

Who are the Poor and Do They Remain Poor?

- The paper analyzes at the micro level the observed spatial differences in and persistence of poverty (Balisacan 2007; Balisacan and Fuwa 2004).
 - Poverty is defined by the subsistence-based standard used officially.
- In particular, the paper focuses on the effect of human capital and location on poverty.
- Following received theory, we take human capital as the main determinant of family income and poverty status.
- We add that environment or location matters in determining income.

Human capital and location

- Location affects the value and productivity of a person's human and physical capital, both of which depend on:
 - the quality and adequacy of infrastructure;
 - the state of technological progress;
 - the competitiveness of the market;
 - security, and climate.

Human capital and location

- For a given education or skill, a remote underdeveloped area would
 - produce lower output per unit of labor;
 - face lower market value of output if the area is isolated from central or leading markets;
 - have fewer job opportunities and pay lower wage to its labor force;
 - have its population pay higher prices for goods and services imported from other locations;
 - have its population face prohibitive prices for advanced education and tertiary health care which are available only in leading cities

- The paper ran family income regressions that have human capital and regional location as explanatory variables.
- The paper also analyzed trends in human capital investment by the initial human capital of the household.
- Panel data was examined to show the relationship between human capital and persistence of poverty across years.

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RESULTS

Table 1. Poverty by Education of Most Educated Member, 2009

Education level of Most educated member	Poverty Incidence	Contribution to total poverty	Total # of HHs	Contribution to total Population
Elem grad and below	41.0	29.2	2,726,646	14.8
HS undergrad	42.4	26.9	2,430,492	13.2
HS grad	23.8	30.5	4,895,105	26.5
College undergrad	10.7	10.7	3,838,480	20.8
College grad	2.4	2.8	4,560,819	24.7
Total	20.8	100.0	18,451,542	100.0

Source of basic data: NSO's FIES 2009 and LFS January 2010

Aside: Why education of HH head is a poor measure of HH human capital?

Annex Table 1. Poverty by Education of household head, 2009

Education level of household head	Poverty Incidence	Contribution to total poverty	Total # of HHs	Contribution to total population
Elementary and below	33.9	68.9	7,793,678	42.2
HS undergrad	24.2	13.8	2,182,742	11.8
HS grad	12.5	13.7	4,189,105	22.7
College undergrad	5.4	3.1	2,202,679	11.9
College grad	1.1	0.6	2,083,337	11.3
Total	20.8	100	18,451,541	100.0

Source: FIES 2009, LFS January 2010

Table 4. Poverty Incidence by Education of Most Educated Member, 2009

Region	Education level of most educated member					Total
	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	
<i>LUZON</i>						
NCR	6.1	10.8	5.6	1.3	0.1	2.6
CAR	23.1	35.4	24.8	16.1	3.9	17.1
Region 1	24.3	30.7	26.5	12.3	2.2	17.4
Region 2	25.2	23.9	18.6	6.7	1.6	14.4
Region 3	23.1	26.1	16.0	6.2	1.2	11.8
CALABARZON	19.4	29.9	14.8	3.9	0.8	10.3
MIMAROPA	42.9	45.5	31.0	10.7	2.9	28.0
Region 5	51.2	56.3	41.6	24.1	3.8	36.1
<i>VISAYAS</i>						
Region 6	41.1	42.8	28.6	11.1	2.5	23.6
Region 7	52.3	51.2	32.1	15.6	4.3	29.6
Region 8	47.7	52.5	38.2	16.9	4.2	33.1
<i>MINDANAO</i>						
Region 9	59.9	56.0	37.2	18.4	3.8	36.5
Region 10	50.4	57.7	40.9	22.4	4.6	32.4
Region 11	48.8	44.1	25.7	9.2	1.6	25.5
Region 12	51.6	41.6	29.0	15.7	4.1	28.3
ARMM	42.2	53.2	39.1	31.2	13.1	38.1
CARAGA	59.8	54.8	49.0	29.4	9.7	39.7
<i>PHILIPPINES</i>	41.0	42.4	23.8	10.7	2.4	20.8

Source: FIES 2009, LFS January 2010

Table 5. Mean no. of adults (18+) by education level, 2009

Poverty Status	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	Total
Average no.						
Non-poor HHs	0.8	0.3	0.8	0.6	0.5	3.0
Poor HHs	1.6	0.5	0.5	0.2	0.0	2.8
Total	1.0	0.4	0.7	0.5	0.4	2.9
% share						
Non-poor HHs	26.3	11.6	26.1	19.1	16.9	100.0
Poor HHs	58.0	17.0	18.4	5.4	1.2	100.0
Total	33.1	12.8	24.4	16.2	13.5	100.0

Source: FIES 2009, LFS January 2010

Table 6. Poor: Mean no. of adults (18+) by education level by region, 2009

Region	Education level					Total
	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	
<i>LUZON</i>						
NCR	0.9	0.8	1.0	0.1	0.0	2.9
CAR	1.6	0.5	0.5	0.3	0.1	3.0
Region 1	1.2	0.4	1.2	0.2	0.0	3.0
Region 2	1.8	0.4	0.6	0.1	0.0	2.8
Region 3	1.4	0.5	0.9	0.2	0.0	2.8
CALABARZON	1.4	0.5	0.8	0.1	0.0	2.8
MIMAROPA	1.6	0.4	0.4	0.1	0.0	2.5
Region 5	1.6	0.5	0.5	0.1	0.0	2.7
<i>VISAYAS</i>						
Region 6	1.7	0.4	0.6	0.1	0.0	2.8
Region 7	1.8	0.5	0.4	0.1	0.0	2.8
Region 8	1.7	0.5	0.3	0.1	0.0	2.7
<i>MINDANAO</i>						
Region 9	1.9	0.4	0.3	0.1	0.0	2.6
Region 10	1.5	0.5	0.5	0.2	0.0	2.8
Region 11	1.7	0.5	0.4	0.1	0.0	2.7
Region 12	1.7	0.5	0.4	0.1	0.0	2.7
ARMM	1.8	0.5	0.4	0.2	0.1	3.0
CARAGA	1.5	0.5	0.6	0.2	0.1	2.9
<i>PHILIPPINES</i>	1.6	0.5	0.5	0.2	0.0	2.8

Source: FIES 2009, LFS January 2010

Table 7. Non-poor: Mean no. of adults (18+) by education level by region, 2009

Region	Education level					Total
	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	
<i>LUZON</i>						
NCR	0.4	0.3	1.0	0.7	0.7	3.2
CAR	0.8	0.3	0.6	0.6	0.6	2.9
Region 1	0.7	0.3	1.0	0.6	0.5	3.0
Region 2	1.0	0.3	0.7	0.5	0.4	2.9
Region 3	0.8	0.3	1.0	0.5	0.5	3.1
CALABARZON	0.7	0.3	1.0	0.6	0.5	3.1
MIMAROPA	1.0	0.3	0.5	0.5	0.3	2.7
Region 5	0.9	0.4	0.6	0.5	0.5	2.8
<i>VISAYAS</i>						
Region 6	0.9	0.4	0.7	0.5	0.5	3.0
Region 7	0.9	0.4	0.7	0.6	0.6	3.1
Region 8	0.9	0.4	0.5	0.5	0.5	2.8
<i>MINDANAO</i>						
Region 9	0.9	0.4	0.5	0.5	0.5	2.8
Region 10	0.6	0.4	0.7	0.6	0.6	2.9
Region 11	0.8	0.5	0.7	0.5	0.4	2.8
Region 12	0.8	0.4	0.6	0.5	0.4	2.7
ARMM	1.4	0.3	0.4	0.4	0.3	2.9
CARAGA	0.7	0.5	0.7	0.6	0.5	3.0
<i>PHILIPPINES</i>	0.8	0.3	0.8	0.6	0.5	3.0

Source: FIES 2009, LFS January 2010

Table 8. Poor HHs: Educational Profile of Adult (18+) Population

Age group	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	Total
18-24	37.0	25.6	26.8	9.7	0.9	100.0
25-40	49.9	19.3	23.5	5.8	1.6	100.0
41-65	70.9	12.1	13.1	3.0	0.8	100.0
66+	91.2	5.5	2.8	0.3	0.2	100.0
Total	57.6	17.0	19.0	5.2	1.1	100.0

Source: FIES 2009, LFS January 2010

Table 9. Non-poor HHs: Educational Profile of Adult (18+) Population

Age group	Elementary and below	HS undergrad	HS grad	College undergrad	College grad	Total
18-24	9.6	13.7	30.7	34.4	11.7	100.0
25-40	14.4	10.8	31.6	20.1	23.2	100.0
41-65	33.7	11.2	24.6	14.0	16.4	100.0
66+	63.6	8.1	12.5	5.2	10.6	100.0
Total	25.0	11.3	27.1	19.4	17.1	100.0

Source: FIES 2009, LFS January 2010

Income Function

$$Inc = \alpha_0 + \sum_{i=1}^{16} \beta_i Reg_i + \sum_{j=1}^3 \gamma_j Educ_n_j + \sum_{k=1}^4 \theta_k Mem_n_k + \sum_{i=1}^{16} \sum_{j=1}^3 \delta_{ij} Reg_i Educ_n_j$$

- Where *Inc* represents household income,
- Reg_i is a dummy variable for region of residence (with Region 1 as the control group),
- $Educ_n_j$ is a variable denoting the number of adults in the household with education level j (where j ranges from 1 to 3, representing respectively the number of high school graduates, the number college undergraduates, and the number of college graduates in the household),
- Mem_n_k is a variable denoting the number of household members in age group k (where k ranges from 1 to 4, representing respectively the number of those 15 to 24 years old, 25 to 40 years old, 41 to 65 years old, and 66 and over), and $Reg_i Educ_n_j$ is the interaction between regional location i and the education variable j .
- The interaction terms between the education variables and the region variables are intended to capture how much more productive human capital is in some locations relative to others.

Regression Results 1

- Shows evidence that higher human capital gets higher returns, and that, moreover, these returns depend critically on location.
- In Region 1 (the control region), controlling for the number of adults by age group in the household, each additional adult high school graduate in the household is associated with an increase in total household income of about Php16,500. Each additional adult college undergraduate is associated with an additional Php37,900 in total household income, while an additional college graduate is linked with a much-higher additional Php126,500 in total household income.
- In developed Metro Manila, each additional high school graduate is linked with an additional Php34,500 in total household income, whereas in conflict-ridden ARMM the same does not add anything to total household income.
- In Metro Manila, each additional college graduate is associated with an additional Php188,000 in total household income, whereas in ARMM the same is linked with only an additional Php53,000.
- CALABARZON is another location with a high return to human capital, with each additional college graduate being associated with an additional Php175,500 in total household income.

Regression Results 2

- A similar model as in 1 but with total household wages and remittances as dependent variable is also estimated.
- The model has an even higher explanatory power, with the model being able to explain 46 percent of the variation in total household wages and remittances.
- This suggests that the effect of location and human capital on total household income comes mainly through increased likelihood of finding quality employment (wage and salary jobs and overseas employment).

Poverty Persistence

Table 13. Poverty Incidence (based on income) by Education of Most Educated Adult HH Member, 2004 to 2008 Panel

Education level of Most educated member in 2004	2004	2007	2008	# of HHs
Elementary and below	55.1	55.3	48.7	1,829
HS undergrad	48.8	51.3	46.7	946
HS grad	34.5	32.9	30.2	1,916
College undergrad	19.2	21.0	18.4	1,345
College grad	5.9	5.8	6.0	1,538
Total	32.7	33.0	29.7	7,574

Source: NSO's APIS 2004, 2007, and 2008 panel data

Poverty Persistence

Table 14. Poverty Transition for HHs whose Most Educated Member is an Elementary Graduate or lower in 2004

Poverty Status	Non-poor in 2008	Poor in 2008	Total
Non-poor in 2004	0.34	0.11	0.45
Poor in 2004	0.15	0.40	0.55
Total	0.49	0.51	1.00

*Figures in table are proportions to total household population whose Most Educated Member is an Elementary Graduate or lower (w/c totaled 1,829 in 2004).

Source: NSO's APIS 2004, 2007, and 2008 panel data

Persistence rate = $0.40/0.55 = 0.72$

Poverty Persistence

Table 15. Poverty Transition for HHs whose Most Educated Member is a High School Undergraduate in 2004

Poverty Status	Non-poor in		Total
	2008	Poor in 2008	
Non-poor in 2004	0.36	0.15	0.51
Poor in 2004	0.16	0.33	0.49
Total	0.52	0.48	1.00

*Figures in table are proportions to total household population whose Most Educated Member is a high school undergraduate (w/c totaled 946 in 2004).

Source: NSO's APIS 2004, 2007, and 2008 panel data

Persistence rate = $0.33/0.49 = 0.68$

Poverty Persistence

Table 16. Poverty Transition for HHs whose Most Educated Member is a High School Graduate in 2004

Poverty Status	Non-poor in		Total
	2008	Poor in 2008	
Non-poor in 2004	0.55	0.11	0.66
Poor in 2004	0.14	0.20	0.34
Total	0.69	0.31	1.00

*Figures in table are proportions to total household population whose Most Educated Member is a high school graduate (w/c totaled 1,916 in 2004).

Source: NSO's APIS 2004, 2007, and 2008 panel data

$$\text{Persistence rate} = 0.20/0.34 = 0.58$$

Poverty Persistence

Table 17. Poverty Transition for HHs whose Most Educated Member is a College Undergraduate in 2004

Poverty Status	Non-poor in		Total
	2008	Poor in 2008	
Non-poor in 2004	0.73	0.08	0.81
Poor in 2004	0.10	0.09	0.19
Total	0.82	0.18	1.00

*Figures in table are proportions to total household population whose Most Educated Member is a college undergraduate (w/c totaled 1,345 in 2004).

Source: NSO's APIS 2004, 2007, and 2008 panel data

Persistence rate = $0.09/0.19 = 0.49$

Poverty Persistence

Table 18. Poverty Transition for HHs whose Most Educated Member is a College Graduate in 2004

Poverty Status	Non-poor in		Total
	2008	Poor in 2008	
Non-poor in 2004	0.90	0.03	0.93
Poor in 2004	0.04	0.03	0.07
Total	0.94	0.06	1.00

*Figures in table are proportions to total household population whose Most Educated Member is a college graduate (w/c totaled 1,538 in 2004).

Source: NSO's APIS 2004, 2007, and 2008 panel data

Persistence rate = $0.03/0.07 = 0.48$

SUMMARY OF FINDINGS AND RECOMMENDATIONS

- Education, location, and their interaction are key determinants of household income.
- Families in underdeveloped and poorly endowed areas suffer most from not getting educated.
- Poverty persists more strongly among the less educated than among those with higher education.
- The poor underinvest in education.

- The paper directs attention to the failure of policy to address the dire inequality of infrastructure development across geographic areas and the extent of poverty in remote areas that have disabled their population from lifting themselves up the income ladder.
- Need to develop strategies that would address the geographic isolation of areas where serious poverty has persisted.
 - good transport system that would link isolated and underdeveloped areas to the nearest central cities;
 - access to information on and supply of productivity-enhancing technologies for their livelihood, whether agriculture, fishing or tourism, and access to good quality high school education.

These would raise the productivity of their labor and resources and allow them to acquire human capital and capacity to migrate. The MDG goals would be difficult to achieve without addressing the inequality of social and economic development of rural areas, especially the remote ones.