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Abstract

This paper computes an index of financial inclusion (IFI) of Bangladesh at the district levels by using a distance based approach and incorporating various dimensions of inclusive finance. The IFI indicates that most of the districts of Bangladesh have experienced significant progress in financial inclusion over the period of 2008 to 2014 with the exception of Khagrachhari, Netrokona, Kurigram, and Sunamganj. Furthermore, the financial inclusion map reflects that the process of financial inclusion gets accelerated at the end of 2010, just after the inclusive finance policy initiatives undertaken by Bangladesh Bank. Hence, the index can be used to compare the extent of financial inclusion across districts and to monitor the progress of the financial inclusion over time. The index value reflecting overall financial inclusion of Bangladesh increased to 0.697 in 2014 from 0.503 in 2008. There are policy implications of this finding for making inclusive finance strategies in Bangladesh. The index may guide Bangladesh Bank and the Government to pursue inclusive growth for reducing regional disparities to meet Vision 2021 as well as the Sustainable Development Goals.

Keywords: Inclusive growth, financial inclusion, financial inclusion index, district, Bangladesh economy

JEL Classification: G21, E50

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1. Introduction

How we measure the extent of financial inclusion is crucial when we are referring to the financial inclusion drive at the district level. Chakrabarty (2012) opines that the basic objectives of the financial inclusion initiatives are to ensure equity and inclusive growth. It is necessary to construct a financial inclusion index to formulate a financial inclusion drive that is based on equity.

Bangladesh Bank (BB) has been prioritizing the policy of financial inclusion since 2009 to accelerate economic growth while maintaining stability in both monetary and financial sectors (Chowdhury et al. 2013: 113). This BB has done through different measures to engage the country's financial system. These include: a refinance scheme for the landless sharecropper, opening bank accounts for farmers free of charge, with initial deposits of only Taka 10, a refinance scheme for environment friendly investments, SME financing, sanctioning commercial bank branches to rural areas and mobile banking. These initiatives were targeted to include the 'unbanked population' in getting access to benefits and services of financial institutions. Availability of financial institutions and an easy access to different financial products at affordable costs have been considered important measures to lessen regional imbalances from both economic and social perspectives (Sixth Five Year Plan: FY2011-FY2015). Access to finance is often accelerated to increase people's participation in productive investment while smoothening consumption patterns and coping with unexpected shocks.

Financial inclusion is a broad concept and several indicators have been proposed to measure the level of financial inclusion in academic literature (Beck et al. 2007, Sarma 2008). Indicators that have been highlighted in the literature can be categorized into three dimensions: availability, accessibility and usage. Availability refers to the availability of banking services, which can be measured, for example, specifying how many bank outlets are available per 100,000 population. Accessibility is intended to capture the size of the banked population to show the proportion of people having bank accounts. The third dimension captures the volume of credit and deposit that have been utilized by the population from the financial sector. These three dimensions have been emphasized with equal importance for achieving an inclusive financial system**,** in the literature (Sarma 2015, Park and Mercado Jr 2015).

Although financial inclusion has become a policy agenda for Bangladesh for achieving inclusive growth, economic literature on financial inclusion is still scanty. On the one hand, financial inclusion is considered an effective tool to reduce poverty and increase economic activity, which, in turn, might reduce regional inequities; one can hardly get any appropriate measure of financial inclusion at the regional (district) level for Bangladesh. Although indicators of a particular dimension of financial inclusion provide useful information, a single dimension could have delivered partial information of any region and may lead to misinterpretation regarding the degree of financial inclusion of that region (district). Sarma (2008) proposed a composite index that incorporates all the three dimensions in one single number for measuring financial inclusion. The resultant index can show the extent of financial inclusion of any region and its comparable position among the peer regions (districts). The index might also be seen as a tool for tracking the progress of different policy initiatives toward achieving overall financial inclusion of Bangladesh.

This paper aims to construct an index of financial inclusion for Bangladesh at district level for the period of 2008 to 2014. The index will show the changes in the degree of financial inclusion over time and also show the relative position of any district among the other districts during the study period. The index would help us to identify the disadvantageous regions (districts) in terms of financial inclusion and would help policy

makers by designing and implementing programs that will widen access to financial services aiming to reduce regional disparities. Moreover, the study period would allow us to investigate whether different policy initiatives taken by BB since 2009 have had any impact on the level of financial inclusion across regions (districts) and if so, to what extent. This paper also presents a financial inclusion map which indicates a clear differentiation in the soundness of financial inclusion graphically by regions (districts) over time.

2. Literature Review and Theoretical Framework

The importance of a healthy financial system has been acknowledged broadly and a new concept of "financial inclusion" has emerged towards achieving the sustainable development agenda along with inclusive green growth throughout the development partners and policy makers around the globe. Inclusive Financial System refers to a process that ensures the ease of access, availability and usage of financial services by all the members of a society at affordable cost. Empirical study by Sarma (2011) shows that financial inclusion and per capita GDP is positively associated. Moreover, Park and Mercado Jr (2015) find a significant positive relationship between financial inclusion and per capita GDP for the developing Asia. In addition, Claessens et al.(2009)finds that financial sector development and access to finance can significantly reduce poverty and inequality toward reaching the MDGs while increasing economic growth.

Measuring financial inclusion is quite new but a growing interest is noticeable in the literature. Several indicators have been suggested to measure the extent of financial inclusion of any economy by the literature. For instance, the number of adults having bank accounts is often considered as a measure of financial inclusion. However, Sarma (2009) has proposed a multidimensional index incorporating the three dimensions of financial inclusion (accessibility, availability and usages) using a distance-based approach. Moreover, a recent study by Sarma (2012) presents financial inclusion index for 94 countries over the span of 2004-2010. The comparative index identified Bangladesh as a medium level position in terms of financial inclusion among the world.

In the context of the Bangladesh economy, it comprises of 64 districts with considerable variation in terms of both economic and social development. To lessen the regional disparities, inclusive growth strategies and inclusive finance has been highlighted in the Sixth Five Year Plan, FY2011-FY2015 by the GoB. In line with the Gob, Bangladesh Bank as a Central Bank has also taken policy initiatives to engage the country's financial system to an Inclusive Financial System since 2009. A composite index of financial inclusion at the district level is time consuming to track whether the policy adopted by central bank has had any impact in achieving financial inclusion. Existing literature doesn't address the issue of measuring a composite financial inclusion index for Bangladesh at the district level. This paper aims to fill the gaps by constructing an index of financial inclusion at the district level of Bangladesh.

3. Methodological Framework

In order to construct a financial inclusion index of Bangladesh at the district level, this paper closely follows the methodology proposed by Sarma (2012). This paper incorporates five measures of financial inclusion; namely, the number of bank branches per 100,000 adults, the number of deposit and loan accounts per 1,000 adults and per capita deposit and

per capita loan which broadly belong to the dimensions of availability, accessibility and usage respectively.

At the very first step we need to compute indexes for each dimension of financial inclusion (accessibility, availability and usage). Computational procedures to calculate dimensional index is similar to that used by UNDP to compute the well-known human development index (HDI).

$$d_i = \left(\frac{x_{ik,t} - m_i}{M_i - m_i}\right) \quad (1)$$

where

d_i= index value for the dimension i
$x_{ik,t}$= actual value of dimension i for the entity k for the time t
M_i= upper limit on the value of dimension i
m_i= lower limit on the value of dimension i

From equation (1), the value of d_i presents normalized value of any observation for any specific dimension. The higher the value of d_i indicates higher achievement of a district in that direction. The dimension index (1) will return normalized values between 0 and 1, where 0 indicating no achievement and 1 indicating the highest achievement in that dimension.

Equation (2) provides normalized Euclidian distance between observed positions and the worst position on the n-dimensional space.

$$X_1 = \sqrt{\frac{{d_1}^2 + {d_2}^2 + \cdots + {d_n}^2}{(1^2 + 1^2 + \cdots + 1^2)}} \quad (2)$$

Equation (3) represents normalized inverse Euclidian distance between observed position and the ideal situation. In this study, we define the worst point as (0,0,0) and ideal point as (1,1,1) in a 3-dimensional space.

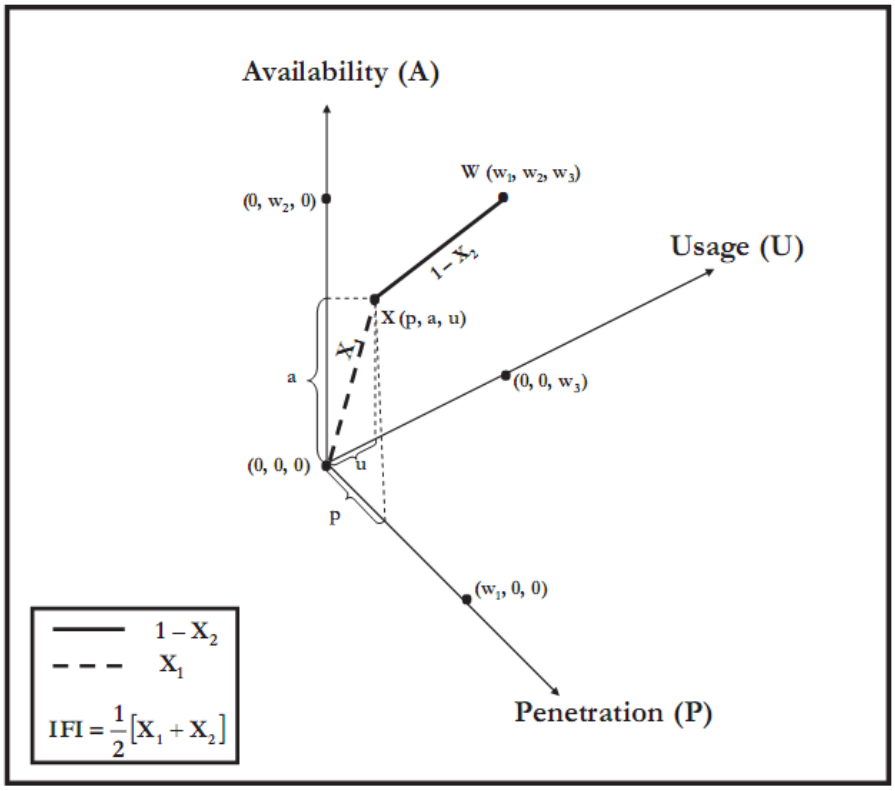
$$X_2 = 1 - \sqrt{\frac{(1 - d_1)^2 + (1 - d_2)^2 + \cdots + (1 - d_n)^2}{(1^2 + 1^2 + \cdots + 1^2)}} \quad (3)$$

Finally, a simple average of the equations (2) and (3) will present the Index of Financial Inclusion (equation 4).

$$IFI = \frac{1}{2}\,[x_1 + x_2] \quad (4)$$

The resultant index incorporates both how far away from the worst and how close to the ideal an observed point is in a 3-dimensional space. Below is the graphical presentation of a 3-dimensional space indicating Euclidian distance of a particular point from both the worst and the best position.

Figure 1: Graphical Explanation of a 3-dimensional IFI



Source: Sarma 2012:13

Choice of Upper Limit and Lower Limit

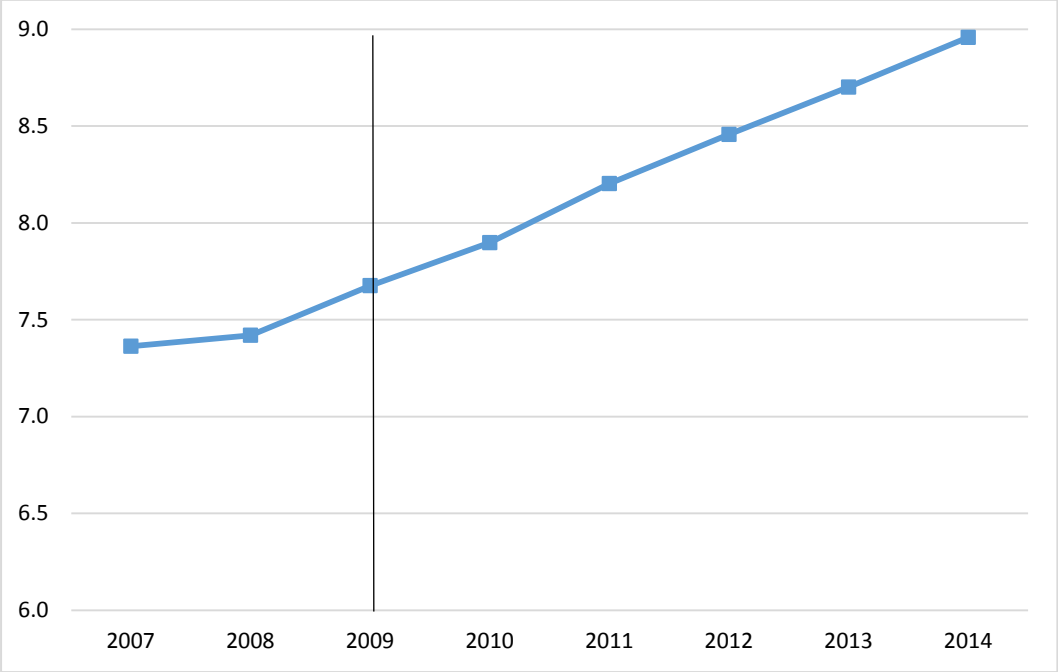
Computation of the IFI requires a-priori fixing the values of upper bound (M_i) and lower bound (m_i) for each dimension. Choosing upper bound of a dimension is not straightforward since theoretically it is not possible to decide a point of maximum or optimum benchmark for any dimension of financial inclusion (Sarma 2015). One possible way to fix the upper value for a dimension for the whole time span is by empirically observed maximum value. However, empirically observing the highest value might be an outlier and could distort the dimension index. In order to avoid the outlier problem, we use empirically observed 90th percentile of the distribution of the values of a dimension as the upper bound for the dimension (ibid). As far as choosing lower value of a dimension is concerned, one can safely chose 0 as if there were no progress in that particular dimension of financial inclusion.

4. Data and Description

This paper considers financial inclusion data across 64 districts for the period of 2008 to 2014. It might be noted, before this period we have had very little information for most of the financial inclusion variables at the district level. It might also be noted that this paper limits its coverage only to the formal financial sectors which are directly under supervision of Bangladesh Bank. In such a case, the estimates might have suffered with a downward bias because of not covering the sectors other than formal banking channels which also provide financial services to the people (informal sector or microfinance institutions that are not covered by this study).

In order to construct financial inclusion index for the year 2008-2014, this paper relies on data of different financial variables that are broadly fit into the dimensions of accessibility, availability and usage as discussed in the earlier section. More specifically, the number of bank branches per 100,000 adults is considered as an indicator of availability of banking services. Accessibility has been reflected by the indicator of the number of bank accounts (loan or deposit) per 1000 adults in each district. Per capita deposits and per capita advances are the indicators that can show usage of banking services in each district. Moreover, the number of ATMs and gross domestic product are commonly considered other important indicators to reflect availability and usage respectively. However, availability of district level data is the limitation this study has encountered.

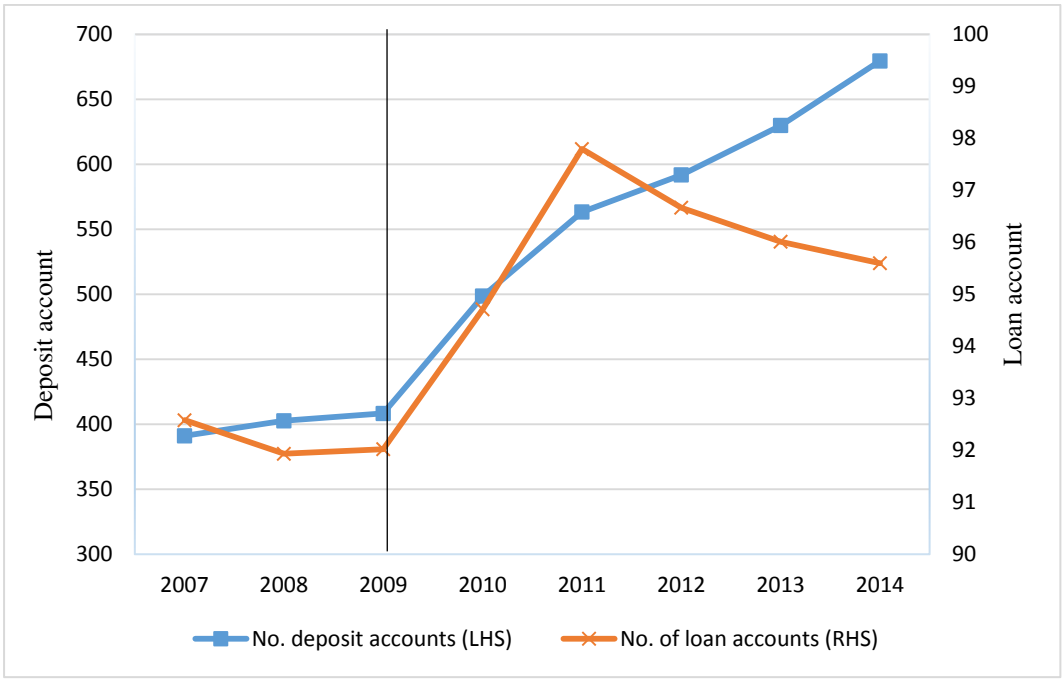
Figure 2: Number of bank branches per 100,000 adults



Note: Author's calculation
Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistic, 2015

Figure 2 shows the number of bank branches per 100,000 adults and its trend over the period of 2008-2014. In 2008, there were almost 7.5 bank branches per 100,000 adults. This indicator of availability increases to 9 bank branches per 100,000 adults in 2014. Financial inclusion policies adopted since 2009 by BB might have accelerated this increasing trend. Indicators that represent the dimension of accessibility shows mixed interpretations from the following figure 3. On the one hand, the number of deposit accounts per 1000 adults shows an increasing trend over the period, on the other hand, the number of loan accounts per 1,000 adults seems stagnated between 91 and 96 for the whole study period.

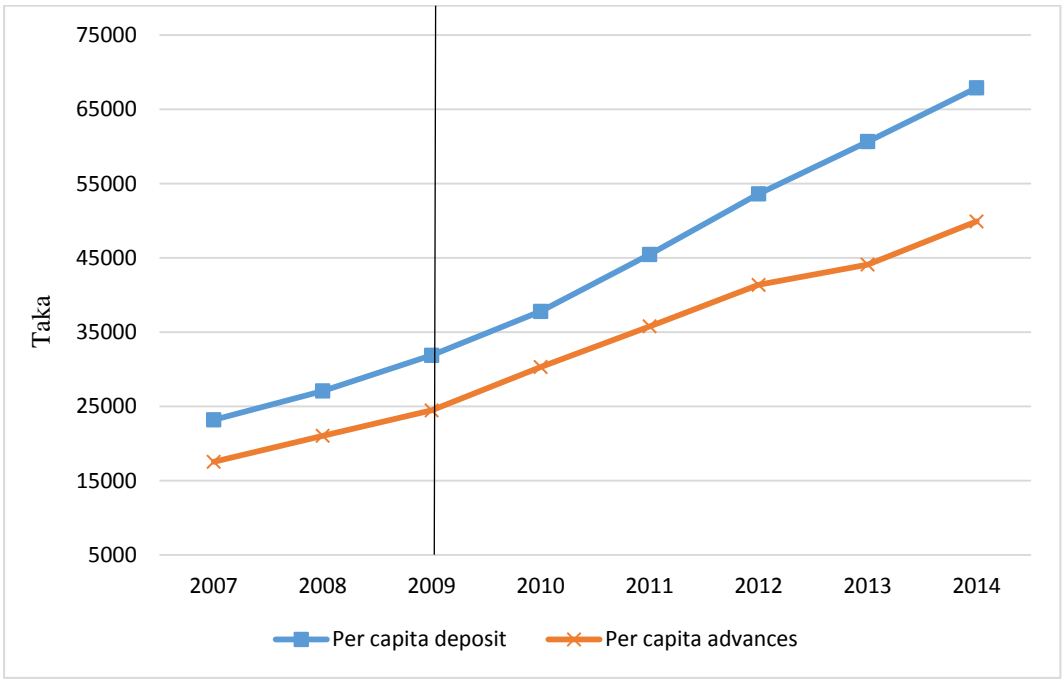
Figure 3: Number of loan and deposit accounts per 1000 adults



Note: Author's calculation
Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistics, 2015

A significant increasing pattern is noticeable for the indicator of per capita deposit and per capita advances in figure 4. Particularly, the rate of change seems to get highly accelerated since 2009 when Bangladesh Bank adopted the inclusive finance policies. Per capita deposits and per capita advances have been considered to reflect the usage dimension of an inclusive financial system.

Figure 4: Adult per capita deposit and advances



Note: Author's calculation
Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistics, 2015

So far we have presented different indicators of financial inclusion graphically for Bangladesh. In table 1 we present the descriptive statistics of different financial indicators for the years 2008-2014 at district level. Summary statistics (minimum, maximum, mean, standard deviation and coefficient of variation) have been calculated to each dimension indicator for each time panel.

Table 1: Descriptive statistics of indicators of different dimensions of financial inclusion among 64 districts of Bangladesh

	2008	2009	2010	2011	2012	2013	2014
No. of Bank Branches per 100,000 adults							
Min	3.57	3.49	3.48	3.55	3.58	3.60	3.68
Max	17.47	18.71	19.54	16.92	17.89	18.89	19.66
Mean	6.72	6.85	7.01	7.33	7.49	7.63	7.80
Standard deviation	2.45	2.62	2.74	2.44	2.54	2.63	2.73
CV	0.37	0.38	0.39	0.33	0.34	0.35	0.35
No. of deposit accounts (in banks) per 1000 adults							
Min	160.77	159.06	262.97	275.83	312.49	321.38	348.95
Max	1209.48	1267.07	1392.42	1276.02	1316.11	1428.33	1531.60
Mean	335.77	336.72	425.77	489.27	519.55	551.89	595.44
Standard deviation	150.35	159.10	158.44	146.15	151.70	164.95	179.89
CV	0.45	0.47	0.37	0.30	0.29	0.30	0.30
No. of loan accounts (in banks) per 1000 adults							
Min	51.38	49.78	50.27	52.99	55.26	51.33	52.55
Max	183.67	175.36	174.86	196.65	191.42	547.07	191.25
Mean	95.40	95.12	96.07	100.97	100.16	105.11	98.64
Standard deviation	30.16	30.13	31.16	34.56	32.45	65.02	32.80
CV	0.32	0.32	0.32	0.34	0.32	0.62	0.33
Per capita deposits (adult population) in Taka							
Min	2445.61	2579.03	3138.14	3774.16	4471.73	4918.97	5787.25
Max	214967.62	258203.37	310811.97	302699.68	354193.16	399124.19	439671.39
Mean	13217.93	15304.46	17944.40	20772.88	24708.31	28022.35	31873.15
Standard deviation	27596.71	33082.5	39631.85	39150.41	45806.73	51671.42	56929.85
CV	2.09	2.16	2.21	1.88	1.85	1.84	1.79
Per capita advances (adult population) in Taka							
Min	1516.00	1723.23	2010.00	2011.00	2012.00	2013.00	4237.19
Max	187076.84	214402.82	264644.25	257756.60	300308.23	320374.46	364675.35
Mean	8607.18	10034.59	12461.79	13891.73	15853.18	17179.85	19624.32
Standard deviation	24159.99	27796.06	34334.73	34172.94	39794.71	42188.38	48073.73
CV	2.81	2.77	2.76	2.46	2.51	2.46	2.45
Number of adult population[1]							
Min	223710	228829	234054	264072	267689	271357	275074
Max	6386842	6532986	6682164	8190022	8302226	8415966	8531265
Mean	1458069	1491433	1525489	1530486	1551454	1572709	1594255
Standard deviation	997304	1020124	1043418	1185276	1201514	1217975	1234661
CV	0.684	0.684	0.684	0.774	0.774	0.774	0.774

Sources: Schedule Bank Statistics, Bangladesh Bank, Bangladesh Bureau of Statistics, HIES. CV stands for coefficient of variation. [1] Year wise estimates has been calculated based on intercensal growth rate of population census of 2001 and 2011.

5. Results and Discussion

IFI values have been calculated for 64 districts for the years 2008-2014 and presented in Annex-1. Among 64 districts in the year 2008, the level of financial inclusion, as measured by IFI, varied from as low as 0.352 for Khagrachhari to as high as 0.984 for Dhaka. In 2014, among the 64 districts, Kurigram ranked the lowest with an IFI value of 0.438 while Dhaka ranked the highest with an IFI value 1. A financial inclusion map has been produced based on the IFI values for a comparative graphical representation in Annex-2. Red color refers to poor financial inclusion while green indicates good financial inclusion; yellow lies in between. From the map we can see most of the districts were in poor condition in terms of the degree of financial inclusion during the period 2008-2010. From 2010 and onwards the majority of districts showed significant progress as reflected by changing the color from red to yellow to greenish. However, few districts have been identified that are consistently poor performing in terms of financial inclusion over the study period of 2008-2014.

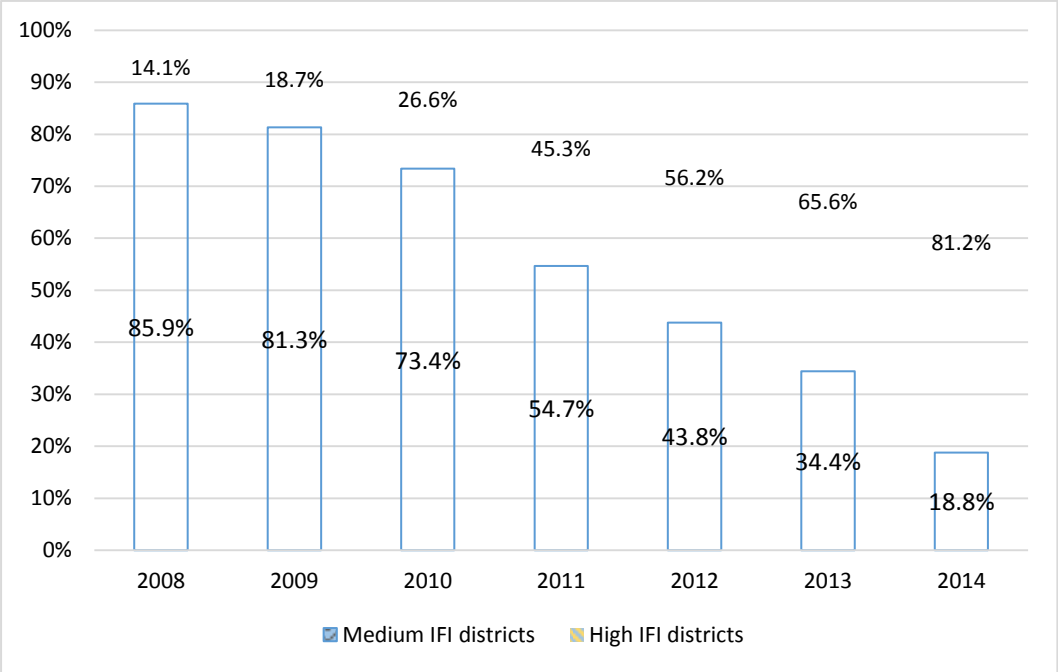
Table 2: Descriptive statistics of the IFI for 64 districts of Bangladesh

	2008	2009	2010	2011	2012	2013	2014
Min	0.352	0.362	0.382	0.402	0.410	0.428	0.438
Max	0.984	0.996	1.000	1.000	1.000	1.000	1.000
Mean	0.503	0.517	0.559	0.612	0.641	0.666	0.697
Standard deviation	0.127	0.135	0.133	0.126	0.128	0.130	0.128
CV	0.253	0.260	0.239	0.206	0.200	0.195	0.184
Total no. of districts	64	64	64	64	64	64	64
High IFI districts (0.6≤IFI≤1)	9	12	17	29	36	42	52
Medium IFI districts (0.3≤IFI<0.6)	55	52	47	35	28	22	12
Low IFI districts (0≤IFI<0.3)	0	0	0	0	0	0	0
Proportion of medium IFI districts (%)	85.9%	81.3%	73.4%	54.7%	43.8%	34.4%	18.8%

Note: Author's calculation
Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistics, 2015

A summary statistics of the calculated IFI index has been presented in table 2. From this table we can see that the average value of the IFI index is increasing over time. The coefficient of variation of the IFI values shows less variation for the year 2014 compared to what it was in the year 2008. Furthermore, IFI values have been divided into three categories; low (0 to below 0.3), medium (0.3 to below 0.6) and high (above 0.6) financial inclusion district. It may important to note that high, medium and low financial inclusion districts not necessary implies the comparative position of those district among the world, rather the category tells the relative position of a district among the peer districts. The distribution of the named category shows an interesting picture. For instance, in 2008, 55 districts (86%) belonged to the medium financial inclusion category, whereas, in 2014, only 12 districts (19%) were in the same category. In other words, the number of districts remarkably increased to the category of high financial inclusion over the years (in 2008 the number of districts was 9 while in 2014 it reached 52). Districts that have changed their comparative position from being low financial inclusion districts to high financial inclusion districts noticed acceleration since 2011. Percentages of districts that have changed their position from being in the medium financial inclusion category to the high financial inclusion category are presented graphically in figure 5. As mentioned earlier, BB has taken a policy initiative to promote an inclusive financial system in 2009, the impact of those policies has been noticed by the increasing number of districts to the high financial inclusion categories since 2011 (number of districts was 17 in 2010 and increase to 29 in 2011 which accounts a more than 75% increase).

Figure 5: Percentage distribution of high and medium financial inclusion districts over time



Note: Author's calculation
Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistics, 2015

Annex 3 presents IFI values for the year 2008 and 2014 and also shows the percentage change of the IFI values between these two years. In 2008 there was no financial inclusion policy and in 2009 the policy has been initiated and 2014 shows the latest situation of the financial inclusion in terms of IFI values. The percentage change of the last column in annex 3, tells us how much the financial inclusion has changed relative to IFI values in 2008.

The tables have been sorted in descending order of the percentage change while showing the ranked position of a particular district, based on IFI values for both the year 2008 and year 2014. The largest positive change in financial inclusion has been evident for the district Satkhira (69%). In 2008, the ranked position of Satkhira was 58 among 64 districts while in 2014 its comparative position became 41. More generally we can say, most of the positive changes mainly belonged to poorer districts in the year 2008.

6. Conclusion

Inclusive finance strategies have been greatly emphasized to promote sustainable economic growth to meet the 2030 agenda for Sustainable Development in seventh five year plan. Expanding access to banking, insurance and financial services for all segments of population and strengthening the capacity of domestic financial institutions are the key activities to carry out according to the new goals. To meet up the new goals of sustainable development and to reduce regional financial disparities, Government of Bangladesh and Bangladesh Bank have taken a number of initiatives. This paper attempts to compute an index of financial inclusion to measure the extent of inclusive finance at the district level of Bangladesh. Methodologies to construct the IFI is based on a multidimensional approach as proposed by Sarma (2012) and focused to highlight the level of financial inclusion of each district in Bangladesh. The index indicates most of the districts of Bangladesh that have experienced a significant progress in financial inclusion over the period 2008-2014 with the

exception of Khagrachhari, Netrokona, Kurigram and Sunamganj. The progress seems relatively slow for the districts Gaibandah, Lalmonirhat, Kishoreganj, Sherpur, Sirajganj, Mymensingh, Thakurgaon, and Panchagarh. The financial inclusion map reflects that the process of financial inclusion gets accelerated at the end of 2010, just after the inclusive finance policy initiatives taken by Bangladesh Bank in 2009. Hence, this index can be used to compare the extent of financial inclusion across districts and also to monitor the progress of financial inclusion over time. The overall financial inclusion index of Bangladesh shows that financial inclusion is growth over time. The mean value of financial inclusion index increased to 0.697 in 2014 from 0.503 in 2008.

This work has policy implications in making inclusive finance strategies in Bangladesh. The index may guide Bangladesh Bank and the Government to pursue inclusive growth for reducing regional disparities further to meet Vision 2030 as well as the Sustainable Development Goals.

Nevertheless, this paper encounters several limitations such as: computing availability dimensions, the index unable to incorporate mobile financial services and other micro-finance facilities due to unavailability of data. District level GDP could have improved the dimension of usage if available. This paper raises a question: Is there a significant relationship between financial inclusion and economic growth at district level of Bangladesh? Exploring the question go beyond the scope of this study and is left for future research.

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Annex 1: IFI values for 64 districts, 2008-2014

SL	District	Division	2008	2009	2010	2011	2012	2013	2014
1	BARGUNA	BARISAL	0.479	0.476	0.506	0.564	0.592	0.639	0.661
2	BARISAL	BARISAL	0.520	0.531	0.566	0.719	0.777	0.826	0.874
3	BHOLA	BARISAL	0.418	0.429	0.460	0.519	0.547	0.571	0.604
4	JHALOKATHI	BARISAL	0.486	0.501	0.520	0.658	0.696	0.723	0.739
5	PATUAKHALI	BARISAL	0.493	0.497	0.520	0.593	0.624	0.666	0.733
6	PIROJPUR	BARISAL	0.494	0.499	0.531	0.646	0.686	0.721	0.767
7	BANDARBAN	CHITTAGONG	0.590	0.601	0.610	0.605	0.615	0.778	0.682
8	BRAHMANBARIA	CHITTAGONG	0.425	0.439	0.491	0.541	0.585	0.627	0.679
9	CHANDPUR	CHITTAGONG	0.475	0.502	0.542	0.629	0.666	0.677	0.733
10	CHITTAGONG	CHITTAGONG	0.868	0.869	0.873	0.878	0.879	0.878	0.878
11	COMILLA	CHITTAGONG	0.493	0.525	0.564	0.609	0.648	0.692	0.755
12	COX'S BAZAR	CHITTAGONG	0.510	0.540	0.593	0.586	0.631	0.651	0.702
13	FENI	CHITTAGONG	0.775	0.820	0.877	0.921	0.958	0.952	0.965
14	KHAGRACHHARI	CHITTAGONG	0.352	0.363	0.382	0.402	0.410	0.428	0.452
15	LAKSHMIPUR	CHITTAGONG	0.550	0.575	0.600	0.654	0.706	0.743	0.808
16	NOAKHALI	CHITTAGONG	0.552	0.581	0.634	0.678	0.721	0.754	0.820
17	RANGAMATI	CHITTAGONG	0.607	0.594	0.629	0.650	0.668	0.689	0.730
18	DHAKA	DHAKA	0.984	0.996	1.000	1.000	1.000	1.000	1.000
19	FARIDPUR	DHAKA	0.486	0.510	0.584	0.676	0.712	0.755	0.803
20	GAZIPUR	DHAKA	0.609	0.709	0.816	0.648	0.708	0.756	0.810
21	GOPALGANJ	DHAKA	0.432	0.436	0.485	0.606	0.630	0.655	0.714
22	JAMALPUR	DHAKA	0.455	0.459	0.503	0.552	0.576	0.612	0.634
23	KISHOREGANJ	DHAKA	0.376	0.384	0.431	0.473	0.495	0.503	0.534
24	MADARIPUR	DHAKA	0.473	0.489	0.521	0.640	0.672	0.718	0.771
25	MANIKGANJ	DHAKA	0.423	0.426	0.475	0.538	0.572	0.615	0.668
26	MUNSHIGANJ	DHAKA	0.540	0.558	0.588	0.674	0.745	0.808	0.833
27	MYMENSINGH	DHAKA	0.375	0.384	0.433	0.483	0.496	0.526	0.555
28	NARAYANGANJ	DHAKA	0.761	0.806	0.837	0.797	0.841	0.868	0.887
29	NARSINGDI	DHAKA	0.579	0.620	0.680	0.739	0.799	0.828	0.856
30	NETROKONA	DHAKA	0.385	0.384	0.426	0.446	0.446	0.454	0.468
31	RAJBARI	DHAKA	0.438	0.440	0.466	0.538	0.551	0.575	0.606
32	SHARIATPUR	DHAKA	0.418	0.442	0.487	0.575	0.607	0.647	0.690
33	SHERPUR	DHAKA	0.392	0.398	0.446	0.490	0.496	0.507	0.534
34	TANGAIL	DHAKA	0.403	0.419	0.459	0.524	0.562	0.585	0.635
35	BAGERHAT	KHULNA	0.434	0.435	0.458	0.597	0.627	0.660	0.698
36	CHUADANGA	KHULNA	0.450	0.468	0.526	0.578	0.612	0.623	0.672
37	JESSORE	KHULNA	0.591	0.604	0.689	0.772	0.813	0.819	0.835
38	JHENAIDAH	KHULNA	0.416	0.431	0.477	0.521	0.548	0.578	0.618
39	KHULNA	KHULNA	0.731	0.744	0.785	0.885	0.889	0.892	0.893
40	KUSHTIA	KHULNA	0.562	0.586	0.659	0.744	0.770	0.791	0.821
41	MAGURA	KHULNA	0.475	0.470	0.509	0.553	0.572	0.602	0.632
42	MEHERPUR	KHULNA	0.453	0.462	0.503	0.546	0.564	0.573	0.607
43	NARAIL	KHULNA	0.504	0.503	0.539	0.624	0.648	0.662	0.682
44	SATKHIRA	KHULNA	0.386	0.389	0.434	0.517	0.566	0.596	0.651
45	BOGRA	RAJSHAHI	0.545	0.572	0.632	0.710	0.745	0.753	0.771
46	CHAPAI	RAJSHAHI	0.400	0.411	0.450	0.494	0.538	0.558	0.618
47	JOYPURHAT	RAJSHAHI	0.543	0.540	0.593	0.681	0.705	0.730	0.762
48	NAOGAON	RAJSHAHI	0.440	0.446	0.495	0.568	0.598	0.614	0.653
49	NATORE	RAJSHAHI	0.452	0.452	0.490	0.539	0.567	0.589	0.630
50	PABNA	RAJSHAHI	0.496	0.506	0.552	0.605	0.655	0.696	0.742
51	RAJSHAHI	RAJSHAHI	0.596	0.622	0.680	0.761	0.772	0.795	0.827
52	SIRAJGANJ	RAJSHAHI	0.374	0.391	0.435	0.477	0.502	0.525	0.548
53	DINAJPUR	RANGPUR	0.448	0.459	0.513	0.582	0.621	0.648	0.684
54	GAIBANDAH	RANGPUR	0.400	0.408	0.453	0.501	0.503	0.502	0.515
55	KURIGRAM	RANGPUR	0.359	0.362	0.411	0.438	0.440	0.434	0.438
56	LALMONIRHAT	RANGPUR	0.417	0.422	0.449	0.484	0.497	0.504	0.529
57	NILPHAMARI	RANGPUR	0.457	0.462	0.501	0.537	0.567	0.581	0.610
58	PANCHAGARH	RANGPUR	0.448	0.451	0.504	0.515	0.539	0.553	0.560
59	RANGPUR	RANGPUR	0.439	0.459	0.516	0.569	0.602	0.634	0.665
60	THAKURGAON	RANGPUR	0.422	0.427	0.473	0.524	0.544	0.554	0.558
61	HABIGANJ	SYLHET	0.443	0.452	0.504	0.525	0.551	0.576	0.612
62	MOULVI BAZAR	SYLHET	0.642	0.671	0.708	0.748	0.787	0.804	0.827
63	SUNAMGANJ	SYLHET	0.393	0.397	0.429	0.430	0.453	0.456	0.478
64	SYLHET	SYLHET	0.830	0.878	0.899	0.883	0.887	0.894	0.898

Annex 2: Financial Inclusion Index Heat Map, 64 districts of Bangladesh

District	Division	2008	2009	2010	2011	2012	2013	2014
BARGUNA	BARISAL	0.479	0.476	0.506	0.564	0.592	0.639	0.661
BARISAL	BARISAL	0.520	0.531	0.566	0.719	0.777	0.826	0.874
BHOLA	BARISAL	0.418	0.429	0.460	0.519	0.547	0.571	0.604
JHALOKATHI	BARISAL	0.486	0.501	0.520	0.658	0.696	0.723	0.739
PATUAKHALI	BARISAL	0.493	0.497	0.520	0.593	0.624	0.666	0.733
PIROJPUR	BARISAL	0.494	0.499	0.531	0.646	0.686	0.721	0.767
BANDARBAN	CHITTAGONG	0.590	0.601	0.610	0.605	0.615	0.778	0.682
BRAHMANBARIA	CHITTAGONG	0.425	0.439	0.491	0.541	0.585	0.627	0.679
CHANDPUR	CHITTAGONG	0.475	0.502	0.542	0.629	0.666	0.677	0.733
CHITTAGONG	CHITTAGONG	0.868	0.869	0.873	0.878	0.879	0.878	0.878
COMILLA	CHITTAGONG	0.493	0.525	0.564	0.609	0.648	0.692	0.755
COX'S BAZAR	CHITTAGONG	0.510	0.540	0.593	0.586	0.631	0.651	0.702
FENI	CHITTAGONG	0.775	0.820	0.877	0.921	0.958	0.952	0.965
KHAGRACHHARI	CHITTAGONG	0.352	0.363	0.382	0.402	0.410	0.428	0.452
LAKSHMIPUR	CHITTAGONG	0.550	0.575	0.600	0.654	0.706	0.743	0.808
NOAKHALI	CHITTAGONG	0.552	0.581	0.634	0.678	0.721	0.754	0.820
RANGAMATI	CHITTAGONG	0.607	0.594	0.629	0.650	0.668	0.689	0.730
DHAKA	DHAKA	0.984	0.996	1.000	1.000	1.000	1.000	1.000
FARIDPUR	DHAKA	0.486	0.510	0.584	0.676	0.712	0.755	0.803
GAZIPUR	DHAKA	0.609	0.709	0.816	0.648	0.708	0.756	0.810
GOPALGANJ	DHAKA	0.432	0.436	0.485	0.606	0.630	0.655	0.714
JAMALPUR	DHAKA	0.455	0.459	0.503	0.552	0.576	0.612	0.634
KISHOREGANJ	DHAKA	0.376	0.384	0.431	0.473	0.495	0.503	0.534
MADARIPUR	DHAKA	0.473	0.489	0.521	0.640	0.672	0.718	0.771
MANIKGANJ	DHAKA	0.423	0.426	0.475	0.538	0.572	0.615	0.668
MUNSHIGANJ	DHAKA	0.540	0.558	0.588	0.674	0.745	0.808	0.833
MYMENSINGH	DHAKA	0.375	0.384	0.433	0.483	0.496	0.526	0.555
NARAYANGANJ	DHAKA	0.761	0.806	0.837	0.797	0.841	0.868	0.887
NARSINGDI	DHAKA	0.579	0.620	0.680	0.739	0.799	0.828	0.856
NETROKONA	DHAKA	0.385	0.384	0.426	0.446	0.446	0.454	0.468
RAJBARI	DHAKA	0.438	0.440	0.466	0.538	0.551	0.575	0.606
SHARIATPUR	DHAKA	0.418	0.442	0.487	0.575	0.607	0.647	0.690
SHERPUR	DHAKA	0.392	0.398	0.446	0.490	0.496	0.507	0.534
TANGAIL	DHAKA	0.403	0.419	0.459	0.524	0.562	0.585	0.635
BAGERHAT	KHULNA	0.434	0.435	0.458	0.597	0.627	0.660	0.698
CHUADANGA	KHULNA	0.450	0.468	0.526	0.578	0.612	0.623	0.672
JESSORE	KHULNA	0.591	0.604	0.689	0.772	0.813	0.819	0.835
JHENAIDAH	KHULNA	0.416	0.431	0.477	0.521	0.548	0.578	0.618
KHULNA	KHULNA	0.731	0.744	0.785	0.885	0.889	0.892	0.893
KUSHTIA	KHULNA	0.562	0.586	0.659	0.744	0.770	0.791	0.821
MAGURA	KHULNA	0.475	0.470	0.509	0.553	0.572	0.602	0.632
MEHERPUR	KHULNA	0.453	0.462	0.503	0.546	0.564	0.573	0.607
NARAIL	KHULNA	0.504	0.503	0.539	0.624	0.648	0.662	0.682
SATKHIRA	KHULNA	0.386	0.389	0.434	0.517	0.566	0.596	0.651
BOGRA	RAJSHAHI	0.545	0.572	0.632	0.710	0.745	0.753	0.771
CHAPAI NAWABGANJ	RAJSHAHI	0.400	0.411	0.450	0.494	0.538	0.558	0.618
JOYPURHAT	RAJSHAHI	0.543	0.540	0.593	0.681	0.705	0.730	0.762
NAOGAON	RAJSHAHI	0.440	0.446	0.495	0.568	0.598	0.614	0.653
NATORE	RAJSHAHI	0.452	0.452	0.490	0.539	0.567	0.589	0.630
PABNA	RAJSHAHI	0.496	0.506	0.552	0.605	0.655	0.696	0.742
RAJSHAHI	RAJSHAHI	0.596	0.622	0.680	0.761	0.772	0.795	0.827
SIRAJGANJ	RAJSHAHI	0.374	0.391	0.435	0.477	0.502	0.525	0.548
DINAJPUR	RANGPUR	0.448	0.459	0.513	0.582	0.621	0.648	0.684
GAIBANDAH	RANGPUR	0.400	0.408	0.453	0.501	0.503	0.502	0.515
KURIGRAM	RANGPUR	0.359	0.362	0.411	0.438	0.440	0.434	0.438
LALMONIRHAT	RANGPUR	0.417	0.422	0.449	0.484	0.497	0.504	0.529
NILPHAMARI	RANGPUR	0.457	0.462	0.501	0.537	0.567	0.581	0.610
PANCHAGARH	RANGPUR	0.448	0.451	0.504	0.515	0.539	0.553	0.560
RANGPUR	RANGPUR	0.439	0.459	0.516	0.569	0.602	0.634	0.665
THAKURGAON	RANGPUR	0.422	0.427	0.473	0.524	0.544	0.554	0.558
HABIGANJ	SYLHET	0.443	0.452	0.504	0.525	0.551	0.576	0.612
MOULVI BAZAR	SYLHET	0.642	0.671	0.708	0.748	0.787	0.804	0.827
SUNAMGANJ	SYLHET	0.393	0.397	0.429	0.430	0.453	0.456	0.478
SYLHET	SYLHET	0.830	0.878	0.899	0.883	0.887	0.894	0.898

Note: Three colors comparison (minimum= 10th percentile, middle=50th percentile, highest= 90th percentile

= The worst =Medium = The best

Annex3: IFI ranking and percentage change over the period 2008-2014

District	Division	2008	IFI Rank (2008)	2014	IFI Rank (2014)	Percentage change
SATKHIRA	KHULNA	0.386	58	0.651	41	69%
BARISAL	BARISAL	0.520	20	0.874	7	68%
SHARIATPUR	DHAKA	0.418	50	0.690	31	65%
GOPALGANJ	DHAKA	0.432	45	0.714	28	65%
FARIDPUR	DHAKA	0.486	28	0.803	17	65%
MADARIPUR	DHAKA	0.473	32	0.771	19	63%
BAGERHAT	KHULNA	0.434	44	0.698	30	61%
BRAHMANBARIA	CHITTAGONG	0.425	46	0.679	35	60%
TANGAIL	DHAKA	0.403	53	0.635	42	58%
MANIKGANJ	DHAKA	0.423	47	0.668	37	58%
CHAPAI	RAJSHAHI	0.400	54	0.618	47	55%
PIROJPUR	BARISAL	0.494	24	0.767	20	55%
CHANDPUR	CHITTAGONG	0.475	30	0.733	26	54%
MUNSHIGANJ	DHAKA	0.540	19	0.833	10	54%
DINAJPUR	RANGPUR	0.448	38	0.684	32	53%
COMILLA	CHITTAGONG	0.493	26	0.755	22	53%
JHALOKATHI	BARISAL	0.486	27	0.739	24	52%
RANGPUR	RANGPUR	0.439	42	0.665	38	51%
PABNA	RAJSHAHI	0.496	23	0.742	23	50%
JHENAIDAH	KHULNA	0.416	52	0.618	46	49%
CHUADANGA	KHULNA	0.450	37	0.672	36	49%
PATUAKHALI	BARISAL	0.493	25	0.733	25	49%
NOAKHALI	CHITTAGONG	0.552	15	0.820	14	49%
MYMENSINGH	DHAKA	0.375	61	0.555	55	48%
NAOGAON	RAJSHAHI	0.440	41	0.653	40	48%
NARSINGDI	DHAKA	0.579	13	0.856	8	48%
SIRAJGANJ	RAJSHAHI	0.374	62	0.548	56	47%
LAKSHMIPUR	CHITTAGONG	0.550	16	0.808	16	47%
KUSHTIA	KHULNA	0.562	14	0.821	13	46%
BHOLA	BARISAL	0.418	49	0.604	52	44%
KISHOREGANJ	DHAKA	0.376	60	0.534	58	42%
BOGRA	RAJSHAHI	0.545	17	0.771	18	41%
JESSORE	KHULNA	0.591	11	0.835	9	41%
JOYPURHAT	RAJSHAHI	0.543	18	0.762	21	40%
NATORE	RAJSHAHI	0.452	36	0.630	45	39%
JAMALPUR	DHAKA	0.455	34	0.634	43	39%
RAJSHAHI	RAJSHAHI	0.596	10	0.827	12	39%
RAJBARI	DHAKA	0.438	43	0.606	51	38%
HABIGANJ	SYLHET	0.443	40	0.612	48	38%
BARGUNA	BARISAL	0.479	29	0.661	39	38%
COX'S BAZAR	CHITTAGONG	0.510	21	0.702	29	38%
SHERPUR	DHAKA	0.392	57	0.534	57	36%
NARAIL	KHULNA	0.504	22	0.682	34	35%
MEHERPUR	KHULNA	0.453	35	0.607	50	34%
NILPHAMARI	RANGPUR	0.457	33	0.610	49	33%
MAGURA	KHULNA	0.475	31	0.632	44	33%
GAZIPUR	DHAKA	0.609	8	0.810	15	33%
THAKURGAON	RANGPUR	0.422	48	0.558	54	32%
GAIBANDAH	RANGPUR	0.400	55	0.515	60	29%
MOULVI BAZAR	SYLHET	0.642	7	0.827	11	29%
KHAGRACHHARI	CHITTAGONG	0.352	64	0.452	63	28%
LALMONIRHAT	RANGPUR	0.417	51	0.529	59	27%
PANCHAGARH	RANGPUR	0.448	39	0.560	53	25%
FENI	CHITTAGONG	0.775	4	0.965	2	25%
KURIGRAM	RANGPUR	0.359	63	0.438	64	22%
NETROKONA	DHAKA	0.385	59	0.468	62	22%
SUNAMGANJ	SYLHET	0.393	56	0.478	61	22%
KHULNA	KHULNA	0.731	6	0.893	4	22%
RANGAMATI	CHITTAGONG	0.607	9	0.730	27	20%
NARAYANGANJ	DHAKA	0.761	5	0.887	5	17%
BANDARBAN	CHITTAGONG	0.590	12	0.682	33	16%
SYLHET	SYLHET	0.830	3	0.898	3	8%
DHAKA	DHAKA	0.984	1	1.000	1	2%
CHITTAGONG	CHITTAGONG	0.868	2	0.878	6	1%