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Channels of financial sector development and rural-urban consumption inequality in India

Abstract

Purpose – To examine the direct (microcredit), medium-direct (bank credit), and indirect (through economic growth) effect of financial sector development (FSD) on rural-urban consumption inequality (RUCI) in India using state-wise annual data from 1999-00 to 2011-12.

Design/methodology/approach – A panel data analysis for a sample of 15 major Indian states using the generalized method of moments estimators provides an empirical evidence for the direct (microcredit), medium-direct (bank credit), and indirect (economic growth) effect of FSD on RUCI.

Findings – FSD is pro-urban in India resulting in a declining rural-urban consumption ratio (RUCR) and increasing RUCI. The negative effect of FSD on RUCR is greatest through the medium-direct channel followed by the indirect and direct channel.

Research limitations/implications – The study questions the social banking initiatives of the government in rural areas where more than 80 percent of the poor reside. There is a need for restructuring financial inclusion programmes with a shift in their focus on rural areas and an improved mechanism to target the poor.

Originality/value – The paper proposes that formal financial services by banks are primarily availed by non-poor and urban population and hence acts as a medium-direct channel whereas the semi-formal financial services by microfinance institutions specifically target the rural poor and act as a direct channel to affect the poor. It is the first ever study to use state-wise data on microcredit disbursed under Self-help Group Bank Linkage Programme to assess the direct impact of FSD on RUCI.

Keywords: Financial sector development; Inequality; Microcredit; SBLP

Paper Type: Research Paper

1. Introduction

The relationship between financial sector development (FSD) and poverty reduction in developing countries has received much attention in recent times. The two key channels of financial development to affect income inequality and poverty levels are economic growth (the indirect channel) and the access to finance channel (the direct one). The linkage between FSD and economic growth through efficient allocation of savings and enhancement of productivity has been extensively examined (e.g. Goldsmith, 1969; King and Levine, 1993; Calderon and Liu, 2003; Kar *et al.*, 2011; Menyah *et al.*, 2014). Extending the finance-growth nexus, researchers also examined the indirect link between FSD and poverty reduction/income inequality through economic growth (Beck *et al.*, 2004; Honohan, 2004; Odhiambo, 2009; Ang, 2010; Tiwari *et al.*, 2013).

Another set of studies that examined the direct effect of FSD on poverty through improved access to finance include McKenzie *et al.* (2008), Akhter and Daly (2009), Bruhn and Love (2014) and Sehrawat and Giri (2015a). Poor households benefit from financial sector when they have access to financial services but their access to formal financial services offered by banks in developing countries is very limited, forcing them to use different informal sources of finance. Information asymmetry and high fixed costs of borrowing act as the key barriers to poor people's access to formal finance (Stiglitz, 1999). Also, financial institutions evaluate prospective clients on their entrepreneurship and lend those who have highest chances of successful repayment (Agenor, 2004) and thus primarily benefit the rich. A series of studies conducted by Allen *et al.* (2005/2012a/2012b) document the insignificant contribution of the formal financial sector compared to the informal financial sector in developing countries such as India, China, and Kenya.

In India, despite much efforts, the access to formal credit by banks to India's rural poor has always been very limited (Basu and Shrivastava, 2005). The nationalization of banks in 1969 and 1980 resulted in opening up of bank branches in the farthest of the rural areas. However, the desired results have never been obtained (Murty, 2008). The cited reasons include unmet farm credit needs (Choubey, 1983), exclusion of the 'poorest of the poor' (NABARD, 1999), reduced resource allocation to priority sector on the agricultural credit (Gundannavar, 1992), and expansion of rural bank branches being 'quantitatively impressive but qualitative weak' with unprofitability and excluding the poorest as the two key drawbacks (Misra, 2006). On the other hand, lending to the urban population has always been considered a profitable

business by the commercial banks with 91 percent of the total credit by commercial banks being disbursed in urban areas (Reserve Bank of India, 2015).

Emergence of microcredit in 1991 was a significant development in India's financial sector. Since then, the microcredit lending in India has registered a tremendous growth crossing the mark of Rs. 48882 crore and benefitting more than 37 million clients as of March 2015 (The Bharat Microfinance Report, 2015). The microfinance sector has witnessed tremendous growth and gained much attention of the policymakers across regions and yet there is no clear evidence of its positive impact on target clients (Armendariz de Aghion and Morduch, 2005). A review of the existing impact assessment studies of microfinance services provides mixed evidence (Khandekar et al, 1998; Morduch, 1998; Chen and Snodgrass, 1999; Coleman, 1999; Gaonkar, 2001; Develtere and Huybrechts, 2002; Khandekar, 2003). The rural poor in India find it difficult to make use of microloans for setting up new businesses (Kalpana, 2008). The key reasons include insufficient loan amount to cover the initial investment (Gadenne and Vasudevan, 2007), lack of productive investment opportunities and poor quality of human resource in terms of education, training, etc to be used as inputs with microcredit (Fisher and Sriram, 2002). When the loan amount is insufficient and the borrowers are not able to make appropriate use of the borrowed funds, they borrow from multiple sources. This happened in Andhra Pradesh in India (2010) which resulted in the use of unethical practices by microfinance institutions to recover loans which lead to a series of suicides by the borrowers. The entrepreneurial nature of the borrower also plays an important role in realising benefits out of access to microloans (Christen, 1997). A study conducted in Tamil Nadu in India found that only less than two percent of the microenterprises that were started three years back were found operating and rest were shut down (George, 2005).

The existing literature on the finance-growth-poverty nexus discusses the indirect (through economic growth) and direct channels (better access to financial services) through which the FSD affects the poor. This paper goes one step further and proposes that formal financial services provided by banks is primarily availed by non-poor and urban population and hence act as a medium-direct channel to affect the poor whereas the microfinance services provided by microfinance institutions and banks specifically target the poor households and hence act as a direct channel to affect the poor. This paper attempts to provide empirical evidence for the impact of the three channels of financial sector development viz. direct (microcredit), medium-direct (bank credit), and indirect channel (economic growth) on rural-urban

consumption inequality in Indian states. The unique feature of the paper is that it is the first ever study to make use of state level data on microcredit disbursed under Self-help Group Bank Linkage Programme (SBLP) to assess its impact on the poor. Considering the possibility of an endogeneity bias, we use the generalized method of moments (GMM) estimators (Hansen, 1982) and perform a panel data analysis for a sample of 15 major Indian states[1] over the period 1999-00 to 2011-12[2]. The selected states together account for about 90 percent of the total microcredit disbursed under the Self-help Group Bank Linkage Programme, about 80 percent of the outstanding credit and deposits by scheduled commercial banks and more than 90 percent of the total population of India.

2. Literature review

2.1 FSD, Economic Growth, and Poor (Indirect Channel)

Financial development affects the poor when financial development facilitates economic growth which in turn increases their income and consumption levels. Such an indirect effect of financial development on the poor is observed when the growth is pro-poor in nature. There are several channels through which growth benefits the poor such as creation of more jobs, reduction in wage differentials between skilled and unskilled workers at a certain phase of development which benefits poor people (Galor and Tsiddon, 1996), increased tax revenues which result in higher social spending which benefits the poor and also allows them to invest in human capital (Perotti, 1993), and increased capital accumulation that facilitates availability of more funds for investment for the poor (Aghion and Bolton, 1997). A few very recent cross-country and country level studies have pointed out that FSD positively affects the poor by bringing structural changes in the economy which increases employment opportunities (affects labour market) and reduces poverty and inequality (see Beck *et al.*, 2010; Pagano and Pica, 2012; Ayyagari *et al.*, 2013).

The two conflicting theories with respect to the growth-inequality relationship are the Kuznets's inverted-U hypothesis postulated by Kuznets (1955/1963) and the "trickle down" theory. While the former suggests that as economy grows, income inequality increases at the early stage of development and reduces at a later stage of industrialization; the latter suggests that growth reduces inequality through creation of jobs and other economic opportunities for the poor people (Todaro, 1997). Despite conflicting theories, several researches have reached to a consensus that higher rates of economic growth result in rapid poverty/inequality

reduction over a longer period of time (e.g. Datt and Ravallion, 1992; Dollar and Kraay, 2002; Eastwood and Lipton, 2002; Klasen, 2003).

2.2 FSD and the Poor (Medium-direct Channel)

Well functioning financial sector alleviates poverty directly by providing access to formal financial services to the poor who lack resources to fund themselves or collateral to obtain a bank loan because of information asymmetries (Banerjee and Newman, 1993; Galor and Zeira, 1993). Financial development, on the one hand, improves the access to formal finance by the poor by reducing the market failures such as information asymmetry and high fixed costs of lending to small and marginal borrowers (Jalilian and Kirtpatrick, 2005) and on the other hand encourage them to make use of various credit and insurance services to acquire productive assets which improves their productivity and income and helps them to achieve sustainable livelihoods (Mundial, 2001; DFID, 2004). In addition to credit and insurance, savings too benefit the poor (Odhiambo, 2010a). Studies that support the view that FSD reduces poverty and income inequality by allowing the poor to participate and benefit from financial activities through borrowing and investing in human and physical capital include Mookherjee and Ray (2003/2010), Odhiambo (2010b) and Shahbaz and Islam (2011) . However, another contradictory view argues that the rich and those with political influence largely benefit from the developed financial sector (Haber, 2005) especially at the early stages of FSD (Greenwood and Jovanovic, 1990). The poor who do not have enough collateral to offer are excluded by formal financial institutions due to adverse selection and moral hazard problems resulting in only rich people having access to formal financial services (Rajan and Zingales, 2004).

In India, Burgess and Pande (2005) attempted to examine the impact of large scale expansion of bank branches in rural unbanked locations during 1970s and 1980s. They found significant reduction in poverty with rural headcount ratio reduced by 17 percent. However, Kochar (2005) produced contradictory results using the instrumental variable-fixed effect (IV-FE) regression on district level bank branch data. It was found that increase in the number of bank branches had increased the consumption inequality and benefitted non-poor more significantly than the poor. Similarly, Panagariya (2006) also doubts the findings of Burgess and Pande (2005). Thus, whether the direct access to finance provided by financial institutions reaches and affects the poor is still an open question.

2.3 FSD and the Poor (Direct Channel)

The sceptical evidence on the accessibility of finance by the poor attracted the interest of policymakers in the potential role of financial products and services dedicated to poverty alleviation in developing countries. The introduction of microcredit by Muhammad Yunus in Bangladesh led to a significant shift in the development strategy of policymakers from mere financial development to financial development with poverty reduction in developing countries. The idea of microcredit has come a long way and also includes credit-plus services such as savings, insurance, leasing, etc. The whole range of financial services is collectively termed as ‘microfinance’.

Microfinance, in recent times, has gained much popularity, however, a review of the existing impact assessment studies of microfinance services provides contradictory evidences. The positive effect of microfinance in terms of increased income for the target clients is documented in Khandker (1998/2001) and Wright (2000) and reduced vulnerability is documented in McCulloch and Baulch (2000). At household level, the positive impact of microfinance has been observed in the form of improvement in schooling, nutritional intake, health outcomes, and women empowerment (see Banerjee *et al.*, 2009; Karlan and Zinman, 2010). Studies questioning the positive effects of microfinance include Adams and von Pischke (1992) and Rogaly (1996). Another set of studies that support positive contribution of microfinance reveal that the positive impact is highest for the households that are closer to poverty line (Morduch and Haley, 2002), that are already better-off (Remenyi and Quinones, 2000; Coleman, 2006) or belong to the upper caste group (Mukherjee, 2015). This results in a decreasing proportion of poorest clients being served (Navajas *et al.*, 2000). Hulme and Mosley (1996) question the ability of microfinance to reach the ‘poorest of the poor’ whereas Khandker (1998) and Rutherford (2000) find evidence in support of microfinance reaching the poorest. Mukherjee (2014) argues that microfinance programmes in India have made credit accessible only to the working poor and excludes the ultra poor. Another issue is that several studies look at the immediate impact of microfinance at household level and ignore the inter-temporal nature of credit. The evidence produced by such studies cannot be considered as sufficient proof. Also, there are chances that any positive impact at household level is a mere redistribution within different participating and non-participating households in a particular region with no significant positive impact at the regional level.

Thus, the literature on financial development and poverty suggests that financial sector development affects inequality and poverty through three channels: indirect, medium-direct, and direct (Figure 1). Indirect link flows through its impact on economic growth (when the growth is pro-poor). The impact is medium direct when banks provide access to full range of financial services primarily to the lower-middle income group and above (non-poor) which provides employment opportunities to all including the poor and thus helps everyone enhance their income levels. Financial services have direct impact on inequality and poverty when the microfinance services are provided directly into the hands of the poor by microfinance institutions or banks and thus enable them to make productive investment resulting in increase in their income and consumption levels.

[Insert Figure 1 here]

The present study attempts to answer whether there is any evidence of the impact of various channels of FSD on RUCI in India and tries to find out evidence of any mismatch between the nature of each channel and their actual impact on RUCI.

3. The model

In order to assess the direct, medium-direct, and indirect impact of FSD on RUCI, the paper uses panel data of 15 major Indian states over the period 1999-00 to 2011-12. The dependent variable is inflation-adjusted rural-urban consumption ratio (RUCR), while the explanatory variables are microcredit intensity, bank credit, bank deposit, rural population share, and output growth in the state. The econometric models considered in the paper are as follows:

$$\text{Model 1: } RUCR_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 EG_{it} + \beta_3 RPOP_{it} + \mu_{it} \quad \dots(1)$$

$$i = 1, 2, \dots, N : t = 1, 2, \dots, T$$

where $RUCR_{it}$ is the ratio of inflation-adjusted rural to urban consumption expenditure in state i at time t ; FD_{it} includes two measures of financial development viz microcredit (MC_{it}) and bank credit/deposit (BC_{it}/BD_{it}) which indicate the direct and medium-direct channel of financial development respectively, EG_{it} is economic growth representing the indirect channel of financial development, $RPOP_{it}$ is rural population share as the control variable, and μ_{it} is the error term in state i at time t .

Model 1 uses RUCR which is a limited dependent variable, i.e., it takes values from 0 to 1. The standard regression technique requires the dependent variable to take values from minus infinity to plus infinity. Therefore, in order to avoid the violation of this assumption, the paper uses the logit transformation of RUCR as follows:

$$y_{it} = \ln\left(\frac{RUCR_{it}}{1-RUCR_{it}}\right) \quad \dots(2)$$

In equation (2), when $RUCR_{it}$ approaches 0, y_{it} approaches minus infinity. If $RUCR_{it}$ approaches 1, y_{it} approaches plus infinity. This allows the use of standard regression technique without violation of any of its assumption in Model 2.

$$\text{Model 2:} \quad \ln\left(\frac{RUCR_{it}}{1-RUCR_{it}}\right) = \beta_0 + \beta_1 FD_{it} + \beta_2 EG_{it} + \beta_3 RPOP_{it} + \mu_{it} \quad \dots(3)$$

$$i = 1, 2, \dots, N : t = 1, 2, \dots, T$$

This paper uses both the equations (1) and (3) to estimate the effect of the channels of financial development on rural-urban consumption ratio which also helps us check the robustness of the empirical results obtained.

While analysing the finance-poverty relationship, there is a need to investigate the endogeneity or reverse causality issue. In simple terms, it may be argued that bank credit or microcredit is driven by the level of MPCE which is also an indicator of income of a household in a particular region. In order to overcome the endogeneity problem, the paper uses the generalized method of moments estimators to estimate each parameter. A constant term and the lagged value of each explanatory variable is used as instrumental variable[3] in the regression models.

4. Data and key statistics

4.1 Data

4.1.1 Dependent variable: People in rural areas use a substantial part of their income for consumption expenditure which has an inverse relation with poverty after controlling for inflation. Thus, consumption expenditure provides a good proxy for poverty. State-wise average rural and urban MPCE is taken from rounds of National Sample Surveys (NSS) on Income and Expenditure for the period 1999-2000 to 2011-12. Since the MPCE data reported

by households has inflation implicit in it, this paper uses Consumer Price Index for Agricultural Labourers (CPIAL) and the Consumer Price Index for Industrial Workers (CPIIW) to adjust the MPCE for rural and urban areas respectively for inflation. Lastly, a ratio of inflation adjusted rural and urban MPCE for each state is computed and termed as inflation-adjusted RUCR which acts as a measure of rural-urban consumption inequality in our analysis.

4.1.2 Independent variables

Since microcredit is predominantly a rural phenomenon, it is expected that states with higher microcredit intensity have higher income and consumption levels in rural areas. This is expected to bridge the gap between the consumption levels of rural and urban areas and reduce the RUCI. The data on state-wise gross microcredit as a proportion of net state domestic product (MFRATIO) is taken from the annual status of microfinance in India reports published by National Bank for Agriculture and Rural Development (NABARD).

A substantial portion of bank credit goes to the urban areas and to the non-poor section of the society and hence has a medium-direct effect on poor section of the society. We use gross credit by commercial banks as a proportion of NSDP as another explanatory variable following Akhter and Daly (2009) and Jeanneney and Kpodar (2011). The data is taken from Reserve Bank of India (RBI) database.

Another measure of medium-direct effect of FSD introduced in the paper is bank deposit. The rationale behind using bank deposit comes from the Mckinnon's conduit effect given in 1973 which says that when the financial markets are not deep enough to provide credit to the poor, the financial institutions still play a crucial role by providing profitable savings opportunity to the public. Hence, savings before credit can also be beneficial for the poor. The paper uses deposits as a proportion of NSDP taken from RBI database.

FSD indirectly reduces poverty through its positive effects on economic growth. Economic growth disproportionately benefits the poor when the growth is pro-poor in nature. However, many contradictory studies suggest that growth has equal effect on the poor as well as on non-poor (e.g. Li *et al.*, 1998; Dollar and Kraay, 2002) or growth increases income inequality (Jeanneney and Kpodar, 2011). Thus, in order to analyse the indirect effect of growth, per

capita net state domestic product (PCNSDP) growth from RBI database is used as another explanatory variable.

Size of the population in rural areas is controlled for by including the share of size of rural population in total population of the respective state following Haughton *et al.* (2001) and Nguyen *et al.* (2007). The data on state-wise population is taken from Census India reports.

4.2 Descriptive statistics and correlations

The summary statistics and the correlations of the variables considered in this study are presented in Table I, II, and III. There is a huge gap in the mean rural and urban MPCE which also gets reflected in mean RUCR (0.62) (Table I). The average bank credit and deposits are more than eighty times greater than the average microcredit disbursed under SBLP. On an average, about 70 percent of the total population of India resides in rural areas.

[Insert Table I here]

It is interesting to note that all the three channels of financial development viz. microcredit, bank credit/deposit, and economic growth have a significant positive association with rural and urban MPCE (Table II). However, a comparison of the association of financial development between rural and urban MPCE suggests that urban areas seem to enjoy greater benefits of financial development in terms of increased consumption levels compared to rural areas.

[Insert Table II here]

Table III suggests that all the three channels of financial development have a significant negative association with RUCR. This means that any increase in the financial development variables seems to reduce the rural-urban consumption ratio increasing the rural-urban consumption inequality. The results are in line with the results shown in Table II. Another interesting point to note is that the medium-direct channel of FD (i.e. bank credit and deposit) seems to have the greatest negative effect on consumption inequality followed by direct (microcredit) and indirect channel (economic growth). An increase in rural population too seems to have a negative effect on RUCR.

[Insert Table III here]

5. Empirical results and discussion

Table III suggests that the three measures of financial development (microcredit, bank credit, and bank deposit) are highly correlated with each other. Therefore if we include them all together as independent variables in the same regression equation, we may run into the problems of multicollinearity. To avoid this problem, this paper includes each financial development variable in a separate regression equation. This approach enables us to obtain more precise estimates of the impact of each of the financial development variables. The paper, thus, has a total of six regression equations. The first three equations use RUCR as the dependent variable and each of the three financial development variables as independent and the remaining three equations use log transformation of RUCR as the dependent and each of the three financial development variables as independent.

The results of the empirical investigation are shown in Table IV and V using rural-urban consumption ratio and its logit transformation, respectively. The coefficient value of the estimates along with the SEs in parentheses is given in both the tables. The endogeneity of the explanatory variables is checked by Durbin-Wu-Hausman test (Durbin, 1954; Wu, 1973/1974; Hausman, 1978), the p-value of which is reported in both the tables. The null hypothesis for the test is that all the explanatory variables in the equation are endogenous and exogeneity of the explanatory variables being the alternative hypothesis. The p-values associated with Durbin-Wu-Hausman test provided in both the tables suggest that the null hypothesis of endogenous explanatory variables for all the cases is not rejected and thus supports the use of GMM.

The results in Table IV show that the overall effect of FSD across Indian states is pro-urban resulting in increasing rural-urban consumption inequality. The direct channel of financial development, i.e., microcredit, has a statistically significant negative coefficient (-0.211). Thus, an increase in the microcredit lending reduces the rural-urban consumption ratio and increases the rural-urban consumption inequality. Despite huge growth in the microcredit lending both in the rural and urban areas and despite the fact that nearly 77 percent of the total microcredit clients under SHG bank linkage programme in India are in the rural areas (Pradeep and Garg, 2013), microcredit seems to be benefitting the urban population more than it does to the rural population.

Similar results are obtained for the medium-direct channels of financial development, i.e., bank credit (-1.793) and deposit (-0.917). Both the measures have a significant negative coefficient which confirms that expansion of banking services, both deposit and loans, benefit the urban population more than the rural population. It is interesting to note here that the case for banking services is different with that of the microcredit. While microcredit lending is predominantly a rural phenomenon, bank deposit and credit is predominantly an urban phenomenon and yet the effect of both is pro-urban. This suggests that the barriers to make use of the borrowed funds, that the rural population is faced with, still remain there and it does not matter how much and through what channel they obtain the funds. Even the growth process across states has been pro-urban with greater positive effects of economic growth on urban consumption compared to rural consumption. This is confirmed by the statistically significant and negative coefficients of PCNSDP (-0.384 for case 1, -0.571 for case 2, and -0.396 for case 3) which are regarded as the indirect channel of FSD. This suggests that the benefits of economic growth in terms of increased employment and investment opportunities, reduced wage differentials have accrued more to the urban sector as compared to the rural sector. The results with respect to the medium-direct and indirect link support the findings of few recent works by Tiwari *et al.*, (2013) who conclude that bank credit and economic growth widen the rural-urban income inequality in the long run in India and by Sehrawat and Giri (2015b) who conclude that bank credit and market capitalization along with economic growth has increased the income inequality in India.

A comparison of the coefficient value of all the three channels suggests that the medium-direct channel (bank credit and deposit) has the greatest negative impact on rural-urban consumption inequality followed by the indirect (economic growth) and the direct channel (microcredit). This may be attributed to the size of credit and deposit services availed by the urban population and hence its greatest positive effect being observed in the urban sector. The share of rural population too has a significant negative effect on consumption inequality suggesting that as the population in rural areas increases, rural-urban consumption ratio declines and consumption inequality increases.

[Insert Table IV here]

The logit transformation of rural-urban consumption ratio used as explanatory variable in Table V shows that microcredit being a direct channel of FSD for the poor increases the rural-urban consumption inequality as indicated by a statistically significant and negative

coefficient value (-1.004). Similar results are obtained for the effect of medium-direct and indirect channel of financial development on consumption inequality with a negative coefficient for bank credit (-6.283), deposits (-5.036), and economic growth (-1.031 for case1, -1.223 for case 2, and 1.118 for case 3, respectively). The negative effect of financial development is greatest for the medium-direct channel followed by indirect, and direct channel. All the results are consistent with the results obtained in Table IV. The negative coefficients of rural population share (-0.453 for case 1, -0.312 for case 2, and -0.378 for case 3) are also consistent with Table IV indicating a negative effect increasing rural population on rural-urban consumption inequality.

This once again confirms that the effect of FSD through different channels is pro-urban in nature resulting in a declining rural-urban consumption ratio and increasing rural-urban consumption inequality.

[Insert Table V here]

6. Conclusions and policy implications

This paper divides the access to finance into direct, medium-direct and indirect channels of financial sector development and finds that the effect is pro-urban in nature resulting in a declining rural-urban consumption ratio and increasing rural-urban consumption inequality. Further to the existing studies, the direct link examined in this paper suggests that even microcredit increases the rural-urban income inequality in India.

The results suggest that the efforts being put in by the Government of India to make finance work for the poor have not been effective yet. The pro-urban nature of the finance (whether through growth or credit or microcredit) questions the social banking schemes and programmes being launched by the government specifically in rural areas. Since independence, there have been certain barriers that prevent the rural households from accessing credit or making use of it. With an objective to make banking services accessible to the rural households, a large-scale bank branch expansion programme was launched during 1970s and 1980s. However, unprofitability and reaching out to the poor as well as to the low-income rural households emerged as the key barriers. The launch of the Self-help Group Bank Linkage Programme in 1991 was a significant step towards making finance available and used by the rural population. But the programme soon faced several problems such as

mis-targeting by the financial service providers, self-exclusion by the poor in rural areas, and the debt trap. While the accessibility to financial services in rural areas improved significantly, the appropriate use of the borrowed funds soon emerged as another problem with lack of appropriate economic opportunities and insufficient loan amount being the key obstacles. The huge expenditure being incurred by the government on Self-help Group Bank Linkage Programme, the largest financial inclusion programme in India seems to have failed to deliver the desired results. There is a pressing need for specific policies that remove the barriers being faced by the rural population. Expansion of formal and semi-formal financial services needs to be supplemented with policies that address the problems in accessing the finance and ensure appropriate self-employment opportunities in rural areas to enable the borrowers to make profitable investment.

Notes

1. The states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odhisa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.
2. The study considers the period starting 1999-2000 because the state-wise data on microcredit from NABARD reports is available 1999-2000 onwards.
3. In order to avoid the problem of weak instruments (Bound *et al.*, 1995), we do a correlation analysis of endogenous and instrumental variables and find a strong correlation between the two.

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Figure 1: Channels of financial development and the poor

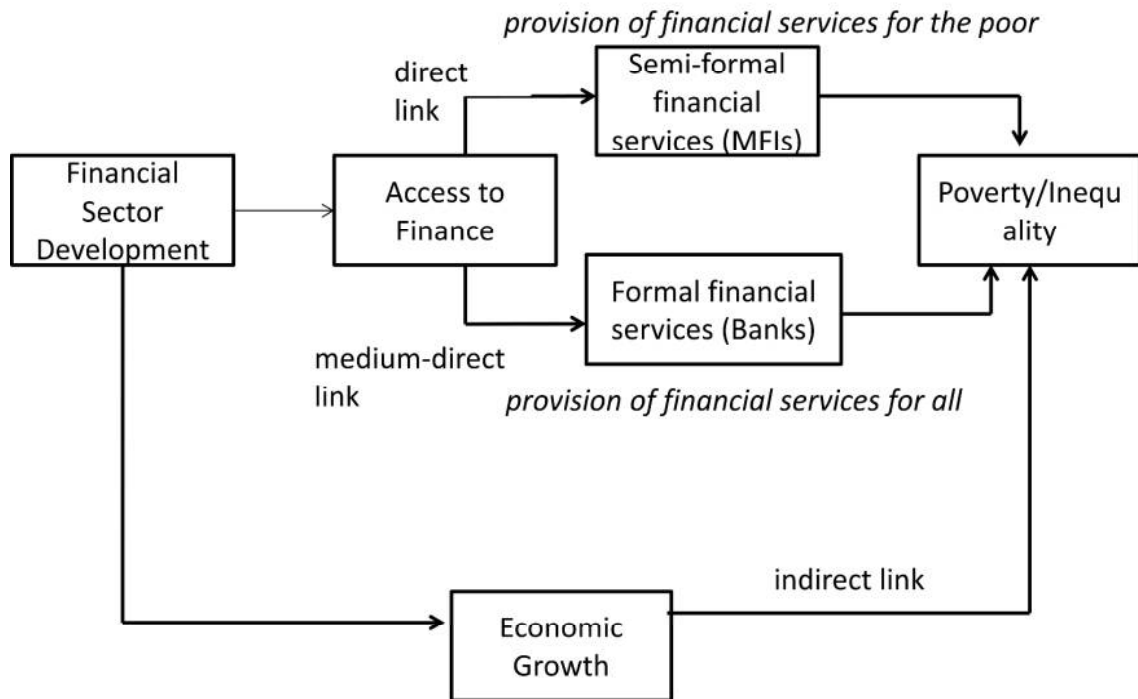


Table I: Summary statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Rural MPCE	165	325.5	1201.9	583.1	153.0
Urban MPCE	165	552.1	1537.7	941.2	192.5
Rural-urban Inequality	165	.4224	.8315	.6208	.0948
Microcredit	165	.0000	.0638	.0063	.0112
Bank Credit	165	.1063	1.9677	.5253	.3222
Bank Deposit	165	.2656	1.5594	.5869	.2010
Rural Population	165	50.51	89.54	70.66	10.59
PCNSDP Growth	165	-.0688	.2574	.1014	.0600

Table II: Correlations between MPCE and FSD variables

	Rural MPCE	Urban MPCE	Microcredit	Bank Credit	Bank Deposit	Rural Population	PCNSDP Growth
Rural MPCE	1						
Urban MPCE	.770***	1					
Microcredit	.146*	.283***	1				
Bank Credit	.287***	.597***	.434***	1			
Bank Deposit	.273***	.473***	.120	.791***	1		
PCNSDP Growth	.206***	.333***	.293***	-.361***	.207***	-.187**	1

*. Correlation is significant at the 0.1 level (2-tailed)

**. Correlation is significant at the 0.05 level (2-tailed)

***. Correlation is significant at the 0.01 level (2-tailed)

Table III: Correlations between the dependent and independent variables

	Rural-Urban Inequality	Microcredit	Bank Credit	Bank Deposit	Rural Population	PCNSDP Growth
Rural-urban inequality	1					
Microcredit	-.141*	1				
Bank Credit	-.276***	.434***	1			
Bank Deposit	-.143***	.120	.791***	1		
Rural	-.087**	-.272***	-.707***	-.490***	1	

Population						
PCNSDP					-0.187**	1
Growth	-0.102*	0.293***	-0.361***	0.207***		

*. Correlation is significant at the 0.1 level (2-tailed)

**. Correlation is significant at the 0.05 level (2-tailed)

***. Correlation is significant at the 0.01 level (2-tailed)

Table IV: Empirical results

$$\text{Model 1: } RUCR_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 EG_{it} + \beta_3 RPOP_{it} + \mu_{it}, \quad i = 1, 2, \dots, N; \quad t = 1, 2, \dots, T$$

	Case 1 (FD = MC)		Case 2 (FD = BC)		Case 3 (FD = BD)	
	Estimate	SE	Estimate	SE	Estimate	SE
Constant	1.254	(0.418)***	1.812	(0.636)***	1.653	(0.591)***
MC	-0.211	(0.625)**				
BC			-1.793	(0.795)***		
BD					-0.917	(0.591)***
EG	-0.384	(0.215)***	-0.571	(0.328)***	-0.396	(0.287)***
RPOP	-0.197	(0.176)**	-0.219	(0.115)**	-0.204	(0.219)**
Durbin-Wu-Hausman test	0.021		0.026		0.029	
<i>J</i> -statistic	0.207		0.264		0.305	
Adjusted <i>R</i> -squared	0.256		0.296		0.214	
Number of observations	165		165		165	

Notes: Dependent variable is rural-urban consumption ratio (*RUCR*). *FD* indicates financial development variables which are *MC*, *BC*, and *BD*. *MC* indicates ratio of gross microcredit to NSDP. *BC* indicates ratio of gross credit by commercial banks to NSDP. *BD* indicates ratio of gross deposits with commercial banks to NSDP. *EG* indicates PCNSDP growth rate. *RPOP* indicates share of rural population in total population of a state.

Numbers in parentheses represent the standard error (SE). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Durbin-Wu-Hausman statistic indicates the probability value of the test. '*J*-statistic' indicates the probability value of the Hansen's *J*-statistic.

Instrumental variables:

Case 1: Constant, MC_{t-1} , EG_{t-1} , $RPOP_{t-1}$

Case 2: Constant, BC_{t-1} , EG_{t-1} , $RPOP_{t-1}$

Case 3: Constant, BD_{t-1} , EG_{t-1} , $RPOP_{t-1}$

Table V: Empirical results

Model 2: $\ln\left(\frac{RUCR_{it}}{1-RUCR_{it}}\right) = \beta_0 + \beta_1 FD_{it} + \beta_2 EG_{it} + \beta_3 RPOP_{it} + \mu_{it}, i = 1, 2, \dots, N; t = 1, 2, \dots, T$

	Case 4 (FD = MC)		Case 5 (FD = BC)		Case 6 (FD = BD)	
	Estimate	SE	Estimate	SE	Estimate	SE
Constant	4.712	(2.339)**	5.139	(2.402)**	4.974	(2.382)**
MC	-1.004	(3.273)*				
BC			-6.283	(2.962)***		
BD					-5.036	(3.114)**
EG	-1.031	(0.491)**	-1.223	(0.527)***	-1.118	(0.502)***
RPOP	-0.453	(0.576)*	-0.312	(0.478)**	-0.378	(0.516)*
Durbin-Wu-Hausman test	0.007		0.019		0.014	
<i>J</i> -statistic	0.207		0.261		0.307	
Adjusted <i>R</i> -squared	0.297		0.314		0.263	
Number of observations	165		165		165	

Notes: Dependent variable is logistic transformation of rural-urban consumption ratio (*RUCR*). *FD* indicates financial development variables which are *MC*, *BC*, and *BD*. *MC* indicates ratio of gross microcredit to NSDP. *BC* indicates ratio of gross credit by commercial banks to NSDP. *BD* indicates ratio of gross deposits with commercial banks to NSDP. *EG* indicates PCNSDP growth rate. *RPOP* indicates share of rural population in total population of a state.

Numbers in parentheses represent the standard error (SE). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Durbin-Wu-Hausman statistic indicates the probability value of the test. '*J*-statistic' indicates the probability value of the Hansen's *J*-statistic.

Instrumental variables:

Case 1: Constant, MC_{t-1} , EG_{t-1} , $RPOP_{t-1}$

Case 2: Constant, BC_{t-1} , EG_{t-1} , $RPOP_{t-1}$

Case 3: Constant, BD_{t-1} , EG_{t-1} , $RPOP_{t-1}$