MEASURING INDEX OF FINANCIAL INCLUSION: A CROSS – COUNTRY ANALYSIS

N. CHITHRA

Ph.D. Research scholar, Part Time (Ext), Department of Business Administration, Annamalai University, Annamalai Nagar.

Dr. K. K. SABARIRAJAN

Associate Professor, Department of Business Administration, Annamalai University, Annamalai Nagar.

Abstract

The paper attempts to analyze the present scenario on financial inclusion across several developed and developing countries of the world, for the years 2015 and 2019. The study focuses on developing an Index of financial inclusion (IFI) and in exploring its association with the human development index. It also focuses on the explanation of variation in observed IFI. Principal component method has been applied to calculate the three dimension indices (availability, access and usage) and finally IFI. And also pooled OLS with clustered standard error regression model has been used to explain the factors influencing financial inclusion across the countries of the world.

Keywords: Index of Financial Inclusion, Banking, Human Development Index, Principal Component.

Introduction

The dynamics of growing economy development involves provision of financial facilities or services at the doorstep of the members, especially downtrodden section of the economy, who may be living in remote rural areas. According to modern views of development, peoples' livelihood opportunities are conditioned by capability generation that leads to access to an asset base which is productive, and which generates income. However, it is ultimately financial inclusion and the delivery of financial facilities that enables peoples' access to property and right to a diverse asset base, thus helping to generate income earning opportunities.

To achieve the above objectives in a co-ordinated and time-bound manner, formulation of a National Strategy for Financial Inclusion (NSFI) is essential. Globally, the adoption of the National Financial Inclusion Strategy (NFIS) has been accelerated significantly in the past decade. As of mid-2018, more than 35 countries, including Brazil, China, Indonesia, Peru and Nigeria have launched an NFIS and another 25 countries are in the process of formulating a strategy. Further, several countries have also updated their original NFIS (World Bank, 2018).

The importance of financial inclusion is mostly considered in the context of a vast chunk of poor people in the world who remain deprived of adequate access to financial facilities that may change their lot. In the developing countries in the world particularly in Asia, Sub-Saharan Africa and Latin America, a large number of people reside in rural regions. They are mostly the farming population with a majority of them being marginal or small farmers, and the poorest of this group often take to informal sector activities to supplement their income from a farming job. This section of rural small farmers requires financial assistance either to undertake

incremental investment across their agricultural land, or to expand the extent of their informal activity, or to undertake some entrepreneurial activity that would help diversify their reach beyond the existing job. According to **Morduch and Rutherford (2003),** this marginalized group of people feels a great need for financial facilities which should be flexible, reliable, continuous, easily operable and sensible to their requirements.

According to **Rangarajan Committee's' (2008) and the Government of India's Committee on Financial Inclusion** in India defines "Financial inclusion as the process of ensuring access to financial services and timely adequate credit where needed by vulnerable groups such as the weaker sections and low income groups at an affordable cost". In most of the developing countries of the world including India, the financial sector is composed of the banking sector, the post office, and non-banking financial intermediaries. However, relatively, a greater volume of financial transactions are made through the formal network of banking institutions in the event of extension of banking facilities to rural regions.

Beck, Demirguc-Kunt & Peria, 2007; Cull,Demirg€u¸c-Kunt & Morduch, 2013 in their studies give support to The Global Findex data shows sharp variations regarding use of financial services across high-income and developing countries. This is exemplified by the fact that the adult account holders' percentage in high-income countries at a formal financial institution is more than double that in developing countries.

In a World Bank study conducted by **Demirguc-Kunt and Klapper (2012),** around 50% of adults, worldwide, have reported themselves as formal account holders either at a bank, credit union, cooperative, post office, or microfinance institution. Most people possessing such an account enjoy enhanced capability by having an entry into the formal financial sector. A formal account eases the transfer of wages, remittances, and government payments. It also encourages saving and ensures better credit accessibility. Apart from these common benefits to account holders around the world, there are much dissimilarity covering diverse regions, income groups, and individual characteristics. These differences are manifest in the extent of pervasiveness of accounts, in potential obstacles to and purposes of their use. Further, in the developing world, there is wide prevalence of alternatives to formal accounts.

The Global Development report by **World Bank (2014)** on financial inclusion, maintained that 2.5 billion unbanked adults around the world were facing severe barriers such as travel distance and cost, and their documentation requirements were severely critical. For instance, 20% of the aforesaid population including the poor, women, and rural inhabitants, report distance as the main reason for not having an account. Again, the young and smaller firms face more obstacles in having access to financial facilities. Thus, 35% of small firms report access to finance as a major problem for their operation as compared to 25% of large firms in developing economies and 8% of large firms in developed countries.

Review of Literature

The problem of financial exclusion is a worldwide phenomenon with over two billion people estimated as being deprived of banking service facilities. While the problem is most intense in the developing countries, it is not altogether absent in the developed economies of the world as well. However, massive in accessibility to financial institutions is a key difference between developed countries and developing countries **(World Bank, 2005).**

Beck, Demirguc_Kunt and Levine (2007) compiled bank loan and deposit data for a cross section of 57 countries through surveys of bank regulators. They observed wide variation across both loan and deposit data among the countries considered for the survey. While there was an increase in the ratio of deposit and loan accounts relative to the population along with increase in per capita income, the average deposit or loan account balance relative to income per capital decreased with income. This is indicative of the fact that poor people and small enterprises are better able to make use of these accounts in high income countries.

Collins, Morduch, Rutherford and Ruthven (2009) studied more than 250 financial diaries of low income individuals in Bangladesh, India and South Africa. They found that each household used at least four types of informal financial instruments in a year. The cash turnover through these instruments (i.e., the gross amounts routed through them) was substantial (77–300%), relative to the net income of the households. This is suggestive of the fact that low income people face barriers to formal sources of financial services.

Massey (2010) asserts that the role of financial institutions in a developing country is crucial in promoting financial inclusion. The role of different state governments to strengthen financial inclusion is conditioned by the extent to which they can motivate and activate capital market players, including financial institutions. In this context it seems important to view some international attempts and experiences in undertaking financial inclusion. In the United Kingdom (UK) three priority areas have been identified by the financial inclusion task force— access to banking, access to affordable credit and access to free face-to-face money advice. Banks and credit unions have been entrusted with this responsibility with the setting up of a financial inclusion fund by the UK Government.

In developed countries, the unbanked are in the minority and they are often unemployed, whereas in developing countries a large number of employed individuals are unbanked **(Cnaan, Moodithaya & Handy, 2012)**. The intensity and depth of the problems of financial inclusion, worldwide, have drawn attention and posed great socioeconomic challenges to the agenda of different international institutions, policymakers, central banks, financial institutions, and governments. The declared goal of the World Bank to achieve universal financial inclusion by 2020 marks the importance it gives to achieving social equity and poverty redressed. According to the World Bank's latest estimate, half the adult population in the world does not have a bank account in a formal financial institution. In India about 560 million people are excluded from a formal source of finance, and this bears semblance to the number of people (457million) below the poverty line (US$1.25/day).

Triki and Faye (2013) edited a report on financial inclusion in Africa, in which they defined it in terms of access, usage and quality of service. According to them, a broader and multidimensional definition of financial inclusion is important to stress the point that the mere establishing of enough access points may not ensure peoples' usage of the extended service facilities. Beyond access, a comprehensive notion of inclusion should focus on how frequently clients use the services and whether the services are of good quality that better serve the interest of the clients. There is a great necessity to maintain a sharply defined comprehensive data base to identify both served and underserved population, and to take the necessary policy decisions. Despite increasing availability of data, many international data sets only cover part of Africa, and African countries are yet to carry out nationally-led surveys of financial inclusion on a broader dimension.

Objectives of the study

1. The present study to analyze the aspect of financial inclusion across several developed and developing countries of the world

2. The study mainly focus on variation in the status of different financial inclusion indicators over different income group countries;

Description of the indicators

To calculate the IFI we consider three dimensions: availability, access and usage. The indicators of availability of this service are covered by—number of ATMs (per 1000 Sq. km), commercial bank branches (per 1000 Sq. km), ATMs (per 100,000 adults), as well as commercial bank branches (per 100,000 adults). These are taken from the G20 financial inclusion indicators and the data for the entire analysis cover two years, 2016 and 2019.

Methodology of the Study

As an inclusive financial system should be judged from several dimensions, we follow a multidimensional approach while constructing our index of financial inclusion (IFI). Our approach is similar to that used by UNDP for computation of some well-known development indexes such as the HDI, the HPI, the GDI and so on5 As in the case of these indexes, our proposed IFI is computed by first calculating a dimension index for each dimension of financial inclusion. The dimension index for the it dimension, di, is computed by the following formula.

$$d_i = \frac{A_i - m_i}{M_i - m_i}$$

Where Ai = Actual value of dimension i

mi = minimum value of dimension i

Mi = maximum value of dimension i

Formula (1) ensures that $0 \leq d_i \leq 1$. Higher the value of di, higher the country's achievement in dimension i. If n dimensions of financial inclusion are considered, then, a country i will be represented by a point $D_i = (d_1, d_2, d_3 \ldots \ldots d_n)$ on the n dimensional Cartesian space.

In the n-dimensional space, the point O = (0,0,0,…0) represents the point indicating the worst situation while the point I = (1,1,1,…,1) represents the highest achievement in all dimensions. The index of financial inclusion, IFIi for the ith country, then, is measured by the normalized inverse Euclidean distance of the point Di from the ideal point I= (1,1,1,….1). The exact formula is

$$IFI_i = 1 - \sqrt{\frac{(1-d_1)^2 + (1-d_2)^2 + \cdots.. + (1-d_n)^n}{\sqrt{n}}}$$

In formula (2), the numerator of the second component is the Euclidean distance of Di from the ideal point I, normalizing it by n and subtracting by 1 gives the inverse normalized distance. The normalization is done in order to make the value lie between 0 and 1 and the inverse distance is considered so that higher value of the IFI corresponds to higher financial inclusion.

Sources of Data

This paper is mainly based on secondary data. Data was taken from World Bank report of 2014 covering 83 countries (35 higher income, 41 middle income and 7 lower income group). According to World Bank definition of GNI per Capita, countries are categorized into higher income, lower middle income, upper middle income and low income nations (in US Dollars). This study reveals that lower middle and upper middle income groups are clubbed together as middle income group nations for the convenience of analysis.

Table 1: Cutoff Income for Different Income Group Countries

Indicators	2014　　　　　(in US Dollars)
Low Income	
Lower Middle	999 - 3895
Upper Middle	386-12055
High Income	>12055

Source: https://blogs.worldbank.org/

From Table 1 shows that the data for selected indicators have been drawn from global inclusion (Global F Index) database. The following data reflect the cutoff income for the above mentioned category of countries. It is the evident that cut off income has somewhat increased in 2018.

Table 2: Descriptive Statistics of the Indicators of Index of Financial Inclusion

Indicators	High Income Group		Middle Income Group		Low Income Group	
	Mean	CV	Mean	CV	Mean	CV
I. Borrowed from a financial institution	0.49	57.7	0.36	58	0.18	104.89
II. Automated teller machines (per 1000 sq km)	0.06	314	0.04	116	0.001	119.55
III. Commercial bank branches (per 1000 sq km)	0.09	216	0.06	129	0.005	137.3
IV. Automated teller machines (per 100,000 adults)	0.39	52.2	0.18	68	0.01	98.3
V. Commercial bank branches (per 100,000 adults)	0.14	61.3	0.09	161	0.01	85.47
VI. Account at a financial institution	0.85	18.8	0.62	59	0.11	102.29
VII. Debit card	0.73	27	0.38	66	0.05	105.28

Source: Author's Calculation from Secondary data

Table 2 reveals descriptive statistics referred to the seven indicators of financial inclusion subsumed into three dimensions – Availability, Access and Usage. It is observed that high income group of countries mean performance has fallen for indicators (II, III, IV, V, VI & VII) while co-efficient of variation (CV) has risen in (II, III & V) for three indictors. This implied divergence in performance. The essence is that respective countries in the higher income group have made apart from one another with regard to the above mentioned three indicators. In the middle group performance improved with respect to three indicators (II, III & V) while others there is decrease or steady state. This has to be reflected in a rise in the value of IFI and the other indicators either stated decline or steady decrease form.

For the analytical convenience the countries are divided into three broad categories:

- ➢ High Inclusion
- ➢ Middle Inclusion
- ➢ Low Inclusion

Table 3: Index of Financial inclusion of High, middle and Low Income Group Countries in the year 2018

High Income Group		Middle Income Group		Low Income Group	
Countries	IFI Value	Countries	IFI Value	Countries	IFI Value
Cannada	0.929	Mongolia	0.721	Rwanda	0.178
Luxemburg	0.796	Iran, Islamic	0.647	Uganda	0.201
Australia	0.785	Bulgaria	0.473	Nepal	0.179
New Zealand	0.817	Brazil	0.481	Tanzania	0.104
Spain	0.768	Serbia	0.504	Malawi	0.093
Denmark	0.763	Jamaica	0.492	Combodia	0.178
France	0.694	Malaysia	0.491	Afghanisthan	0.03
Portugal	0.613	Macedonia	0.489	Madagascar	0.018
Netherland	0.706	Costa Rica	0.487	Benin	0.084
Slovenia	0.664	South Africa	0.479		
Austria	0.678	Montenegro	0.491		

Malta	0.734	Turkey	0.47		
Finland	0.708	Bosnia	0.441		
Ireland	0.673	Srilanka	0.43		
Singapore	0.951	Colombia	0.507		
Estonica	0.632	Romonia	0.421		
Cyprus	0.481	Lebanon	0.387		
Croatia	0.626	Ukraine	0.367		
Japan	0.719	Kazakhstan	0.365		
Slovak Republic	0.576	kosovo	0.343		
Latvia	0.592	Kenya	0.332		
Czech Republic	0.529	Dominican Republic	0.33		
Italy	0.615	Peru	0.327		
Israel	0.682	Angola	0.311		

High Income Group		Middle Income Group		Low Income Group	
Countries	**IFI Value**	**Countries**	**IFI Value**	**Countries**	**IFI Value**
Greece	0.466	Guatemala	0.294		
Hungary	0.432	Albania	0.288		
Poland	0.497	Georgia	0.287		
Russia	0.482	Boliva	0.276		
UAE	0.586	Vietnam	0.269		
Saudi Arabia	0.48	Bangladesh	0.261		
Chile	0.469	Nigeria	0.26		
Venezurla	0.322	Philippines	0.234		
Uruguary	0.388	Arumenia	0.233		
		Uzebekistan	0.255		
		Jordan	0.311		
		India	0.255		
		Honduras	0.208		
		Azerbaijan	0.222		
		Indonesia	0.28		
		Ghana	0.194		

Source: Authors Calculation from Secondary Data

Table 3 Shows the Index of Financial Inclusion, In order to have a systematic analysis values greater than 0.6 are considered as Higher Financial Inclusion, values within the range (0.3 – 0.6) indicate Medium Financial Inclusion while value less than 0.3 imply Lower Financial Inclusion. From the above analysis, Canada & Singapore IFI values are more than one which means both countries have strong financial institutions and banking services. Other countries namely Luxemburg, Australia, New Zealand, Spain, Denmark, Austria, Malta, Finland, Ireland, Estonica Croatina, Japan, Italy, Israel are also ranked in high inclusion. The Countries are Cyprus, Panama, Poland, Russia, UAE, Latina, Slovak republic, Czech Republic, Bulgaria, Brazil, Serbia, Malaysia stated as Medium inclusion group. Low Inclusion countries are Rwanda, Uganda, Nepal, Tanzania, Malawi, Cambodia, Afghanistan, Madagascar, and Benin.

Hence the value of IFI is downscaling high income nations can be turned to middle income nations and middle income nations can be turned to low income nations.

Conclusion

This study mainly focuses on the aspect of financial inclusion across selected countries in the world. There is a wide variation in the level of financial inclusion. Hence, It is found that some of the developed countries value of financial inclusion exceeds the value of one and some of the developed countries IFI value turned downscaling. Relatively less developed and developing countries are yet to concentrate more on financial institutions and banking services to a majority of their citizens. This has to be taken suggestive of the fact that the extension of financial or banking services and facilities have not been commensurate with the emerging demand of people. Respective governments or private agencies should take intensive of efforts to bring more people under the umbrella of financial or banking facilities.

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