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FINANCIAL INCLUSION: EMPIRICAL STUDY OF BRICS COUNTRIES

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ABSTRACT

This study aims to measure financial inclusion of BRICS' countries with the help of financial inclusion index during the period 2005-2014. For measuring Index of Financial Inclusion (IFI), the Financial Services Availability Index (FSAI), which includes 6 variables and Financial Services Usage Index (FSUI), which include 4 variables, is calculated. China leads with the highest value of IFI (0.67) followed by Brazil (0.48), Russia (0.32), India (0.29) and South Africa (0.18) IFI value during the selected period. Only China belongs to the high IFI in BRICS with IFI value i.e. 0.5.While Brazil and Russia from the group are in between 0.3 and 0.5 during the select period. Remaining two countries India and South Africa have a low IFI values, in between 0.01 and 0.3 during the study period. To conclude the financial inclusion of BRICS' countries is not impressive except China during the period (2005-2014).

Keywords: Availability, BRICS', Financial Inclusion, Inclusion Index, Usage,

INTRODUCTION

BRICS' is the association of five emerging economies like Brazil, Russia, India, China and South Africa. Before the inclusion of South Africa the BRICS' was known as BRIC. The BRICS are the developing countries known as fast growing economies in the world. BRICS countries meets annually since 2009 as a formal summit. The five countries of the BRICS are in the list of 25 populated countries of the world while four are in the top 10 populated countries of the world. The BRICS countries have 26 percent land of the world, but having more than 46 percent of world's population. During global period the BRICS economies is prominent compare to the strength of the world economy. During 2011-2016, it is expected that the BRICS countries account for 37 percent of world growth including 22 percent contribution of China alone.

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

Financial inclusion has been broadly recognized as critical in reducing poverty and achieving inclusive economic growth. Financial inclusion is not an end in itself, but leading, growing evidence which has substantial benefits for individuals. Many studies show that individual participation in the financial system leads one better start and to expand businesses, invest in education, manage risk, and absorb financial shocks. Access to accounts and savings and payment mechanisms increases savings, empowers women, boosts productive investment and consumption. Access to credit also has positive effects on consumption as well as on employment status and income; and on some aspects of mental health and outlook.

One of the primary goals of an effective financial system, which has not been fully incorporated into the reform agenda, is the importance of access to finance and financial services for all. Most recently, the Basel Committee on Banking Supervision, the Financial Action Task Force, and the International Association of Insurance Supervisors have revised their normative standards to strengthen financial inclusion through the proportionality principle, that is the balancing of risks and benefits against costs of regulation and supervision. Further guidance is required on how to apply proportionality in the design of regulatory and supervisory frameworks to promote responsible financial inclusion at the country level. At the same time, there is unique approach for building an inclusive financial system. Some countries have placed priority on building a nationwide electronic payment system, while others have focused on access to credit for SMEs, and still others focusing on the need to improve the quality of usage, financial education and consumer protection. In all the cases, coordination among a wide array of public and private sectors is vital in order to arrive at a regulatory framework conducive to inclusive finance.

Financial inclusion can be broadly defined as an economic state where individuals and firms are not denied access to basic financial services based on motivations other than efficiency criteria. The 2014 Global Financial Development Report (World Bank, 2014) identifies four major forms of financial exclusion, which are classified into Voluntary and Involuntary exclusion. Voluntary exclusion refers to the segment of the population or firms that chooses not to use financial services either because they do not need those services due to the lack of promising projects or because of cultural or religious reasons. Since this type of exclusion is not a direct consequence of market failure, little can be done to address it. Of course, as pointed out in the report, there is always room for improvement, for example, financial literacy or encouraging the entry of specialized financial institutions that offer financial products tailored to meet cultural and religious requirements. From a macroeconomic point of view this exclusion is degraded by a lack of demand. Some individuals or firms may be involuntarily excluded from the financial system because they do not have sufficient income or, in the case of the credit markets, have an excessive lending risk profile. This type of involuntary exclusion is also not the result of market failure. A second category of involuntarily excluded entities consist of the segment of individuals

ISSN: 2455-8834
Volume: 04, Issue: 05 "May 2019"

and firms that are denied financial services as a result of government failures or market imperfections.

Financial inclusion enables improved and better sustainable economic and social development of the country. It helps to empower the underprivileged, poor and women of the society with the mission of making them self-sufficient and well informed to take better financial decisions. Financial inclusion takes into account the participation of vulnerable groups such as weaker sections of the society and low income groups, based on the extent of their access to financial services such as savings and payment account, credit insurance, pensions etc. Also the objective of financial inclusion is to exercise for easy availability of financial services, which allows maximum investment in business opportunities, education, saving for retirement, insurance against risks, etc., for the rural individuals and firms. The penetration of financial services in the rural areas of India is still very low. The factors responsible for this condition can be examined in consideration with supply side and demand side, and the major reason for low penetration of financial services is, due to lack of supply. The reasons for low demand for financial services is due to low income level, lack of financial literacy, other bank accounts in the family, etc. On the other hand, the supply side factors include unavailability of bank branches in the vicinity; lack of suitable products is to fulfill the needs of the poor people, complex processes and language barriers.

Access to the financial services play an important role in the development process through the facilitation of economic growth and reduction in income inequality. Inclusive financial systems allow the poor to smooth their consumption and insure themselves against the much economic vulnerability they face, like prom illness and accidents, theft, unemployment. It enables poor people to save and borrow to build their assets and to make educational and entrepreneurial investments to improve their livelihood. Inclusive finance is particularly important to disadvantaged groups- the poor, women, youth, and rural communities. For these reasons, financial inclusion has gained prominence in recent years as a policy objective to improve the lives of the poor.

In fact near about 38 percent of adults in the world do not have bank accounts. The global findex data stated that there are several opportunities in the field of banking to expand the account ownership among the unbanked area. BRICS has introduced the New Development Bank which is known as BRICS Development Bank. The main objective of this bank is to provide funds for infrastructure development in the BRICS states.

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

REVIEW OF LITERATURE

Sharma on index of financial inclusion, considering three dimensions i.e. Banking Penetration, Availability of the Banking Services and Usage of the Banking System. He measures financial inclusion for 100 countries. He observed that Spain had rank first and Canada had rank second with 0.792 and 0.633 financial inclusion index respectively. Alamelu and Snkaramuthukumar have measures the financial inclusion index for South East Asian Scenario. They measures financial services availability index of seven dimensions and financial services usage index of four dimensions. They concluded that for the South East Asian countries the financial inclusion is not impressive except Singapore (0.79) and Thailand (0.61). Gupta, Chotia, Rao have examined in the Financial Inclusion and Human Development: A State-Wise Analysis from India, with the view that the Goa, Punjab and Kerala has impressive financial inclusion index. They also stated that the financial inclusion index and human development index are positively correlated. India has made various measures to increase financial inclusion but do not have access of formal financial system due to the large population.

Godwin has undertaken a study on 'Developing an Index of Financial Inclusion: An Average Ratio Approach' which focuses on a need of single financial inclusion index which pools financial inclusion indicators adopted by International Monetary Fund. The various variants of financial inclusion indicators need to be pooled together in an easy manner into a value that depicts an index. Sharma and Kukreja have examined in 'An Analytical Study: Relevance of Financial Inclusion for Developing Nations,' which focuses on the role of financial inclusion, in strengthening the India's position in relation to other countries economy. The authors concluded that undoubtedly financial inclusion is playing a catalytic role for the economic and social development of society but still need to pay attention to achieve the desired outcomes. Global Financial Development Report (2014) stated that the level of financial inclusion varies widely around the world. Globally, about 50 percent of adults have a bank account, while the rest remain unbanked. Not all the 2.5 billion unbanked need financial services, but barriers such as cost, travel distance, and documentation requirements are critical. Twenty percent of the unbanked families are due to long distance from native place. For instance, in developing economies, 35 percent of small firms for accessing to finance falls major obstacle to their operations, compared with 25 percent of large firms in developing economies and 8 percent of large firms in developed economies. The studies based on financial inclusion were undertaken for individual country and pertaining data of one or two years with few financial inclusion variables. This study is pertaining with six financial availability variables and four financial usage variables for the period from 2005 to 2014. Bhattacharya has examines the financial inclusion a prerequisite for sustainable growth in India. He argued that 67 years of independence, still India is lagging behind in the process of providing financial services to the masses, half of the households remaining unbanked, and about 90 percent villages do not have banking facility. Lack of awareness of financial services among rural area is the primary cause for low penetration of financial services.

Kelkar examines the Financial Inclusion for Inclusive Growth in India. He stated that the financial inclusion have a significant impact on Indian economy. He argued that the effect of financial inclusion is community-wide positive and it is quasi-public good. The financial inclusion reduced the farmer's indebtedness which is the major cause of farmer's suicides in the country. Asli & Leora written a article 'Financial Inclusion in Africa: A Snapshot'. They argued that in Africa many individuals and firms are away from the formal financial services despite of the recent financial sector growth in Africa. According to the analysis of usage of financial services the African countries lag behind than other developing countries. They observed that the demographic groups like those living in rural areas, the poor, women, less educated persons are particularly excluded from the financial inclusion. Angela in 'Financial Inclusion for Rural Areas and Agriculture in Africa' states that the rural population of Africa is suffering from financial inclusion due to limits of ability to increase their own income and to contribute for the growth of African agricultural.

Erick examined the Financial Inclusion in Fragile States of Africa, which clarifies the usage and access of financial services are lower in the most African fragile states than other African economies as well as than the Asia and Europe countries. The peoples living in fragile state mostly excluded from the formal financial services they have informal financial institutions to meet their financial requirements. Inclusive finance should be part of a national recovery strategy in which the role of different actors is clearly defined. Issa & Thouraya has conducted study on the 'Financial Inclusion in Africa: The Transformative Role of Technology'. They argued that the growth in mobile phone penetration has increased the access and usage of financial services in Africa. Nevertheless, successful experiences implemented in Kenya, Tanzania and South Africa have shown that mobile financial services have the potential to significantly reduce the number of unbanked in Africa. While, Pitero examines the Trade-off between Financial Inclusion and Financial Stability in Africa. He argued that stability and inclusion are complementary policy for the financial regulator. It has also presented a conceptual framework for a regulatory strategy to exploit synergies between the two objectives.

Andrea, Ana & Maria observed in the 'Financial Inclusion: Lessons from Latin America and Caribbean,' concluding that despite the remarkable progress made in Latin America and Caribbean in the field of financial inclusion in the recent decades, a large part of the population do not have access of formal financial services. They found only overall 39 percent adult have bank account at formal institution and 25.3 percent lower income peoples have bank account at

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

formal institution. Kaur & Tanghi in 'Financial Inclusion: A way to sustainable growth,' concludes that the financial exclusion problem is not exclusive to the developing world. They also argued that many poor and disadvantaged people of the world still lack of access and usage of financial services and even developed countries also affected by lower access of financial services. It may be also observed that the developed countries have accepted financial inclusion as an important measure to the empowerment of poor and disadvantage people of the society. Charkrabarti examines the 'Role of Regional Rural Banks in Financial Inclusion: An Empirical Study on West Bengal State in India.' He argued that the Network of Regional Rural Banks will have to be leveraged for benefiting the people of the rural areas through broader banking services. He rightly states the West Bengal, these institutions take a long stride towards inclusive economic growth by promoting various financial products meant for broader financial inclusion.

Mital & Shukla in their 'Review of Financial Inclusion Practice and its Success in India' found that the financial system grown rapidly in India in the last three decades but the poorer of the society have not be able to access adequate financial services from formal financial society. Singh & Tandon have explained in the 'Financial Inclusion in India: An Analysis,' concluded that the access of financial services such as savings, insurance and remittances are extremely important for poverty alleviation and development. Garg & Agarwal have examined the 'Financial Inclusion in India – a Review of Initiatives and Achievements.' They concluded that, even though enough efforts are being made by all stake holders the efforts are not yielding the result expected. They further advices that regulator has to create a suitable regulatory environment that would keep the interest of all the stakeholders.

Bagli & Dutta examines in 'A Study of Financial Inclusion in India,'states that the pooper people of the country are financially excluded and they are not well aware about financial services available. As a result banks cannot bring them under the umbrella of financial inclusion. Therefore, the mass financial literacy and awareness among the marginalized sections of people are absolutely necessary to achieve financial inclusion. Chauhan has conducted a 'Study on Overview of Financial Inclusion in India,' states that it can be concluded that India is at moderate level regarding financial inclusion as compared to other countries regarding number of branches, ATMs, bank credit and bank deposits. Bhise, Babar, Khandare & Ambhore have examined the 'Financial Inclusion Index: A Case of SAARC Countries.' They observed that the financial inclusion index for India is highest 0.752 and it was lowest 0.006 of Afghanistan among SAARC Countries. They found that supply side factors as well as demand side factors equally responsible for financial inclusion. No study for BRICS countries was conducted with long time series data. So this study is an attempt to fill up this gap.

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

OBJECTIVES OF THE PRESENT STUDY

The basic objective of this study is to examine the financial inclusion in the BRICS counties during the period 2005 to 2014. The other specific objectives are as under:

1. To study the financial availability in the BRICS countries.
2. To study the financial usage in the BRICS countries.
3. To measure financial availability and usage index of BRICS countries.
4. To measure overall financial inclusion index of BRICS countries.

HYPOTHESIS

Ho: The BRICS countries do not impressive financial inclusion.
H1: The BRICS countries have impressive financial inclusion.

RESEARCH METHODOLOGY

This study is based on analysis and evaluation of secondary data. The secondary data regarding financial availability and financial usage is collected from financial access survey of IMF 2015 and from World Bank's Global Financial Development Report 2014. To measure the present index of financial inclusion index (IFI) this study adopted two dimensional approaches- The financial availability and financial usage these two dimensions are taken for this study and with the help of these two dimensions the financial inclusion index (IFI) calculated for each BRICS country.

Financial Availability Dimension includes following variables.

1. Number of Commercial Banks
2. Number of Commercial Bank Branches
3. Number of Commercial Bank Branches per 100000 Adults
4. Number of Commercial Banks per 1000 Km2
5. Number of ATM per 100000 adults
6. Number of ATM per 1000 Km2

Financial Usage Dimension includes following variables.

1. Outstanding deposits with commercial banks
2. Outstanding Loans from Commercial blanks
3. Outstanding Deposits with Commercial Banks (% to GDP)
4. Outstanding Loans from commercial Banks (% to GDP)

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

First, index is calculated for each variable included in the study. On the basis of each variable index the index for dimension I and Dimension II calculated. The IFI for each country is measured by the normalized inverse Euclidean distance of the point (a1, a2) from the ideal point (1, 1).

The following formula is being used to calculate the Index for each variable.

$$v_i = \frac{A_i - m_i}{M_i - m_i} \qquad (1)$$

Where,

v_i = Index of a variable
A_i = Actual value of a variable i
m_i = Minimum value of variable i
M_i = Maximum value of variable i

Formula (1) insure that $0 \leq v_i \leq 1$. Higher the value of v_i the countries achievement is higher in variable i. If n dimensions of financial inclusion are considered, then, a country i will be presented by a point $v_i = (v_1, v_2, v_3 \ldots v_n)$. In the n dimensional space the point '0' indicates worst situation and point '1' indicates highest achievement in the particular dimension. The index of financial inclusion, IFI_i for each country, then is measured by the normalized inverse Euclidean distance of the point Vi from the ideal point I (1,1,1,…..1). For, IFI the following formula is used.

$$IFI = 1 - \frac{\sqrt{(1-v_1)^2 + (1-v_2)^2 + \cdots (1-v_n)^2}}{\sqrt{n}} \qquad (2)$$

In the formula number 2 the second components numerators is the Euclidean distance of v_i from the ideal point I, normalized by $\sqrt{n}$ and subtracting by 1 gives the inverse normalized distance. For the value lie between 0 to 1 the normalization is done and the inverse distance is considered so that higher value of the IFI corresponds to higher financial inclusion. The IFI value for five BRICS countries is calculated for the period 2005-2014 and then these five countries are categorized into the following categories.

I. $0.5 \leq IFI \leq 1.0$ = high financial inclusion
II. $0.3 \leq IFI < 0.5$ = median financial inclusion
III. $0 \leq IFI < 0.3$ = lower financial inclusion

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

STATEMENT OF THE PROBLEM

Financial Inclusion is important particularly for disadvantaged groups like poor, women, youth and rural community. As per Global Development Report 2014, near about 48 percent adults do not have bank accounts. BRICS countries are in the top 25 populated countries of the world and four countries of the BRICS are in the top 10 populated countries of the world. BRICS countries had 26 percent land of the world and more than 46 percent population of the world. Largest poor population of the world is living in the BRICS countries. Impressive financial inclusion helps to reduce the poverty and to improve the lives of poor. So it is important to examine the financial inclusion among BRICS countries to improve the lives of the poor's.

Limitations and Scope of the Study:

The study is limited as far as the select countries of BRICS and the period of financial inclusion during 2005-2014 only. The study purely based on secondary data collected from IMF financial access survey 2015. The number of variables differs in each of the two dimensions, which might have affected the overall IFI value.

Financial Inclusion in BRICS:

Financial inclusion of BRICS' countries is measured with the help of an index which is on par with HDI. For measuring the IFI, the Financial Services Availability Index is calculated with help of six variables; and Financial Services Usage Index is measured which included four variables. Lastly IFI is calculated with the help of average financial services availability index and average financial services usage index.

Financial Services Availability Index:

Financial services availability index is calculated with 6 variables. The average financial services availability indices calculated for each variable and then with the help of these indices average financial services availability index (FSAI) is calculated. The index value 1.00 means the highest financial inclusion, whereas the index value 0.00 implies the lowest financial inclusion. But, the index value 1.00 doesn't mean that the country has hundred percent financial inclusions. Table no. 1 shows the average financial services availability index for BRICS countries during the period 2005 to 2014. In case of financial services availability index China has the highest FSAI of 0.63, means availability of banking services are higher in China than other countries of BRICS during 2005 to 2014. However China has '0' score in case of number of commercial banks and number of commercial bank branches variable index during the same period. China suffers lowest financial inclusion in these two variables. Russia is the next best country among

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

the BRICS which has 0.48 FSAI followed by Brazil is 0.45, India is 0.20 while South Africa has only 0.06 FSAI, and it is at bottom among the BRICS' countries during the select period. All BRICS' countries have '0' index in case of availability of ATM per 1000 Km2 except China during the select period. South Africa is one of the unstable backward countries of BRICS having only 0.06 availability index followed by India having 0.20 availability index during the period. The average financial services availability index for BRICS' countries is found to be (0.36). South Africa and India are the below average FSAI of BRICS during the period (Table 1).

Financial Services Usage Index:

The financial services usage index calculated with the help of four variable i.e. outstanding deposit, outstanding loans, outstanding deposit with commercial banks percentage to GDP and the outstanding loans from commercial banks percentage to GDP. Table no. 2 presents the financial services usage index (FSUI) of the period 2005-2014. From the table it is understood that China has got highest 0.67 average financial usage index followed by Brazil (0.50), India (0.39), South Africa (0.31) and Russia at bottom with (0.19) FSUI. It means low financial inclusion in Russia in case of FSUI, reasons for low FSUI from supply side i.e. is lack of commercial banks per 1000km2 and distance from branch.

TABLE I: FINANCIAL SERVICES AVAILABILITY INDEX OF BRICS (2005-2014)

Country	Number of Commercial Banks	Number of Commercial banks Number of Branches	Number of Commercial banks per 100000 Adults	Number of Commercial banks Per 1000 Km2	Number of ATM Per 100000 Adults	Number of ATM per 1000 Km2	Average Financial Services Availability Index(FSAI)
Brazil	0.1	0.76	1	0.001	0.84	0	0.45
Russia	1	0.48	0.73	0	0.66	0	0.48
India	0.17	1	0.05	0.005	0	0	0.20
China	0	0	0.78	1	1	1	0.63
South Africa	0.01	0.03	0	0	0.3	0	0.06

Source: Computed with IMF Financial Access Survey 2015 data.

In case of particular variable i.e. the outstanding loans from commercial banks and in outstanding deposits with commercial banks as percentage of GDP China ranks first. In case of the outstanding deposits with the commercial banks variable, South Africa ranks first while in case of outstanding loans from commercial banks, Brazil ranks first. It is observed that India is

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

the only country in BRICS which particular financial services usage variable index is above '0' during the select period. Though Russia is the developed country in the region but ranks lowest with regards financial services usage index during 2005-2014 among BRICS. Sarma stated in 2008 that a large number of economies, including several industrial economies have low levels of financial inclusion.

TABLE II: FINANCIAL SERVICES USAGE INDEX FOR BRICS (2005-2014)

Country	Outstanding deposits with commercial banks	Outstanding Loans from Commercial blanks	Outstanding Loans for Commercial Banks(% to GDP)	Outstanding Deposits with Commercial Banks(% to GDP)	Average Financial Services Usage Index (FSUI)
Brazil	0	0.14	1	0.86	0.5
Russia	0.18	0	0.18	0.41	0.19
India	0.31	0.32	0.27	0.64	0.39
China	0.69	1	0	1	0.67
South Africa	1	0.14	0.09	0	0.31

Source: Computed with IMF Financial Access Survey 2015 data.

Index of Financial Inclusion (IFI):

Using data of availability and usage dimensions for BRICS' countries of the period 2005-2014, IFI value have calculated. The computed IFI values are presented in table no. 3 (2-dimensional IFI).

TABLE III: INDEX FINANCIAL INCLUSION (IFI) 2005-2014

Countries	Average Financial Services Availability Index (Dimension 1)	Average Financial Services Usage Index (Dimension 2)	Index of Financial Inclusion (IFI)	Rank
China	0.63	0.67	0.67	1
Brazil	0.45	0.5	0.48	2
Russia	0.48	0.19	0.32	3
India	0.2	0.39	0.29	4

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

South	0.06	0.31	0.18	5

Source: Computed with IMF Financial Access Survey 2015 data.

The 2-dimensional IFI has computed by using data on 2 dimensions of financial inclusion, China leads with the highest value of IFI (0.67) followed by Brazil 0.48, Russia 0.32, India 0.29 and South Africa 0.18 IFI value during the period. Only China belongs to the high IFI in BRICS with IFI value of 0.5 or more another two countries viz., Brazil and Russia from the group of medium IFI countries with IFI value between 0.3 and 0.5 during the period. Remaining two countries viz., India and South Africa have a low IFI values, in between 0.01 and 0.3 during the period. Only supply side factors are not responsible for low financial inclusion the demand side factors are also equally responsible for the low financial inclusion in India and South Africa.

CONCLUSION

BRICS is the association of five emerging economies like Brazil, Russia, India, China and South Africa. Financial inclusion has broadly recognized as pioneer way in reducing poverty and achieving inclusive economic growth. Financial inclusion enables to improve better sustainable economic and social development of the country. Access to financial services plays a leading role in the development process through the facilitation of economic growth and reduction in income inequality. Near about 38 percent of adults in the world do not have bank accounts. Financial inclusion of BRICS’ countries is measured with the help of an index which is on par with HDI. For measuring the IFI the Financial Services Availability Index calculated with help of six variables and Financial Services Usage Index measured which included four variables. Lastly IFI calculated with the help of average financial services availability index and average financial services usage index.

In case of financial services availability index China has the highest FSAI of 0.63 means availability of banking services are higher in China than other countries of BRICS during 2005 to 2014. Russia is the next leading country of BRICS which has 0.48 FSAI, but from in medium group, followed by Brazil 0.45, India 0.20 and South Africa (0.06) FSAI, and it is at bottom among the BRICS during the period. China has got highest (0.67) financial usage index followed by Brazil (0.50), India (0.39), South Africa (0.31) and Russia at bottom with (0.19) FSUI.

Using data of availability and usage dimensions of BRICS countries during the period 2005-2014, IFI value have calculated. It is found among BRICS China leads with the highest value of IFI (0.67) followed by Brazil 0.48, Russia 0.32, India 0.29 and South Africa 0.18 IFI value respectively during the select period. Only China belongs to the high IFI in BRICS with 0.5 IFI value or more another two countries viz., Brazil and Russia from the group of medium IFI countries with IFI value between 0.3 and 0.5 during the period. India and South Africa have a

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

low IFI values, lying between 0.01 and 0.3 during the period. The study concluded that the financial inclusion in BRICS countries is not impressive except China during the period, its leading to accept null hypothesis of the study.

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Volume: 04, Issue: 05 "May 2019"

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