Financial Inclusion and Development

A Cross Country Analysis

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Financial inclusion…

- Financial inclusion refers to a process that ensures the ease of access, availability and usage of the formal financial system for all members of an economy.
- It facilitates efficient allocation of productive resources and thus can potentially reduce the cost of capital.
- An inclusive financial system can help reduce the role of informal sources of credit (such as money lenders) which are often found to be exploitative.
- The importance of an inclusive financial system is widely recognized in the policy circle and become a policy priority in many countries including India.

Defining financial inclusion/exclusion

Literature on financial exclusion has defined it in the context of a larger issue of **social exclusion** of certain groups of people from the mainstream.

- **Leyshon and Thrift (1995)** - Financial exclusion refers to those processes that serve to prevent certain social groups and individuals from gaining ***access*** to the financial system.

- **Sinclair (2001)** - Financial exclusion means the inability to ***access*** necessary financial services in an appropriate form.

- **Santiago, Gardener and Molyneux (2005)** - …inability (however occasioned) of some societal groups to ***access*** the financial system

- **Rakesh Mohan (2006)** - ... signifies the lack of access by certain segments of the society to ***appropriate, low-cost, fair and safe*** financial products and services from mainstream providers.

Defining financial inclusion (contd)

- **Leeladhar (2005) –** Financial inclusion is the delivery of banking services at an ***affordable cost*** to the vast sections of disadvantaged and low income groups.

- **Usha Thorat (2007)** - by financial inclusion we mean the provision of ***affordable*** financial services, (viz., access to payments and remittance facilities, savings, loans and insurance services) by the formal financial system to those who tend to be excluded.

- **Rangarajan Committee (Jan 2008) –** process of ensuring access to financial services and ***timely and adequate*** credit where needed by vulnerable groups....at an affordable cost.

- **Our definition**: Financial inclusion ensures ease of availability, accessibility and usage of the formal financial system to all members of the economy.

Financial Inclusion – Policy Initiatives

In recent years financial inclusion is seen as a policy priority in many countries

Government initiatives:

- The Govt. of India's initiatives
  - Vaidyanathan Committee, Thorat Committee, Rangarajan Committee, Raghuram Rajan Committee....
- Financial Inclusion Task Force (2005) in UK

Legal and regulatory initiatives

- In Sweden and France, banks are legally bound to open an account for anybody who approach them
- Emphasis on right to have a bank account by Law on exclusion (1998) in France
- Community Reinvestment Act (1997) in US

Banking sector initiatives

- "No frills" accounts in India (2006) and SHG led bank linkage programme
- "Everyman" account in Germany (1996)
- "Mzansi" account in South Africa (2004)

This paper…

- This paper attempts to examine the relationship between financial inclusion and development. We use an index of financial inclusion developed in Sarma (2008) to investigate macro level factors that can be associated with financial inclusion.

- The paper first attempts to understand the relationship between IFI and the Human Development Index (HDI), the most widely used development index.

- Then it presents the results of an empirical analysis to determine country specific factors associated with the level of financial inclusion.

Some literature…

- Empirical literature on determinants of financial exclusion mostly comprises analyses based on primary surveys within a country or a region. *[Solo and Manroth (2006) for Colombia, Siedman and Tescher (2004) for the US, Corr (2006) for Ireland, Collard et al (2001) for UK, Djankov et al (2008) for Mexico and European Commission (2008) for the European Union and so on].*

- In a recent paper, Beck et al (2007) have studied financial sector outreach and its determinants by using cross country data. They have used several indicators of banking sector outreach and examined the determinants of each of these indicators separately.

Index of Financial Inclusion (IFI)

- The index of financial inclusion (IFI) is a measure of inclusiveness of the financial sector of a country/region.
- It is constructed as a multidimensional index that captures information on various aspects of financial inclusion such as banking penetration, availability of banking services and usage of the banking system.
- The IFI incorporates information on these dimensions in one single number lying between 0 and 1, where 0 denotes complete financial exclusion and 1 indicates complete financial inclusion
- Sarma (2008) has developed a method of computing the IFI for multiple dimensions of financial inclusion.
- First set of estimations are done for a three dimensional IFI.

Index of Financial Inclusion (IFI)
Sarma (2008)

- A dimension index for each of these dimensions has been first computed by the following formula

  where

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

  A_i = Actual value of dimension i
  m_i = minimum value of dimension i
  M_i = 94th quantile value of dimension I

- After calculating the dimension indexes, they are given the following weights – 1 for the index of accessibility (penetration), 0.5 for the index of availability and 0.5 for the index of usage.

  The index of financial inclusion is then calculated as

$$IFI = 1 - \sqrt{\frac{(1-p_i)^2 + (0.5-a_i)^2 + (0.5-u_i)^2}{1.5}}$$

- where p_i, a_i and u_i denote respectively the weighted dimension indexes for the dimensions accessibility (or penetration), availability and usage.

IFI estimations

- As an illustration and based on the available comparable data, Sarma (2008) has computed the values of IFI for 54 countries using the three basic dimensions of financial inclusion – accessibility, availability and usage of banking services.

- Accessibility has been measured by the penetration of the banking system given by the number of bank A/C per 1000 population. Availability has been measured by the number of bank branches and number of ATMs per 100,000 people. The proxy used for the usage dimension is the volume of credit plus deposit relative to the GDP.

- In this paper, we use data for 49 countries excluding countries that are unambiguously characterized as OFCs.

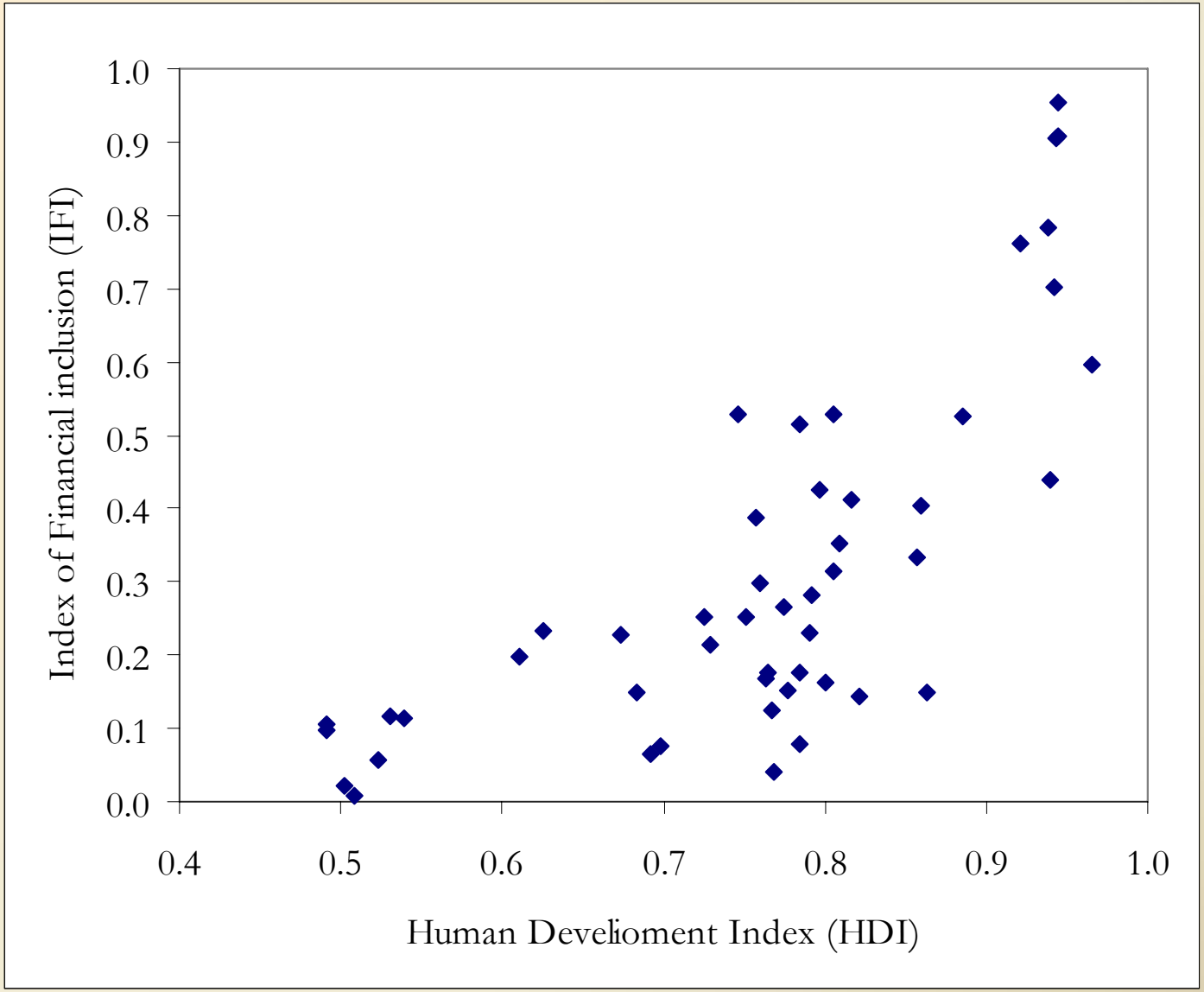
IFI and HDI

Sl No	Country	Index of financial inclusion (IFI)		Human development index (HDI)	
		Value	Country rank	Value	Country rank
1	Albania	0.079	43	0.784	23
2	Argentina	0.148	35	0.863	10
3	**Armenia**	**0.041**	**47**	**0.768**	**27**
4	**Austria**	**0.953**	**1**	**0.944**	**3**
5	**Bangladesh**	**0.117**	**39**	**0.53**	**44**
6	**Belgium**	**0.908**	**2**	**0.945**	**2**
7	Bolivia	0.064	45	0.692	38
8	Bosnia & Herzegovina	0.163	33	0.8	18
9	Brazil	0.283	21	0.792	20
10	Bulgaria	0.413	14	0.816	14
11	Chile	0.404	15	0.859	11
12	Colombia	0.229	26	0.79	21
13	Czech Republic	0.525	10	0.885	9
14	**Denmark**	**0.906**	**3**	**0.943**	**4**
15	Dominican Republic	0.253	23	0.751	33
16	Ecuador	0.177	30	0.765	29
17	El Salvador	0.213	28	0.729	35
18	**France**	**0.702**	**6**	**0.942**	**5**
19	**Greece**	**0.763**	**5**	**0.921**	**8**
20	Guatemala	0.227	27	0.673	40
21	Guyana	0.252	24	0.725	36
22	Honduras	0.148	36	0.683	39
23	**India**	**0.198**	**29**	**0.611**	**42**
24	Iran	0.527	9	0.746	34
25	Italy	0.439	12	0.94	6

IFI and HDI

		Index of financial inclusion (IFI)		Human development index (HDI)	
Sl No.	Country	Value	Country rank	Value	Country rank
26	Jordan	0.298	20	0.76	31
27	Kenya	0.105	41	0.491	49
28	Lebanon	0.265	22	0.774	26
29	Lithuania	0.333	18	0.857	12
30	**Madagascar**	**0.009**	**49**	**0.509**	**46**
31	Malaysia	0.53	8	0.805	17
32	Mexico	0.145	37	0.821	13
33	Namibia	0.234	25	0.626	41
34	Nicaragua	0.076	44	0.698	37
35	Norway	0.595	7	0.965	1
36	**Pakistan**	**0.113**	**40**	**0.539**	**43**
37	Papua New Guinea	0.057	46	0.523	45
38	Peru	0.125	38	0.767	28
39	Philippines	0.167	32	0.763	30
40	Romania	0.315	19	0.805	16
41	Russia	0.424	13	0.797	19
42	Saudi Arabia	0.151	34	0.777	25
43	**Spain**	**0.784**	**4**	**0.938**	**7**
44	Thailand	0.514	11	0.784	24
45	Trinidad and Tobago	0.354	17	0.809	15
46	Turkey	0.387	16	0.757	32
47	**Uganda**	**0.021**	**48**	**0.502**	**47**
48	Venezuela	0.176	31	0.784	22
49	Zimbabwe	0.096	42	0.491	48

Scatter plot of IFI and HDI



IFI and HDI

It can be generally concluded that countries having high level of human development are also those with a relatively high level of financial inclusion.

- IFI and HDI move in the same direction. The correlation coefficient between IFI and HDI values and ranks is found to be about 0.74 (and significant).
- All the countries with high and medium IFI values belong to the group that is classified by the UNDP as countries with high human development (HDI > 0.7).
- India is ranked 29 (of 49), performs relatively better than its South Asian neighbours.

Some exceptions

- Saudi Arabia, a high HDI country is found to have a low IFI value. Other countries having a high or medium HDI but a low IFI are Brazil, Lebanon, Venezuela, Argentina and Mexico.
- Countries such as Albania, Armenia, Peru and Mexico are with relatively higher levels of human development as compared to their levels of financial inclusion.
- On the other hand there are countries such as Iran, Thailand, Turkey and Namibia who perform relatively better in financial inclusion than with human development.

Factors associated with financial inclusion

- The literature on financial inclusion has identified financial exclusion as reflection of a broader problem of "**social exclusion**".

- In the industrialised and high income countries having a well-developed banking system, studies have shown that the exclusion from the financial system occurs to persons who belong to **low-income groups, the ethnic minorities, immigrants, the aged** and so on (Barr, 2004; Kempson and Whyley, 1998; Connoly and Hajaj, 2001).

- There is also a geographical factor; people living in **rural areas** and in locations that are remote from urban financial centres are more likely to be financially excluded (Leyshon and Thrift, 1995; Kempson and Whyley 2001).

- Further, countries with low levels of **income inequality** tend to have relatively high level of financial inclusion (Buckland et al, 2005; Kempson and Whyley, 1998).

- Another factor that can be associated with financial inclusion is **employment** (Goodwin et al, 2000).

Factors associated with financial inclusion

- Socio-economic factors
  - income, employment, inequality, literacy
- Infrastructure related factors
  - road network, telephone and television network, access to information through newspapers, radio, cable TV, computer and internet
  -
- Banking sector factors
  - indicators of the health of the banking system, ownership pattern and interest rate

Socio-economic factors and financial Inclusion

Table 2 Results of regressing IFI on socio economic variables

Variable	Coef.	Std. Err.	t	P>|t|
ln(GDP)	**1.02***	**0.166**	**6.16**	**0.00**
Adultlit	-0.008	0.013	-0.61	0.55
Ruralpop	0.002	0.008	0.28	0.78
Unemploy	0.004	0.011	0.36	0.72
Ginicoeff	-1.848	1.246	-1.48	0.15
Constant	-7.647*	1.8	-4.25	0.00

Note: 1. Number of observations = 47

F (5, 41) = 21.20, Prob > F = 0.000

R2 = 0.721, Adj R2 = 0.687

* - Variable significant at 0.01 level.

Table 3: Results of regressing IFI on socio economic variables (without GDP)

Variable	Coef.	Std. Err.	t	P>|t|
Adultlit	**0.031****	**0.016**	**1.90**	**0.07**
Ruralpop	**-0.018****	**0.010**	**-1.91**	**0.06**
Unemploy	-0.021	0.014	-1.57	0.13
Ginicoeff	**-4.345***	**1.615**	**-2.69**	**0.01**
Cons	-0.75	1.932	-0.39	0.70

Notes: Number of observations = 47
$F(4, 42) = 9.05$, Prob > F = 0.00000
$R^2 = 0.4630$, Adj $R^2 = 0.4119$
* - Variable significant at 0.01 level, ** - significant at 0.10 level.

- Higher the income level, both at the individual level and for a country, higher is the financial inclusion.
- Beyond income level, **income inequality** is **negatively** associated with financial inclusion.
- **Adult literacy** is **positively** and significantly associated with financial inclusion implying that higher the adult literacy, higher will be the financial inclusion.
- Proportion of **rural population** is found to be **negatively** associated with financial inclusion.
- This cross country findings are in line with the earlier findings based on surveys within a country/region.

Infrastructure and financial Inclusion

Table 4: Results of regression of IFI on infrastructure variables

Variable	Coef.	Std. Err.	t	P>|t|
P_road	**0.763***	**0.258**	**2.96**	**0.01**
Phone	**0.363****	**0.168**	**2.16**	**0.04**
Newspaper	0.002	0.002	1.04	0.31
Radio	-0.001	0.001	-1.66	0.11
CableTV	-0.002	0.002	-0.65	0.52
Computer	-0.002	0.002	-0.83	0.42
Internet	**.006****	**0.003**	**2.34**	**0.03**
Constant	-3.833*	0.806	-4.76	0.00

Notes: Number of observations = 36
F(7, 28) = 19.89, Prob > F = 0.000
R^2 = 0.833, Adj R^2 = 0.791;
* - Variable significant at 0.01 level, ** - variable significant at 0.05 level

- Physical infrastructure like network of **paved roads** is highly **positively** significant in enhancing financial inclusion.

- **Telephone and internet subscription** are also found to be **positive** and significant. This is in line with Beck et al (2007) who found that telephone network to be positively associated with banking outreach.

- Road network, telephone and internet usage being positively associated with the level of financial inclusion indicate that connectivity and information play an important role in financial inclusion.

- Our results also indicate strong links between infrastructure development and the development of financial sector.

Banking Sector and financial Inclusion

Table 5: Results of regression of IFI on banking variables

Variable	Coef.	Std. Err.	t	P>|t|
NPA	**-0.125***	**0.033**	**-3.81**	**0.00**
CAR	**-0.130****	**0.061**	**-2.14**	**0.04**
asset_foreign	**-0.025****	**0.008**	**-3.24**	**0.00**
asset_govt.	-0.013	0.012	-1.06	0.30
Interest Rate	-0.029	0.022	-1.31	0.20
Cons	2.347*	0.584	4.02	0.00

Notes: Number of observations = 34
F(5, 28) = 8.13, Prob > F = 0.0001
R^2 = 0.592, Adj R^2 = 0.519
* - Variable significant at 0.01 level, ** - significant at 0.05 level.

- **NPA** in an economy is found to be significantly and **negatively** associated with financial inclusion.

- Contradicts the view for high NPA of a banking system is that NPAs are a result of providing credit to the low income groups (who are more likely to default), sometimes to comply with the "directed lending" programmes such as the "priority sector lending" in India.

- Our results show the opposite, they indicate higher level of NPA to be associated with lower level of financial inclusion. Thus, efforts to include more people into the financial system is not the significant cause for the NPA, on the contrary, the cause for NPAs lies elsewhere (Reddy 2002).

- **Capital Asset Ratio** (CAR) is found to have a **negative** coefficient that is significant at 0.05 level. Thus, highly capitalized banking systems seem to be less inclusive. This is not surprising, as banking systems having high CAR tend to be more cautious in lending, thus negatively affecting financial inclusion.

- High share of **foreign ownership** in the banking system is found to be **negatively** associated with financial inclusion. This is in line with "cream skimming" theory of foreign banks. (Detragiache et al, 2006; Gormley, 2007; Beck et al, 2007)

- Advocates of banking sector liberalization have argued that entry of foreign banks will increase the supply of credit and improve efficiency by increasing competition (WTO 2005).

- Several studies have shown that this argument may not always be true. For example, an IMF study by Detragiache et al (2006) found that in poor countries, a stronger foreign bank presence is robustly associated with less credit to the private sector. In addition, they found that in countries with more foreign bank penetration, credit growth is slower and there is less access to credit.

- Gormley (2007) found that in case of India, the entry of foreign banks is associated with an overall decrease in credit availability for firms.

- Using cross country data, Beck et al (2007) have also found a significantly negative association between share of foreign banks' assets and number of accounts (credit as well as deposit) per capita in a country.

- Share of **government ownership** in the banking system, our results show, does not have a significant association with financial inclusion.

- This can be interpreted as the inefficacy of state owned banks in bringing about financial inclusion.

- Real interest rate does not show any significant relationship with financial inclusion.

Conclusion

- Our empirical analysis confirms that **income** as measured by per capita GDP is an important factor in explaining the level of financial inclusion in a country.

- Going beyond per capita GDP, we find that **income inequality, adult literacy** and **urbanisation** are also important factors.

- Further, physical and electronic connectivity and information availability, indicated by **road network, telephone** and **internet usage**, also play positive role in enhancing financial inclusion.

- These findings strengthen the assertion that financial exclusion is indeed a reflection of social exclusion, as countries having low GDP per capita, relatively higher levels of income inequality, low rates of literacy, low urbanisation and poor connectivity seem to be less financially inclusive.

Conclusion

- From among the banking sector variables, we find that the proportion **non-performing assets** is inversely associated with financial inclusion, indicating that attempts by different country towards greater financial inclusion have not contributed in any way to the non-performing assets of the banking system.

- The **capital asset ratio** (CAR) is seen to be negatively associated with financial inclusion. In other words, when the CAR of a country is high, the banking system tends to be more cautious in opening its doors to the financial excluded.

- **Foreign ownership** in the banking sector is seen to be negatively affecting financial inclusion, while government ownership does not have a significant effect.

Thank You