim Medinipur (WB)	24.2	166.9	125.6	47.1	13.5	3.2	0.7	25.8
Purba Medinipur (WB)	26.1	172.7	131.0	51.0	15.4	3.8	0.9	25.9
JHARKHAND (JH)	47.8	224.4	181.5	93.4	41.1	15.4	4.5	26.8
Garhwa (JH)	70.9	266.4	224.7	138.9	78.2	38.4	12.8	27.8
Chatra (JH)	75.5	273.7	232.4	147.8	86.6	44.4	15.2	28.0
Kodarma (JH)	61.2	249.9	207.5	119.7	61.5	27.3	8.7	27.4
Giridih (JH)	64.3	255.4	213.2	125.9	66.7	30.6	9.9	27.5
Deoghar (JH)	51.7	232.4	189.5	101.2	46.8	18.5	5.5	27.0
Godda (JH)	52.2	233.3	190.5	102.2	47.6	18.9	5.7	27.0

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Sahibganj (JH)	66.0	258.2	216.1	129.2	69.6	32.5	10.6	27.6
Pakur (JH)	64.7	256.0	213.8	126.6	67.3	31.0	10.0	27.6
Dhanbad (JH)	41.8	211.7	168.8	81.6	33.0	11.2	3.1	26.6
Bokaro (JH)	40.2	208.2	165.3	78.6	31.0	10.3	2.8	26.5
Lohardaga (JH)	69.1	263.4	221.6	135.3	75.0	36.2	12.0	27.7
Purbi Singhbhum (JH)	26.3	173.3	131.5	51.4	15.6	3.9	0.9	25.9
Palamu (JH)	60.5	248.7	206.2	118.4	60.4	26.6	8.4	27.4
Latehar (JH)	80.5	281.6	240.8	157.8	96.3	51.6	18.1	28.2
Hazaribagh (JH)	53.9	236.5	193.8	105.5	50.1	20.3	6.2	27.1
Ramgarh (JH)	44.8	218.2	175.3	87.6	37.0	13.2	3.8	26.7
Dumka (JH)	39.4	206.5	163.7	77.1	30.1	9.9	2.7	26.5
Jamtara (JH)	41.0	210.1	167.2	80.2	32.1	10.8	3.0	26.5
Ranchi (JH)	37.9	203.0	160.2	74.1	28.2	9.0	2.4	26.4
Khunti (JH)	46.1	220.9	178.0	90.1	38.7	14.1	4.1	26.8
Gumla (JH)	56.7	241.8	199.1	110.9	54.4	22.9	7.1	27.2
Simdega (JH)	40.0	207.9	165.0	78.3	30.8	10.2	2.8	26.5
Pashchimi Singhbhum (JH)	55.0	238.6	195.9	107.6	51.7	21.3	6.5	27.1
Saraikela-Kharsawan (JH)	36.0	198.4	155.7	70.3	25.9	7.9	2.1	26.3
ODISHA (Orissa) (OR)	26.0	172.3	130.6	50.7	15.3	3.7	0.9	25.9
Bargarh (OR)	21.4	158.3	117.6	41.7	11.1	2.4	0.5	25.7
Jharsuguda (OR)	24.3	167.4	126.0	47.5	13.7	3.2	0.7	25.8
Sambalpur (OR)	23.2	164.0	122.8	45.2	12.7	2.9	0.6	25.8
Debagarh (OR)	27.4	176.3	134.3	53.5	16.6	4.2	1.0	26.0
Sundargarh (OR)	28.1	178.2	136.2	54.8	17.3	4.5	1.1	26.0
Kendujhar (OR)	30.6	184.9	142.6	59.7	19.9	5.5	1.4	26.1
Mayurbhanj (OR)	31.4	187.2	144.8	61.4	20.8	5.8	1.5	26.1
Baleshwar (OR)	26.2	172.8	131.1	51.1	15.4	3.8	0.9	25.9
Bhadrak (OR)	27.1	175.6	133.7	53.0	16.4	4.1	1.0	25.9
Kendrapara (OR)	22.1	160.6	119.6	43.1	11.7	2.6	0.6	25.7
Jagatsinghapur (OR)	18.1	147.2	107.4	35.3	8.5	1.6	0.3	25.5
Cuttack (OR)	20.0	153.7	113.3	39.0	9.9	2.0	0.4	25.6
Jajapur (OR)	24.8	168.8	127.3	48.3	14.1	3.3	0.8	25.8
Dhenkanal (OR)	22.4	161.6	120.6	43.7	12.0	2.7	0.6	25.7
Anugul (OR)	25.8	171.7	130.1	50.3	15.1	3.7	0.9	25.9
Nayagarh (OR)	19.9	153.4	113.0	38.8	9.9	2.0	0.4	25.6
Khordha (OR)	21.2	157.9	117.1	41.4	11.0	2.3	0.5	25.7
Puri (OR)	20.0	153.8	113.3	39.0	10.0	2.0	0.4	25.6
Ganjam (OR)	27.4	176.2	134.3	53.4	16.6	4.2	1.0	26.0
Gajapati (OR)	39.3	206.2	163.4	76.8	29.9	9.8	2.7	26.5
Kandhamal (OR)	37.5	202.0	159.2	73.2	27.7	8.7	2.3	26.4
Baudh (OR)	31.4	187.0	144.6	61.3	20.7	5.8	1.5	26.1
Subarnapur (OR)	27.0	175.1	133.3	52.6	16.2	4.1	1.0	25.9
Balangir (OR)	25.2	169.9	128.4	49.1	14.5	3.5	0.8	25.9
Nuapada (OR)	29.3	181.5	139.4	57.2	18.6	4.9	1.2	26.0
Kalahandi (OR)	27.9	177.8	135.8	54.5	17.2	4.4	1.1	26.0
Rayagada (OR)	38.3	203.8	161.0	74.8	28.6	9.2	2.5	26.4
Nabarangapur (OR)	43.9	216.3	173.3	85.8	35.8	12.6	3.6	26.7
Koraput (OR)	37.4	201.8	159.0	73.1	27.6	8.7	2.3	26.4
Malkangiri (OR)	46.8	222.6	179.6	91.6	39.8	14.7	4.2	26.8
CHHATTISGARH (CT)	36.5	199.8	157.1	71.4	26.6	8.3	2.2	26.4
Koriya (CT)	38.1	203.5	160.7	74.5	28.5	9.1	2.4	26.4
Surguja (CT)	43.1	214.6	171.7	84.2	34.8	12.1	3.4	26.6
Jashpur (CT)	31.7	187.9	145.5	61.9	21.1	5.9	1.5	26.1
Raigarh (CT)	28.0	178.0	136.0	54.7	17.2	4.5	1.1	26.0
Korba (CT)	37.1	201.1	158.3	72.5	27.2	8.5	2.3	26.4
Janjgir - Champa (CT)	39.2	206.0	163.2	76.7	29.8	9.7	2.6	26.5
Bilaspur (CT)	41.5	211.2	168.3	81.2	32.7	11.1	3.1	26.6
Kabeerdham (CT)	49.1	227.2	184.3	96.1	43.0	16.4	4.8	26.9
Rajnandgaon (CT)	34.0	193.7	151.1	66.5	23.7	7.0	1.8	26.2
Durg (CT)	30.5	184.6	142.3	59.5	19.8	5.4	1.3	26.1
Raipur (CT)	37.9	202.9	160.1	74.0	28.2	9.0	2.4	26.4
Mahasamund (CT)	29.4	181.8	139.6	57.4	18.6	5.0	1.2	26.0

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Dhamtari (CT)	31.2	186.6	144.2	61.0	20.6	5.7	1.4	26.1
Uttar Bastar Kanker (CT)	32.9	190.9	148.4	64.2	22.4	6.5	1.7	26.2
Bastar (CT)	40.5	209.0	166.1	79.3	31.5	10.5	2.9	26.5
Narayanpur (CT)	60.5	248.6	206.2	118.4	60.4	26.5	8.4	27.4
DB Dantewada (CT)	44.3	217.2	174.2	86.6	36.3	12.9	3.7	26.7
Bijapur (CT)	57.2	242.7	200.1	111.9	55.1	23.3	7.2	27.2
MADHYA PRADESH (MP)	41.0	210.0	167.1	80.2	32.1	10.8	3.0	26.5
Sheopur (MP)	59.3	246.6	204.1	116.1	58.5	25.4	8.0	27.3
Morena (MP)	51.4	231.6	188.8	100.5	46.3	18.2	5.4	27.0
Bhind (MP)	42.6	213.5	170.5	83.2	34.1	11.8	3.3	26.6
Gwalior (MP)	35.5	197.4	154.7	69.4	25.4	7.7	2.0	26.3
Datia (MP)	38.1	203.4	160.5	74.4	28.4	9.1	2.4	26.4
Shivpuri (MP)	54.1	236.8	194.1	105.8	50.3	20.5	6.2	27.1
Tikamgarh (MP)	46.2	221.2	178.3	90.4	38.9	14.2	4.1	26.8
Chhatarpur (MP)	53.3	235.4	192.6	104.3	49.1	19.8	6.0	27.1
Panna (MP)	51.8	232.5	189.7	101.4	47.0	18.6	5.6	27.0
Sagar (MP)	42.5	213.3	170.4	83.1	34.0	11.7	3.3	26.6
Damoh (MP)	40.5	208.9	166.0	79.1	31.4	10.5	2.9	26.5
Satna (MP)	44.2	217.1	174.1	86.5	36.3	12.9	3.6	26.7
Rewa (MP)	46.0	220.8	177.9	90.0	38.7	14.1	4.0	26.8
Umaria (MP)	46.7	222.3	179.4	91.4	39.7	14.6	4.2	26.8
Neemuch (MP)	31.2	186.5	144.2	60.9	20.5	5.7	1.4	26.1
Mandsaur (MP)	32.8	190.7	148.2	64.1	22.3	6.4	1.6	26.2
Ratlam (MP)	39.4	206.4	163.5	77.0	30.0	9.8	2.7	26.5
Ujjain (MP)	32.5	189.9	147.4	63.5	22.0	6.3	1.6	26.2
Shajapur (MP)	38.1	203.3	160.5	74.4	28.4	9.1	2.4	26.4
Dewas (MP)	39.5	206.6	163.7	77.1	30.1	9.9	2.7	26.5
Dhar (MP)	49.9	228.7	185.8	97.5	44.1	17.0	5.0	26.9
Indore (MP)	28.2	178.6	136.6	55.1	17.4	4.5	1.1	26.0
Khargone (West Nimar) (MP)	48.3	225.6	182.7	94.5	41.9	15.8	4.6	26.9
Barwani (MP)	76.0	274.5	233.2	148.8	87.5	45.0	15.4	28.0
Rajgarh (MP)	41.1	210.4	167.4	80.4	32.2	10.9	3.0	26.6
Vidisha (MP)	50.7	230.4	187.5	99.2	45.4	17.7	5.3	27.0
Bhopal (MP)	32.6	190.2	147.7	63.8	22.1	6.3	1.6	26.2
Sehore (MP)	47.2	223.4	180.4	92.4	40.4	15.0	4.3	26.8
Raisen (MP)	47.2	223.2	180.3	92.3	40.3	14.9	4.3	26.8
Betul (MP)	36.6	199.9	157.2	71.5	26.6	8.3	2.2	26.4
Harda (MP)	41.3	210.8	167.8	80.8	32.5	11.0	3.0	26.6
Hoshangabad (MP)	33.6	192.6	150.0	65.6	23.1	6.8	1.7	26.2
Katni (MP)	39.9	207.6	164.7	78.0	30.7	10.1	2.8	26.5
Jabalpur (MP)	26.8	174.6	132.8	52.3	16.0	4.0	1.0	25.9
Narsimhapur (MP)	28.6	179.7	137.6	55.9	17.9	4.7	1.1	26.0
Dindori (MP)	36.5	199.8	157.0	71.4	26.6	8.2	2.2	26.4
Mandla (MP)	33.4	192.0	149.5	65.2	22.9	6.7	1.7	26.2
Chhindwara (MP)	34.3	194.3	151.7	67.0	24.0	7.1	1.8	26.3
Seoni (MP)	34.5	194.8	152.2	67.3	24.2	7.2	1.9	26.3
Balaghat (MP)	29.7	182.7	140.5	58.1	19.0	5.1	1.3	26.1
Guna (MP)	54.2	237.1	194.3	106.0	50.5	20.6	6.3	27.1
Ashoknagar (MP)	50.5	230.0	187.1	98.9	45.1	17.5	5.2	27.0
Shahdol (MP)	39.2	206.1	163.2	76.7	29.9	9.7	2.6	26.5
Anuppur (MP)	35.8	198.0	155.3	70.0	25.7	7.9	2.1	26.3
Sidhi (MP)	59.3	246.5	204.0	116.0	58.5	25.3	8.0	27.3
Singrauli (MP)	66.2	258.6	216.5	129.6	69.9	32.7	10.7	27.6
Jhabua (MP)	89.8	295.1	255.3	175.9	114.8	66.4	24.1	28.6
Alirajpur (MP)	98.9	307.9	269.1	194.0	134.6	83.2	31.3	29.0
Khandwa (East Nimar) (MP)	45.3	219.3	176.4	88.6	37.7	13.6	3.9	26.7
Burhanpur (MP)	45.1	218.8	175.9	88.1	37.4	13.4	3.8	26.7
GUJARAT (GJ)	28.3	178.8	136.8	55.3	17.5	4.6	1.1	26.0
Kachchh (GJ)	37.1	201.1	158.3	72.5	27.2	8.5	2.3	26.4
Banas Kantha (GJ)	50.8	230.4	187.6	99.3	45.4	17.7	5.3	27.0
Patan (GJ)	33.6	192.7	150.2	65.7	23.2	6.8	1.8	26.2
Mahesana (GJ)	24.8	168.9	127.4	48.4	14.2	3.4	0.8	25.8

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Sabar Kantha (GJ)	30.9	185.8	143.5	60.4	20.2	5.6	1.4	26.1
Gandhinagar (GJ)	24.9	169.0	127.5	48.5	14.2	3.4	0.8	25.8
Ahmadabad (GJ)	23.5	164.9	123.6	45.8	12.9	3.0	0.7	25.8
Surendranagar (GJ)	34.2	194.2	151.5	66.8	23.9	7.1	1.8	26.3
Rajkot (GJ)	23.5	165.1	123.8	46.0	13.0	3.0	0.7	25.8
Jamnagar (GJ)	27.5	176.6	134.6	53.7	16.7	4.3	1.0	26.0
Porbandar (GJ)	22.7	162.4	121.3	44.2	12.2	2.7	0.6	25.7
Junagadh (GJ)	26.5	173.9	132.1	51.8	15.8	3.9	0.9	25.9
Amreli (GJ)	26.7	174.2	132.4	52.0	15.9	4.0	0.9	25.9
Bhavnagar (GJ)	35.6	197.6	154.9	69.6	25.5	7.8	2.0	26.3
Anand (GJ)	23.4	164.7	123.5	45.7	12.9	2.9	0.7	25.8
Kheda (GJ)	25.6	171.1	129.5	49.9	14.9	3.6	0.8	25.9
Panch Mahals (GJ)	37.2	201.2	158.5	72.6	27.3	8.6	2.3	26.4
Dohad (GJ)	71.6	267.5	225.9	140.2	79.5	39.3	13.2	27.9
Vadodara (GJ)	21.8	159.6	118.7	42.5	11.4	2.5	0.5	25.7
Narmada (GJ)	31.4	187.1	144.7	61.3	20.8	5.8	1.5	26.1
Bharuch (GJ)	24.1	166.6	125.3	47.0	13.5	3.1	0.7	25.8
The Dangs (GJ)	57.2	242.7	200.1	112.0	55.2	23.3	7.2	27.2
Navsari (GJ)	18.1	147.2	107.4	35.3	8.5	1.6	0.3	25.5
Valsad (GJ)	25.6	171.3	129.7	50.1	14.9	3.6	0.8	25.9
Surat (GJ)	28.5	179.3	137.2	55.6	17.7	4.6	1.1	26.0
Tapi (GJ)	20.6	155.8	115.2	40.2	10.5	2.2	0.5	25.7
DAMAN & DIU (DD)	31.3	186.7	144.3	61.1	20.6	5.7	1.4	26.1
Diu (DD)	31.8	188.1	145.7	62.1	21.2	6.0	1.5	26.1
Daman (DD)	31.2	186.5	144.1	60.9	20.5	5.7	1.4	26.1
D&N HAVELI (DN)	40.3	208.5	165.7	78.8	31.2	10.4	2.8	26.5
Dadra & Nagar Haveli (DN)	40.3	208.5	165.7	78.8	31.2	10.4	2.8	26.5
MAHARASHTRA (MH)	24.2	167.0	125.7	47.2	13.6	3.2	0.7	25.8
Nandurbar (MH)	44.2	217.0	174.0	86.4	36.2	12.8	3.6	26.7
Dhule (MH)	30.4	184.4	142.1	59.3	19.7	5.4	1.3	26.1
Jalgaon (MH)	26.6	174.2	132.4	52.0	15.9	4.0	0.9	25.9
Buldana (MH)	28.3	178.9	136.9	55.3	17.6	4.6	1.1	26.0
Akola (MH)	24.8	168.8	127.3	48.4	14.1	3.4	0.8	25.8
Washim (MH)	29.5	182.0	139.9	57.6	18.8	5.0	1.2	26.0
Amravati (MH)	22.1	160.5	119.5	43.0	11.7	2.6	0.6	25.7
Wardha (MH)	17.9	146.5	106.7	34.9	8.3	1.6	0.3	25.5
Nagpur (MH)	20.6	155.9	115.3	40.3	10.5	2.2	0.5	25.7
Bhandara (MH)	20.4	155.1	114.6	39.8	10.3	2.1	0.5	25.6
Gondiya (MH)	21.8	159.7	118.9	42.6	11.5	2.5	0.6	25.7
Gadchiroli (MH)	27.9	177.6	135.6	54.4	17.1	4.4	1.1	26.0
Chandrapur (MH)	20.8	156.6	115.9	40.7	10.7	2.2	0.5	25.7
Yavatmal (MH)	26.3	173.3	131.6	51.4	15.6	3.9	0.9	25.9
Nanded (MH)	36.0	198.4	155.7	70.3	25.9	8.0	2.1	26.3
Hingoli (MH)	34.5	194.9	152.3	67.4	24.2	7.2	1.9	26.3
Parbhani (MH)	34.7	195.3	152.6	67.7	24.4	7.3	1.9	26.3
Jalna (MH)	34.5	195.0	152.3	67.5	24.2	7.2	1.9	26.3
Aurangabad (MH)	34.8	195.5	152.9	67.9	24.5	7.3	1.9	26.3
Nashik (MH)	31.3	186.7	144.3	61.1	20.6	5.7	1.4	26.1
Thane (MH)	24.5	167.9	126.4	47.8	13.8	3.3	0.7	25.8
Mumbai Suburban (MH)	20.1	154.2	113.7	39.2	10.0	2.1	0.4	25.6
Mumbai (MH)	17.6	145.4	105.7	34.3	8.1	1.5	0.3	25.5
Raigarh (MH)	21.9	160.0	119.1	42.7	11.6	2.5	0.6	25.7
Pune (MH)	22.9	163.2	122.1	44.7	12.4	2.8	0.6	25.8
Ahmadnagar (MH)	24.8	168.9	127.4	48.4	14.2	3.4	0.8	25.8
Bid (MH)	30.0	183.5	141.2	58.6	19.3	5.2	1.3	26.1
Latur (MH)	31.1	186.3	144.0	60.8	20.5	5.7	1.4	26.1
Osmanabad (MH)	26.1	172.7	131.0	51.0	15.4	3.8	0.9	25.9
Solapur (MH)	26.5	173.7	131.9	51.7	15.7	3.9	0.9	25.9
Satara (MH)	18.0	146.8	107.0	35.1	8.4	1.6	0.3	25.5
Ratnagiri (MH))	14.6	134.1	95.6	28.4	6.0	1.0	0.2	25.4
Sindhudurg (MH)	11.6	121.2	84.3	22.5	4.1	0.6	0.1	25.2
Kolhapur (MH)	18.4	148.3	108.4	35.9	8.7	1.7	0.3	25.6

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
Sangli (MH)	19.2	151.2	111.0	37.5	9.4	1.9	0.4	25.6
TELANGANA STATE (TS)	25.6	171.3	129.7	50.0	14.9	3.6	0.8	25.9
Adilabad (TS)	29.3	181.6	139.4	57.3	18.6	5.0	1.2	26.0
Nizamabad (TS)	25.1	169.9	128.3	49.1	14.5	3.5	0.8	25.9
Karimnagar (TS)	20.0	153.9	113.5	39.1	10.0	2.0	0.4	25.6
Medak (TS)	27.9	177.7	135.8	54.5	17.1	4.4	1.1	26.0
Hyderabad (TS)	28.2	178.6	136.6	55.1	17.5	4.5	1.1	26.0
Rangareddy (TS)	26.2	172.8	131.1	51.1	15.4	3.8	0.9	25.9
Mahbubnagar (TS)	31.0	186.1	143.8	60.6	20.4	5.6	1.4	26.1
Nalgonda (TS)	24.5	168.1	126.6	47.9	13.9	3.3	0.8	25.8
Warangal (TS)	22.4	161.5	120.5	43.7	12.0	2.6	0.6	25.7
Khammam (TS)	23.3	164.4	123.2	45.5	12.8	2.9	0.7	25.8
ANDHRA PRADESH (AP)	21.5	158.6	117.8	41.9	11.2	2.4	0.5	25.7
Srikakulam (AP)	20.6	155.7	115.1	40.1	10.4	2.2	0.5	25.7
Vizianagaram (AP)	19.4	151.9	111.7	37.9	9.5	1.9	0.4	25.6
Visakhapatnam (AP)	21.5	158.7	117.9	41.9	11.2	2.4	0.5	25.7
East Godavari (AP)	20.5	155.6	115.0	40.1	10.4	2.2	0.5	25.6
West Godavari (AP)	19.6	152.4	112.1	38.2	9.6	1.9	0.4	25.6
Krishna (AP)	20.0	153.7	113.3	38.9	9.9	2.0	0.4	25.6
Guntur (AP)	20.5	155.4	114.9	40.0	10.4	2.2	0.5	25.6
Prakasam (AP)	22.2	161.1	120.1	43.4	11.8	2.6	0.6	25.7
SPS Nellore (AP)	21.0	157.2	116.5	41.0	10.8	2.3	0.5	25.7
Y.S.R. (AP)	22.3	161.3	120.3	43.6	11.9	2.6	0.6	25.7
Kurnool (AP)	31.4	186.9	144.6	61.2	20.7	5.8	1.5	26.1
Anantapur (AP)	22.6	162.3	121.3	44.2	12.2	2.7	0.6	25.7
Chittoor (AP)	19.7	152.9	112.6	38.5	9.7	2.0	0.4	25.6
KARNATAKA (KA)	23.8	165.8	124.6	46.4	13.2	3.0	0.7	25.8
Belgaum (KA)	26.3	173.3	131.6	51.4	15.6	3.9	0.9	25.9
Bagalkot (KA)	33.9	193.5	150.9	66.3	23.6	6.9	1.8	26.2
Bijapur (KA)	35.3	196.8	154.1	68.9	25.1	7.6	2.0	26.3
Bidar (KA)	36.7	200.2	157.4	71.7	26.8	8.3	2.2	26.4
Raichur (KA)	40.9	209.8	166.8	79.9	31.9	10.7	2.9	26.5
Koppal (KA)	39.9	207.6	164.7	78.0	30.7	10.1	2.8	26.5
Gadag (KA)	26.9	174.8	133.0	52.5	16.1	4.0	1.0	25.9
Dharwad (KA)	24.1	166.7	125.4	47.0	13.5	3.1	0.7	25.8
Uttara Kannada (KA)	19.0	150.3	110.2	37.0	9.1	1.8	0.4	25.6
Haveri (KA)	27.1	175.4	133.6	52.9	16.3	4.1	1.0	25.9
Bellary (KA)	35.3	196.9	154.2	69.0	25.2	7.6	2.0	26.3
Chitradurga (KA)	22.0	160.4	119.5	43.0	11.7	2.5	0.6	25.7
Davanagere (KA)	23.8	165.7	124.4	46.4	13.2	3.0	0.7	25.8
Shimoga (KA)	19.7	152.6	112.3	38.3	9.7	2.0	0.4	25.6
Udupi (KA)	14.2	132.6	94.2	27.7	5.7	0.9	0.2	25.4
Chikmagalur (KA)	16.6	141.8	102.5	32.4	7.4	1.3	0.3	25.5
Tumkur (KA)	17.6	145.4	105.8	34.3	8.1	1.5	0.3	25.5
Bangalore (KA)	21.6	159.0	118.2	42.1	11.3	2.4	0.5	25.7
Mandya (KA)	17.0	143.4	103.9	33.2	7.7	1.4	0.3	25.5
Hassan (KA)	16.3	140.6	101.4	31.7	7.1	1.3	0.3	25.5
Dakshina Kannada (KA)	18.5	148.8	108.9	36.2	8.8	1.7	0.4	25.6
Kodagu (KA)	17.0	143.2	103.7	33.1	7.6	1.4	0.3	25.5
Mysore (KA)	20.1	154.3	113.8	39.3	10.1	2.1	0.4	25.6
Chamarajanagar (KA)	18.0	146.9	107.1	35.1	8.4	1.6	0.3	25.5
Gulbarga (KA)	39.9	207.6	164.7	78.0	30.7	10.1	2.8	26.5
Yadgir (KA)	48.4	225.7	182.8	94.7	42.0	15.8	4.6	26.9
Kolar (KA)	23.6	165.2	123.9	46.0	13.0	3.0	0.7	25.8
Chikkaballapura (KA)	21.2	157.6	116.9	41.3	10.9	2.3	0.5	25.7
Bangalore Rural (KA)	21.8	159.7	118.8	42.5	11.5	2.5	0.6	25.7
Ramanagara (KA)	19.0	150.3	110.2	37.0	9.1	1.8	0.4	25.6
GOA (GA)	14.6	134.3	95.8	28.5	6.0	1.0	0.2	25.4
North Goa (GA)	13.7	130.5	92.5	26.7	5.4	0.8	0.2	25.3
South Goa (GA)	16.0	139.7	100.6	31.3	6.9	1.2	0.2	25.4
LAKSHADWEEP (LD)	20.2	154.4	113.9	39.4	10.1	2.1	0.4	25.6
Lakshadweep (LD)	20.2	154.4	113.9	39.4	10.1	2.1	0.4	25.6

Appendix Table B : Regression estimates of ASFRs and MACB, India and its sub-units, 2011 (Cont.)

India and its sub-units	ASFR 15-19	ASFR 20-24	ASFR 25-29	ASFR 30-34	ASFR 35-39	ASFR 40-44	ASFR 45-49	MACB
KERALA (KL)	13.6	130.0	92.0	26.5	5.3	0.8	0.2	25.3
Kasaragod (KL)	20.6	155.7	115.1	40.1	10.4	2.2	0.5	25.7
Kannur (KL)	13.8	131.0	92.8	26.9	5.5	0.9	0.2	25.3
Wayanad (KL)	17.7	145.7	106.0	34.4	8.1	1.5	0.3	25.5
Kozhikode (KL)	14.9	135.4	96.7	29.0	6.2	1.0	0.2	25.4
Malappuram (KL)	31.5	187.3	144.9	61.5	20.9	5.8	1.5	26.1
Palakkad (KL)	16.6	142.0	102.6	32.4	7.4	1.3	0.3	25.5
Thrissur (KL)	11.2	119.5	82.8	21.8	3.9	0.5	0.1	25.2
Ernakulam (KL)	9.8	113.0	77.2	19.1	3.1	0.4	0.1	25.1
Idukki (KL)	11.5	120.7	83.9	22.3	4.0	0.6	0.1	25.2
Kottayam (KL)	8.6	106.8	72.0	16.8	2.5	0.3	0.0	25.1
Alappuzha (KL)	9.4	110.7	75.3	18.3	2.9	0.4	0.1	25.1
Pathanamthitta (KL)	7.9	102.7	68.6	15.3	2.2	0.2	0.0	25.0
Kollam (KL)	11.5	120.8	83.9	22.3	4.0	0.6	0.1	25.2
Thiruvananthapuram (KL)	11.8	122.4	85.3	23.0	4.2	0.6	0.1	25.2
TAMIL NADU (TN)	17.5	145.0	105.4	34.1	8.0	1.5	0.3	25.5
Thiruvallur (TN)	18.8	149.7	109.7	36.7	9.0	1.8	0.4	25.6
Chennai (TN)	15.9	139.3	100.2	31.0	6.9	1.2	0.2	25.4
Kancheepuram (TN)	19.1	150.7	110.6	37.2	9.2	1.8	0.4	25.6
Vellore (TN)	21.1	157.4	116.7	41.2	10.9	2.3	0.5	25.7
Tiruvannamalai (TN)	20.4	155.1	114.6	39.8	10.3	2.1	0.5	25.6
Viluppuram (TN)	22.6	162.3	121.2	44.2	12.2	2.7	0.6	25.7
Salem (TN)	16.9	143.0	103.6	33.0	7.6	1.4	0.3	25.5
Namakkal (TN)	14.0	131.7	93.5	27.3	5.6	0.9	0.2	25.3
Erode (TN)	11.8	122.4	85.3	23.0	4.2	0.6	0.1	25.2
The Nilgiris (TN)	14.7	134.7	96.2	28.7	6.1	1.0	0.2	25.4
Dindigul (TN)	16.3	140.7	101.5	31.7	7.1	1.3	0.3	25.5
Karur (TN)	13.9	131.1	93.0	27.0	5.5	0.9	0.2	25.3
Tiruchirappalli (TN)	16.4	141.1	101.9	32.0	7.2	1.3	0.3	25.5
Perambalur (TN)	19.0	150.5	110.3	37.1	9.2	1.8	0.4	25.6
Ariyalur (TN)	17.5	145.3	105.6	34.2	8.0	1.5	0.3	25.5
Cuddalore (TN)	19.9	153.5	113.1	38.8	9.9	2.0	0.4	25.6
Nagapattinam (TN)	18.5	148.8	108.9	36.2	8.8	1.7	0.4	25.6
Thiruvarur (TN)	16.7	142.2	102.8	32.5	7.4	1.3	0.3	25.5
Thanjavur (TN)	16.5	141.6	102.3	32.2	7.3	1.3	0.3	25.5
Pudukkottai (TN)	19.0	150.6	110.4	37.2	9.2	1.8	0.4	25.6
Sivaganga (TN)	16.8	142.4	103.0	32.7	7.5	1.4	0.3	25.5
Madurai (TN)	17.4	144.7	105.1	33.9	7.9	1.5	0.3	25.5
Theni (TN)	16.7	142.1	102.7	32.5	7.4	1.3	0.3	25.5
Virudhunagar (TN)	18.0	147.0	107.2	35.1	8.4	1.6	0.3	25.5
Ramanathapuram (TN)	19.9	153.4	113.0	38.8	9.9	2.0	0.4	25.6
Thoothukkudi (TN)	17.9	146.6	106.8	34.9	8.3	1.6	0.3	25.5
Tirunelveli (TN)	17.6	145.6	105.9	34.4	8.1	1.5	0.3	25.5
Kanniyakumari (TN)	14.3	132.8	94.4	27.8	5.7	0.9	0.2	25.4
Dharmapuri (TN)	21.4	158.3	117.5	41.7	11.1	2.4	0.5	25.7
Krishnagiri (TN)	23.7	165.5	124.2	46.2	13.1	3.0	0.7	25.8
Coimbatore (TN)	12.8	126.8	89.2	25.0	4.8	0.7	0.1	25.3
Tiruppur (TN)	14.5	133.6	95.2	28.2	5.9	1.0	0.2	25.4
PUDUCHERRY (PY)	17.4	144.7	105.1	33.9	7.9	1.5	0.3	25.5
Yanam (PY)	26.8	174.8	132.9	52.4	16.1	4.0	1.0	25.9
Puducherry (PY)	16.9	142.9	103.5	32.9	7.6	1.4	0.3	25.5
Mahe (PY)	14.1	132.1	93.8	27.4	5.6	0.9	0.2	25.3
Karaikal (PY)	18.4	148.3	108.4	35.9	8.7	1.7	0.3	25.6
A & N ISLANDS (AN)	21.0	157.0	116.3	40.9	10.8	2.3	0.5	25.7
Nicobars (AN)	18.0	147.0	107.2	35.1	8.4	1.6	0.3	25.5
N & M Andaman (AN)	22.1	160.5	119.6	43.1	11.7	2.6	0.6	25.7
South Andaman (AN)	21.0	157.1	116.5	41.0	10.8	2.3	0.5	25.7

Source: Computed by the researchers using MEDATP of corresponding unit of analysis and Table 1