

FACTORS INFLUENCING THE RURAL DEPOSIT MOBILIZATION IN BANGLADESH

Taher Jamil¹
Farhan Shazia²

Abstract: *This paper examines the factors influencing the demand for interest bearing rural deposit mobilization in Bangladesh using the time series data on deposit interest rate, transaction cost and rural income over the period covering from the year 1999 to 2013. The economic results found by applying Ordinary Least Square shows that transaction costs play pivotal role in explaining and shaping rural depositor behavior. Expansion of banking facilities is the key factor in rural deposit mobilization. Roads and vehicles directly influence interest bearing deposits because of the reduction in depositor transaction costs through reduced time spent in travelling to and from bank branches. The findings of this paper also indicate that banks need to place more stress on providing improved services including efficient systems to reduce paper work, simplification of procedures, and cordial relationships between bank employees and depositors in rural areas where people are less aware of banking services.*

Keywords: *Rural Banking, Deposit, Transaction Cost, Time Series Analysis.*

INTRODUCTION

Rural deposit mobilization can be termed as accumulation of small scale savings that can be used to increase productivity in the rural areas. Gregory and Smith (1988) defined rural area as a composition of a group of socially interacting individuals living together in a locality and constituting the only population. Rural savings allow rural people to safeguard their money and accumulate funds that could be used for productive investments such as working capital that could enable clients to earn a stream of profits which are capable of translating into economic growth and development of rural areas (Paulson and Mc Andrews, 1998).

According to Frimpon-Ansah (1992), the growth of the developing countries that depends largely on the availability of the funding is essential to their economic and social progress. In addition, it was also argued that deposits improve financial intermediation by providing source of funds for rural bank to improve their credit outreach, (Porter, 1966; Yaron et al., 1997). Studies also showed that rural deposit mobilization has removed constraints in rural financial markets. It

¹ Lecturer, Department of Finance, University of Dhaka, Bangladesh.

² Lecturer, Department of Finance, Jagannath University, Bangladesh.

has lead to rural growth, employment, welfare of the rural people. In this connection, it appears that the mobilization of domestic savings has an increasingly decisive role to play.

Khalily (1987) identified that savings mobilization efforts in LDCs are confined to urban areas due to the assumption that, rural people have low income and cannot save. In Bangladesh, majority of its population lives in the rural areas. Sustainable economic development cannot be achieved without exploring a substantial portion of its funding source. Realizing this, growing interest on rural deposit mobilization has been observed in recent years. Due to liquidity crunch in the economy; policymakers, academics, financial institutions and international agencies put more emphasis on rural deposit mobilization as a way to reduce the burden of aid in rural infrastructure development.

Two of the greatest constraints to delivering financial services to underserved rural populations are the general mistrust of the banking system and limited institutional capacity to profitably provide financial services to rural markets. Low-income and rural clients have different needs than those served by typical urban banks. In rural areas, deposit transactions often involve smaller amounts and the deposit patterns can be irregular. Institutions mobilizing rural deposits need to innovate and adapt to make their products and services relevant (USAID, 2005). Also, keeping in mind the factors that affect the demand for rural deposit, financial institution will be able to mobilize the deposit from the long neglected rural dwellers and change the economic scenario of the country.

This paper aims to identify the factors that influence the rural deposit mobilization in Bangladesh. For the purpose of the study, the relative literature on savings and economic growth, rural deposit mobilization and rural banking system in Bangladesh was reviewed. The results of the empirical analysis carried out by the Ordinary Least Square (OLS) estimation techniques was presented after that. Finally, the paper ends with the concluding remarks.

LITERATURE REVIEW

Savings are indispensable for economic growth. Countries with high level of savings tend to have lower inflation, high level of investment and sustainable economic growth. In all the countries of the world, household savings contribute substantially to national savings. Households' savings are an important source of capital to fund investment and growth in the economy (Alade, 2006).

Savings cannot be mobilized in rural areas of low income countries because of the low incomes of rural dwellers that limit their saving ability, poor infrastructural facilities like roads, water, electricity, durable buildings, and lack of quality personnel (Olashore, 1979). It is said that most of the rural population has no margin for saving over consumption and does not respond to incentive such as higher interest rate. But the recent statistics establish that rural people do save (The amount of savings are 946.18 billion up to December, 2012) and

contribute significantly to overall national savings. Rural people cannot save a large amount individually but collectively they contribute a large amount in the financial system. Rural areas have savings that can be mobilized through financial intermediaries (Alamgir, 1974).

Despite the fact, financial services in the rural areas of Bangladesh have remained shallow and segmented. Debt forgiveness, disbursing credit at subsidized interest rates and restructuring characterized rural credit in Bangladesh. Banking channels have failed to capitalize on its huge population and mobilize deposit. Historically, financial institutions in Bangladesh have extended banking facilities into rural areas primarily to disburse agricultural credit as part of government agricultural development strategy. Rural savings mobilization appears to have been a secondary objective.

Realizing the importance of rural deposit mobilization on the overall economy, Bangladesh Bank, the central bank of the country has recently issued guidelines that the numbers of rural bank branches have to be minimum 50 per cent of the total branches approved in a year. This policy aims to ensure better financial access to the rural people and bring them to economic mainstream.

Given the situation, it is important to analyze the factors that influence the demand for rural deposit. One pioneer study regarding this was conducted by Khalily and Meyer (1992) where a demand equation was used by considering interest-bearing deposits as the dependent variable and the number of rural bank branches, weighted interest rates, index of roads and vehicles, permanent and transitory income as independent variables. The findings of that study showed positive relationship between all the independent variables with dependent variables. A few studies in this area have been conducted in Bangladesh. Therefore, using the same variables an effort is made to find out whether any change occurred in all these years or the conclusion remain the same. Rural deposit mobilization is a demand-driven activity. Therefore, the aim of this study is to conduct an empirical test to analyze the factors influencing the demand for rural deposit in Bangladesh.

OBJECTIVES

The objective of this study is to examine the factors influencing the demand for rural deposit mobilization in Bangladesh. This study will help the policy makers to formulate the policy and augment the capacity of the financial institutions so that it can mobilize rural deposits. This study will also help academicians and researchers for conducting future research.

METHODOLOGY

The methodology used in this study is the multiple regression analysis with Ordinary Least Square (OLS) estimation techniques. The OLS technique has been chosen because it gives Best Linear Unbiased Estimators (Wannocott and

Wonnocott, 1972; Koutsoyiannis, 1985; Nyong, 1993). The study period spans from 1999 to 2013.

In the study, the rural deposit mobilization is measured by a number of factors, which include the number of adult rural population in 10,000 per rural bank branch (BBR), ratio of weighted interest rate as proportion of saving deposit and various term deposit to total of savings and term deposit (DIR), ratio of mileage of roads to total area and total population to number of vehicles (RTI), agricultural GDP as proxy of rural income. The permanent (PY) and transitory (TY) components of agricultural GDP were estimated from 1999-2013 agricultural GDP data by regressing agricultural GDP on time. Trend values were treated as permanent agricultural GDP. The variable of rural deposit mobilization is measured by interest bearing rural deposit.

There are two types of prices of deposit—explicit price and implicit price. Interest on deposit is the explicit price and free checking services or gifts are implicit price. Real price is the explicit price less transaction cost. Usually the data on transaction cost are unavailable. Number of bank branch and index of road and transport can be used as the proxy of transaction cost. Income has significant impact on rural deposit. The higher the income of rural household, the higher will be the ability to demand interest bearing deposits. The “permanent income” is assumed to offer a better influence of income than the “absolute income” hypothesis. Before we estimate the impact of different factors on rural deposit and stock market development, it was necessary to perform test of heteroscedasticity. Heteroscedasticity exists when the error terms do not have a constant variance across entire range of values. Goldfeld-Quandt test was used to test for heteroscedasticity. A heteroskedastic error assumption is:

$$Var(e_i) = \begin{cases} \sigma_1^2 & (\text{for lower group}) \\ \sigma_2^2 & (\text{for higher group}) \end{cases}$$

with $\sigma_1^2 < \sigma_2^2$

To test for this form of heteroskedasticity consider the one-sided test:

$$H_0 = \sigma_1^2 = \sigma_2^2 \text{ against } H_1 = \sigma_1^2 < \sigma_2^2$$

The model used in the study is $D = f(BBR, DIR, RTI, PY, TY)$ and can be specified as follows:

$$D_i = a + b_1 BBR + b_2 DIR + b_3 RTI + b_4 PY + b_5 TY + \epsilon_i$$

Data have been collected from Bangladesh Bureau of Statistics and Statistics Department of Bangladesh Bank, SPSS and Microsoft Excel have been used for data analysis.

RURAL BANKING SYSTEM IN BANGLADESH

Just after the liberation of Bangladesh, the whole banking system (excepting a few foreign bank branches) was restructured and nationalized. During 1972-1982, the banking system used to operate under a period of rigid government control and central bank regulations. During the period, the banking system expanded very rapidly, especially for providing banking and credit services in the rural areas.

The rural banking system in Bangladesh witnessed a significant change due to the supply-leading financial strategy followed by the government. “Two-for-one” branching policy has been adopted by Bangladesh Bank since 1978 to disburse cheap rural credits more effectively. As per this guideline, the number of rural bank branches will be minimum 50 per cent of the total branches approved in a calendar year.

Table 1: Bank Branches and Rural Deposit

| Year | Bank Branch | | Rural Deposit (Billion Taka) |
|------|-------------|-------|---------------------------------|
| | Rural | Urban | |
| 2000 | 3585 | 2435 | 165.77 |
| 2001 | 3658 | 2453 | 171.96 |
| 2002 | 3695 | 2516 | 190.79 |
| 2003 | 3732 | 2586 | 192.04 |
| 2004 | 3773 | 2652 | 218.26 |
| 2005 | 3844 | 2752 | 241.52 |
| 2006 | 3905 | 2842 | 262.95 |
| 2007 | 4002 | 2934 | 305.16 |
| 2008 | 4139 | 3062 | 355.51 |
| 2009 | 4397 | 3267 | 418.79 |
| 2010 | 4393 | 3265 | 486.33 |
| 2011 | 4551 | 3410 | 597.25 |
| 2012 | 4760 | 3562 | 746.18 |
| 2013 | 4974 | 3701 | 934.17 |

Source: Statistics Department, Bangladesh Bank, Head Office.

In the late 1980s and early 1990s, relative share of rural banking declined after the adoption of banking reform measures. The share of the branches in the rural areas has gradually declined. A substantial number of loss making rural branches of NCBs were transferred to Bangladesh Krishi Bank (BKB). The provision of credit by the rural bank branches was low as compared to their deposit mobilization.

Rural banks typically provide four types of deposits. They are— current deposit, time demand deposit, savings, and term deposits with different maturity periods. Current deposit is non-interest bearing and others are interest bearing. Until 1992, interest on deposit was set by the central bank. From 1993 Bangladesh Bank liberalized the interest rates on rural deposit. The share of rural branches started to increase from late 1990s.

Table 2: Weighted Interest Rate for Rural Deposit in Bangladesh as on 30 September 2014

| Banks | All Deposits | Savings Deposits | Special Notice Deposits | Fixed Deposits | For Less than 6 Months | For 6 Months to Less than 1 Year | For 1 Year to Less than 2 Years | For 2 Years to Less than 3 Years | For 3 Years and Above | Other Deposits |
|---------------------|--------------|------------------|-------------------------|----------------|------------------------|----------------------------------|---------------------------------|----------------------------------|-----------------------|----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| All Banks | 7.30 | 4.71 | 5.17 | 9.89 | 8.85 | 9.63 | 10.38 | 10.45 | 11.47 | 3.90 |
| State owned Banks | 7.10 | 4.87 | 5.18 | 10.33 | 8.90 | 9.95 | 10.28 | 10.50 | 11.72 | 3.00 |
| Private Banks (a+b) | 7.24 | 4.51 | 5.17 | 9.70 | 8.82 | 9.48 | 10.42 | 10.09 | 11.33 | 4.12 |
| a) Domestic | 7.50 | 4.64 | 5.40 | 9.75 | 8.85 | 9.68 | 10.52 | 9.85 | 11.33 | 4.62 |
| b) Foreign | 3.94 | 2.95 | 3.61 | 8.63 | 8.11 | 7.07 | 9.10 | 10.59 | 10.09 | 0.38 |
| Specialized Banks | 9.05 | 6.39 | 5.18 | 10.35 | 9.42 | 9.95 | 10.35 | 10.61 | 12.00 | 5.59 |
| Islamic Banks | 7.72 | 4.85 | 3.95 | 9.74 | 9.02 | 9.92 | 10.78 | 9.08 | 10.21 | 5.70 |

Source: Statistics Department, Bangladesh Bank, Head Office.

RESULT AND DISCUSSION

Before we estimate the relationship between deposit mobilization, income, transaction cost and deposit interest rate, it was necessary to perform test of heteroscedasticity on the time series variables. Heteroscedasticity exists when the error terms do not have a constant variance across entire range of values. Goldfeld-Quandt test was used to test for heteroscedasticity.

The sample is divided into three ranges containing the 3/8 of the observations with the smallest values of the X variable, the 3/8 of the observations with the largest values, and 1/4 in the middle. In the present case with 15 observations, the lower, middle, and upper ranges have 6, 3 and 6 observations, respectively.

Table 3: Goldfeld-Quandt Test

| Variables | BBR | DIT | RTI | PY | TY |
|-------------------------|---------|--------|---------|---------|----------|
| RSS _{High} | 2373.26 | 135.78 | 4679.89 | 4679.89 | 32975.97 |
| RSS _{Low} | 380.20 | 113.26 | 2156.50 | 1216.82 | 28666.53 |
| F | 6.24 | 1.20 | 2.17 | 3.85 | 1.15 |
| Table F _{0.95} | 6.39 | 6.39 | 6.39 | 6.39 | 6.39 |

Heteroscedasticity was rejected since $F < F_{0.95}$, that suggests that error terms had a constant variance across entire range of values.

A regression model was developed to analyze the influence of the factors on demand for rural deposit in Bangladesh. The relationship between deposits and BBR is expected to be negative. Except for RTI, all other variables- permanent income, transitory income, deposit interest rate are likely to have- significantly positive signs in the interest bearing deposit equation. Similarly, the deposits are expected to be positively influenced by number of bank branches and roads and vehicles. The regression equation assumes that expected error is zero and the observations are independent.

Table 4: Model Summary

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|------|----------|-------------------|----------------------------|---------------|
| .936 | .876 | .814 | 58.57 | 1.86 |

Table 5: ANOVA

| | Df | SS | MS | F | Significance F |
|------------|----|--------|-------|-------|----------------|
| Regression | 5 | 241770 | 48354 | 14.10 | 0.0003 |
| Residual | 10 | 34300 | 3430 | | |
| Total | 15 | 276070 | | | |

Table 6: Coefficients

| | Coefficients | t Stat | P-value |
|-----------|---------------------|---------------|----------------|
| Intercept | 2221.47 | 2.32 | 0.00 |
| BBR | -82.67 | -2.28 | 0.03 |
| DIR | 2435.14 | 3.17 | 0.01 |
| RTI | -1729.41 | -6.28 | 0.01 |
| PY | 0.0103 | 4.28 | 0.00 |
| TY | 0.0081 | 3.11 | 0.01 |

From the coefficients table desired equation was found. The equation is:

$$D_i = 2221.47 - 82.67(BBR) + 2435.14(DIR) - 1729.41(RTI) + 0.0103(PY) + 0.0081(TY)$$

All structural coefficients for the interest bearing deposit equation had the expected signs. $b_1 = -82.67$ indicated that if the adult rural population per rural bank branch increases by 1 unit the rural deposit decreases for -82.67 billion taka provided that rest of the independent variables remain unchanged. From the coefficients table b_1 was statistically significant because it was significant at 0.03 or 3% level which was less than 0.05 or 5% level. Moreover the calculated t-value also showed that b_1 was statistically significant; $t_c = -2.28 < \pm 2.145$. $b_2 = 2435.14$ indicated that if the weighted deposit interest rate increases by one percent the rural deposit increases for 2435.14 billion taka provided that rest of the independent variables remain unchanged. b_2 was also statistically significant because it was significant at 0.01 level, which was less than 0.05 or 5% level. Moreover the calculated t-value also showed that b_2 was statistically significant; $t_c = 3.17 > \pm 2.145$.

Again $b_3 = -1729.41$ indicated that if the road transport index increases for 1 unit the rural deposit decreases for 1729.41 billion taka provided that rest of the independent variables remain unchanged. Besides coefficients for income related variables provided positive relationship with the deposit. b_3 was also statistically significant because it was significant at 0.01 level, which was less than 0.05 or 5% level. Moreover the calculated t-value also showed that b_3 was statistically significant; $t_c = -6.28 < \pm 2.145$. Here, $b_4 = 0.0103$ indicated that if permanent income increases by one crore taka the rural deposit will increase by 0.0103 billion taka provided that rest of the independent variables remain unchanged. b_4 was also statistically significant because it was significant at 0.00 level, which was less than 0.05 or 5% level. Moreover the calculated t-value also showed that b_4 was statistically significant; $t_c = 4.28 > \pm 2.145$. Finally, $b_5 = 0.0081$ indicated

that if transitory income increases by one crore taka the rural deposit will increase by 0.0081 billion taka provided that rest of the independent variables remain unchanged. b_5 was also statistically significant because it was significant at 0.001 level, which was less than 0.05 or 5% level. Moreover the calculated t-value also showed that b_5 was statistically significant; $t_c = 3.11 > \pm 2.145$.

The relationship between the variables was explained by the help of multiple coefficients of correlation (R). From the model summary table it was evident that $R=0.936$ which indicated a high degree of positive relationship between the variables. The explanatory power of the independent variables was assessed with the help of the coefficient of determination (R^2). The regression statistics table indicated $R^2=0.876$. This indicated that 87.6% of the variation in rural deposit can be explained by the independent variables.

Durbin-Watson test was also conducted to test the autocorrelation. The test provided an inconclusive result. From the model summary table it was evident that $DW=1.86$ which lied in between the lower and upper bound of table value. Here the table values were, $d_L=0.56$ and $d_U=2.21$.

The relative power of influence of the independent variables was measured with the help of standardized beta coefficient. From the coefficients table it was evident that road transport index (RTI) has more influence on the rural deposit followed by weighted deposit interest rate (DIR) and rural bank branch (BBR). ANOVA table showed that the results are statistically significant because they are significant at 0.0003 level, which was less than 0.05 or 5% level.

CONCLUSION

Several important findings materialized in this study of rural interest bearing deposits in Bangladesh. The study revealed that transaction costs are important in explaining rural depositor behavior. The indirect measures of rural branches and rural roads and vehicles were available for use as proxies of transaction costs. The expansion of banking facilities is the key factor in rural deposit mobilization because easier physical access should reduce transaction costs for depositors.

It was also found that roads and vehicles directly influence interest bearing deposits because of the reduction in depositor transaction costs through reduced time spent in travelling to and from bank branches. The development of the rural financial system needs to be recognized as one of the benefits of improved rural roads. If government resources are not adequate for expanding public transport services, then private investors should be encouraged to expand transport facilities.

Rapid growth of mobile phone users and the country wide coverage of mobile networks have induced financial institutions to provide mobile financial services to the clients. In 2011, Bangladesh bank has introduced the operating guidelines on Mobile Financial Services for the scheduled commercial banks and their

subsidiaries operating in Bangladesh. The banks need to follow these guidelines properly so that the unbanked population of the rural areas gets better access to financial services at an affordable cost. Banks also need to place more stress on providing better services to depositors which include more efficient systems to reduce paper work, simplification of procedures, and more cordial relationships between bank employees and depositors, especially in rural areas, where people are less aware of banking services.

REFERENCES

- Alade, S. O. (2006). "Enhancing Long-term Savings Culture in Nigeria Through National Saving Certificate", *CBN Bullion*, Vol. 30, No. 1, Jan-March.
- Alamgir, M. (1974). "Some Analysis of Distribution of Income, Consumption, Saving and Poverty in Bangladesh", *Bangladesh Development Studies*, Vol. 2, No. 4, October.
- Blanco, R. and Meyer, R. L. (1988). "Rural Deposit Mobilization in the Philippines 1977-1986", PIDS Working Paper, 8815. Manila: PIDS.
- Frimpong-Ansah, J. H. (1992). "*Savings for Economic Recovery in Africa*", African Centre for Economic Policy Research.
- Ijaiya., M. A. (2008). "Rural Bank Credits and Deposits Mobilization in Nigeria", *Optimization Journal of Research in Management*, Vol. 1, No. 1, pp.34-40, G. T. Baja Institute of Management and Research, Greater Noida, India.
- Khalily, M. A. B. and Meyer, R. L. (1992). "Factors Influencing the Demand for Rural Deposits in Bangladesh: A Test for Functional Form", *The Journal of Developing Areas*, Vol. 26, pp.71-82.
- Khalily, M. A. B., Meyer, R. L. and Hushak, L. J. (1987). "Deposit mobilization in Bangladesh: Implications for Rural Financial Institutions and Financial Policies", Economics and Sociology Occasional Paper No. 1360.
- Koutsoyiannis, A. (1985). "*Theory of Econometric*", Macmillan Press, London.
- Nyong, M. (1993). "Income and Interest Rate Elasticities of the Demand for Money in South Africa: Comments and Extension", *The Indian Economic Journal*, Vol. 41, No. 1, pp.83-89.
- Olashore, O. (1979). "*Rural Banking: Strategies and Policies of Government and the Central Bank of Nigeria*", Central Bank of Nigeria Bullion.
- Paulson, R. and Andrews, J. (1998). "*Financial Services for the Urban Poor*", The World Bank. Washington D.C.
- Porter, R. (1996). "The Promotion of the Banking Habit and Economics Development", *Journal of Development Studies*, Vol. 2, No. 4, pp.347-368.
- U.S. Agency for International Development (2005). "Innovations in Rural Deposit Mobilization", Retrieved on December 12, 2014 from <<http://www.ruralfinance.org/>>
- Wannocott, R. and Wonnocott, T. H. (1972). "*Econometrics*", John Wiley & Sons, New York.
- Yaron, et al. (1997). "Rural Finance: Issues, Design and Best Practices." The World Bank. Washington D.C.