



the
UNIVERSITY
of
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FINANCIAL INCLUSION AND POVERTY

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The case of Peru

Structure



- I. Definition/Measurement of poverty
- II. The Concept/Definition of Financial Inclusion
- III. The Impact of Financial Inclusion on Poverty
- IV. The MFIs' major Drivers of Financial Inclusion
- V. Conclusion

The definition/measurement of Poverty



- Income/Consumption approach
 - Sen's concept → Chambers work → Social Exclusion approach
- Applied Indicators:
 - Incidence of poverty → share of population below a pre-defined poverty line
 - Poverty Gap → the distance between the poverty level and the poverty line
 - Severity of Poverty → the squared distance between the income and the poverty line

Source: World Bank/ INEI Peru

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The Definition/Measurement of Financial Inclusion



- Various concepts which seems to say the same: Financial....
... Development, Integrity, Depth ???
- Financial Inclusion: To provide access to financial services to formerly excluded/"unbanked" people who demand those services
- Our definition focuses on one of the major financial service: Access to Credit
 - Applied Indicator: The number of people who received a micro-loan for the first time

The Impact of Financial Inclusion on Poverty (1)



- How can financial inclusion alleviate poverty ?
 - Investment theory: Financial Inclusion disproportionately benefits the poor population in the sense of lowering collateral requirements and borrowing costs.
 - Human Capital theory: People need access to credit in order to invest in their human capital; e.g. via schooling, university etc. to find eventually a well paid job.
 - Firm-behavior theory: Financial inclusion has the positive external effects that the cost of capital is reduced. This can lead to a rise of production and hence generate employment opportunities.
 - others ?



CUADRO N° III.2
PERÚ: EVOLUCIÓN DE LA INCIDENCIA DE LA POBREZA TOTAL, SEGÚN DEPARTAMENTO, 2001-2010
(% respecto del total de población)

Departamento	IV Trimestre		May-Dic		Anual								
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010			
										Intervalo de confianza al 95%			
										2010	Mínimo	Máximo	CV (%)
Total	54,8	54,3	52,3	48,6	48,7	44,5	39,3	36,2	34,8	31,3	30,1	32,5	2,0
Huancavelica	88,0	83,7	86,9	84,8	90,3	88,7	85,7	82,1	77,2	66,1	60,6	71,7	4,2
Apurímac	78,0	77,0	70,3	65,2	73,5	74,8	69,5	69,0	70,3	63,1	58,1	68,1	4,0
Huánuco	78,9	83,2	81,3	78,3	75,8	74,6	64,9	61,5	64,5	58,5	52,9	64,2	4,9
Puno	78,0	79,7	77,2	78,3	75,2	76,3	67,2	62,8	60,8	56,0	51,0	61,0	4,6
Ayacucho	72,5	72,7	72,9	65,9	77,3	78,5	68,3	64,8	62,6	55,9	50,8	60,9	4,6
Amazonas	74,5	80,4	73,0	65,1	68,6	59,1	55,0	59,7	59,8	50,1	44,3	55,9	5,9
Cusco	75,3	61,7	56,6	53,1	55,6	49,9	57,4	58,4	51,1	49,5	43,8	55,1	5,8
Loreto	70,0	66,4	68,4	66,9	71,5	66,3	54,6	49,8	56,0	49,1	43,8	54,4	5,5
Cajamarca	77,4	76,8	73,1	66,2	68,8	63,8	64,5	53,4	56,0	49,1	44,2	54,0	5,1
Pasco	66,1	65,6	54,5	65,7	72,9	71,2	63,4	64,3	55,4	43,6	37,4	49,7	7,2
Piura	63,3	64,0	68,7	60,7	58,6	54,0	45,0	41,4	39,6	42,5	37,3	47,7	6,2
Lambayeque	63,0	62,1	45,3	43,6	44,0	41,1	40,6	31,6	31,8	35,3	29,3	41,3	8,6
La Libertad	52,1	50,1	50,4	48,5	43,0	46,5	37,3	36,7	38,9	32,6	26,9	38,3	8,9
Junín	57,5	62,6	58,3	49,6	56,0	49,9	43,0	38,9	34,3	32,5	27,2	37,7	8,2
San Martín	66,9	54,3	61,9	51,9	54,1	54,3	44,5	33,2	44,1	31,1	26,6	35,6	7,3
Áncash	61,1	55,5	58,6	53,3	48,4	42,0	42,6	38,4	31,5	29,0	24,2	33,8	8,4
Ucayali	70,5	69,3	68,1	56,3	53,1	54,0	45,0	32,5	29,7	20,3	14,9	25,6	13,4
Tumbes	46,8	38,4	29,6	24,2	16,2	15,8	18,1	17,2	22,1	20,1	15,3	24,9	12,2
Arequipa	44,1	39,3	38,9	34,2	24,9	26,2	23,8	19,5	21,0	19,6	15,5	23,7	10,7
Moquegua	29,6	35,8	33,1	38,7	30,3	27,3	25,8	30,2	19,3	15,7	10,9	20,5	15,6
Tacna	32,8	32,0	32,7	24,7	30,3	19,8	20,4	16,5	17,5	14,0	10,4	17,7	13,3
Lima 1/	33,4	35,8	34,6	32,2	32,9	25,1	19,4	18,3	15,3	13,5	11,8	15,2	6,4
Ica	41,7	42,6	29,0	27,3	23,9	23,8	15,1	17,3	13,7	11,6	8,8	14,3	12,1
Madre de Dios	36,7	50,7	27,0	27,1	30,8	21,8	15,6	17,4	12,7	8,7	5,2	12,3	20,6

Nota: Valores ajustados a las proyecciones de población a partir del Censo de Población de 1993.

1/ Incluye Provincia Constitucional del Callao.

Fuente: INEI - Encuesta Nacional de Hogares (ENAHOG); Anual 2001- 2010.

The impact of financial inclusion on poverty (2)



- Methodology:
 - Panel data 2008-2010 on department level: own data merged with information from the national institute of statistics of Peru
 - Measure the correlation between (1) the number of financially included clients and (2) different measures of poverty
 - ...taking into account factors (*ceteris paribus*) which influence poverty: (economic growth, unemployment, development aid, education, rurality etc.)
 - Applied model: panel data random effect model

The impact of financial inclusion on poverty (3)



- Results:
 - ▣ Significant poverty-alleviating effects of:
 - Financial inclusion
 - Internet access
 - Average loan size per client

 - ▣ Significant poverty-worsening effect of:
 - Rurality

 - ▣ Estimation problems: Endogeneity through reversal causality

Table 1: The effect of financial inclusion on poverty measures

VARIABLES	(1) Incidence	(2) Incidence	(3) Severance	(4) Severance	(5) Gap	(6) Gap
log(Inclusion)	-5.649* (3.012)	-7.917*** (2.738)	-2.789** (1.273)	-3.612*** (1.182)	-4.044** (2.047)	-2.821* (1.557)
log(pop)	5.047 (3.693)	6.473* (3.638)	2.289* (1.190)	2.965*** (1.150)	3.320 (2.053)	2.254 (1.804)
rurality	46.46* (25.58)	31.67 (23.84)	11.05 (7.100)	6.632 (6.970)	21.95* (12.94)	9.490 (12.87)
labor participation	-0.411 (0.310)	-0.493 (0.311)	-0.0803 (0.137)	-0.114 (0.140)	-0.151 (0.218)	-0.161 (0.231)
internet access	-0.920*** (0.351)	-1.047*** (0.323)	-0.177 (0.140)	-0.277** (0.136)	-0.352 (0.232)	-0.555** (0.231)
technology	-0.00541 (0.0446)	-0.00386 (0.0459)	-0.00619 (0.00996)	-0.00741 (0.0102)	-0.00879 (0.0195)	-0.00926 (0.0206)
log(GDP per capita)	2.790 (8.738)	-2.391 (8.359)	-1.063 (2.366)	-0.402 (2.321)	-0.655 (4.374)	0.696 (4.413)
food aid	-0.221** (0.107)	-0.294*** (0.0972)	-0.0724 (0.0455)	-0.0824** (0.0418)	-0.135* (0.0727)	-0.149** (0.0698)
loan size/client	-0.000635 (0.000394)	-0.000971*** (0.000354)	-0.000287 (0.000175)	-0.000402** (0.000160)	-0.000400 (0.000277)	-0.000420 (0.000311)
Constant	1,257 (777.0)	1,303* (781.5)	303.9 (373.0)	227.8 (381.2)	592.4 (570.0)	565.2 (606.0)
Observations	72	72	72	72	72	72
# of departments	24	24	24	24	24	24

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; aggregated time effects are included in (1) (3) and (5) but not shown in the table; Controls for the predominant industry are included but not shown in the table, Controls for Human Capital are included but not shown

The MFIs' major drivers of Financial Inclusion (1)



- Methodology:
 - Own MFI level panel data (2008-2010) merged with MIX data
 - Measure the effect of MFIs' characteristics such as: Size, Returns, Risk disposition, interest etc...
 - ...on the number of financially included people
 - Holding fixed: profit status and age of the institution
 - Applied estimation model: Panel data random effect model

The MFIs' major drivers of Financial Inclusion (3)



- Results:
 - Significant inclusion-fostering influence of:
 - The size of the MFI (measured by its total assets)

 - Significant inclusion-reducing influence of:
 - The average loan size of the clients

Table 4: MFI characteristics determining the number of newly included Microfinance clients

VARIABLES	(1) OLS	(2) Random Effects
log(assets)	10,204*** (1,569)	9,021*** (1,699)
loan size	-9.201*** (3.228)	-7.247*** (2.491)
cost per loan	101.4*** (30.69)	3.027 (19.56)
return on assets	49,617 (65,811)	20,939 (36,604)
loss rate	-111,143** (44,633)	-22,306 (29,844)
interest	-37,646 (23,778)	-17,882 (11,928)
alliance	-2,144 (2,418)	-821.2 (3,972)
personal per # clients	-558,058 (542,340)	132,918 (315,246)
Constant	-155,183*** (27,850)	-131,516*** (29,322)
Observations	89	89
R-squared	0.584	

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; aggregated time effects are included but not shown in the table; it is controlled for the age of the MFI introducing three dummy variables, the results are not included in the table; Finally the profit status is included as a control but not shown in the table.

Conclusion



- We found alleviating effects of financial inclusion, internet access and development aid on poverty but a worsening effect of rurality.
- Empirically, larger MFIs (in terms of their total assets) and MFIs that serve smaller-size micro-loans are including more people
- Unsolved research questions:
 - the effect of the provision of other financial services such as saving accounts, insurances etc.
 - The effect of financial inclusion on MFIs's financial performance

Thanks for your attention !



- Questions ?

- No ? Suggestions for discussion:
 - Channels of Financial inclusion to alleviate poverty
 - Other Factors influencing poverty
 - Theories why MFIs with small-scale loan sizes financially include more people