Social Safety Nets: The Role of Education, Remittances and Migration

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Thanks to

• European Report on Development (ERD)
• Giorgia Giovanetti.
• Conference in Dakar 2010
History of African Education

• Massive Efforts at Education
• Migration
• Remittances
• Social Protection?
What Social Protection?

• Not Variability of Incomes!
• Illustration from GLSS Data
GLSS 20006 Data

• There are 4 educational categories we consider “No Schooling', Primary, Secondary, and Tertiary
• with observations of size 7034, 5011, 7780 and 290 respectively.
LIFE CYCLE OF INCOMES

Life cycle earnings profile for different education levels (2006)

- never in school
- some primary
- secondary completed
- post-secondary and tertiary

Average yearly earnings in ca$hs

Age

10 20 30 40 50 60 70 80
Variability?
(Standard Deviation of Incomes)
UN Millenium Dev Goal #1

Poverty as defined by poverty line of $1 per day in 2000.

Other nutrition based measures of poverty line.
Foster-Greer-Thorbecke

- Quadratic version in Mexican Constitution?
- Actual income $y$
- cutoff poverty income level $z$
- GAP = $z-y$
- FGT is sum of gaps
• $W = \sum_{i=1,2,\ldots,H} (z - y_i)$

• Representative Individual Version

\[ W = \int_{0}^{z} (z-y)g(y)\,dy \]
Dynamics

Give me a fish and I eat for a day. Teach me to fish and I eat for a lifetime.

Confucius?
Poverty and Education

Proportion of individuals living in poverty across education groups over time (2006)

- never in school
- some primary
- secondary completed
- post-secondary and tertiary

fraction in poverty

age

10 20 30 40 50 60 70 80
Expected Social Transfers

Expected Social Transfers for each Education Group (2006)

- never in school
- some primary
- secondary completed
- post-secondary and tertiary
Cost-Benefit Analysis of Education

NPV of Poverty:
\[ W_t = \sum_{i=1,2,\ldots,H} (z_t - y_{it}) \]

\[ \delta = 1/(1+r) \quad \text{(captures patience)} \]

\[ PV = - \sum_{t=0}^{\infty} \delta^t W_t \]
Compute NPV’s

Example:
Net Benefit of Increased primary Schooling

= Reduced poverty minus increased costs of primary schooling.

Compute Internal Rate of Return
# Costs of Education

\[ \Delta C_s \]

Public expenditure per pupil (or per capita)

\((\$62, \ \$167, \ \$1016)\)

<table>
<thead>
<tr>
<th>Level of Schooling</th>
<th>% of GDP</th>
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<tbody>
<tr>
<td>Primary</td>
<td>0.13</td>
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<tr>
<td>Secondary</td>
<td>0.34</td>
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<tr>
<td>Tertiary</td>
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Education and Social Protection

\[ \Delta \text{SP}(s+1) \]

\[ = PV_{s+1} - PV_s - \Delta C_{s+1} \]

\[ = \sum_{t=0}^{\infty} \delta^t [ W_{t,s} - W_{t,s+1} - \Delta C_{s+1} ]. \]
NPV of Social Protection Investment in Education

Primary

PV (at r=5\%) of Primary SP + Costs: US$ -2924.48
PV (at r=5\%) of No Education SP: US$ -3170.20
IRR = 7.10\%
NPV of Social Protection Investment in Education
Primary
NPV (at $r=5\%) = \text{US\$ 245.72}
IRR = 7.10\%
NPV of Social Protection Investment in Education

Secondary
PV (at r=5%) of Secondary SP + Costs: US$ -3476.42
PV (at r=5%) of Primary SP: US$ -3483.90
IRR = 5.12%

[Graph showing the NPV of Social Protection Investments for Secondary and Primary levels over varying interest rates.]
NPV of Social Protection Investment in Education

Tertiary
PV (at r=5%) of Tertiary SP + Costs: US$ -5867.06
PV (at r=5%) of Secondary SP: US$ -3430.49
IRR = -1.11%
Add the Boost from Migration and Remittances
Other Household Data Sets
<table>
<thead>
<tr>
<th>Country</th>
<th>Survey</th>
<th>Income</th>
<th>Employment</th>
<th>Education</th>
<th>Migration</th>
<th>Remittances</th>
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Hidden Agenda

Education
Age Pyramid for Ghana
Total Pop is 21.913 M in 2005

Cumulative Distribution of the Population by Age
Human Capital Age Pyramid for GHA
Total Pop is 21.913 M in 2000

Age:
- 65+
- 60-64
- 55-59
- 50-54
- 45-49
- 40-44
- 35-39
- 30-34
- 25-29
- 20-24
- 15-19
- 10-14
- 5-9
- 0-4

Fraction of Total Population

Legend:
- None
- Primary
- Sec.
- Tertiary
Italy
Age Pyramid for Italy
Total Pop is 58.646 M in 2005

Cumulative Distribution of the Population by Age
Italy Education

Human Capital Age Pyramid for ITA
Total Pop is 58.646 M in 2000

Fraction of Total Population

0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2

Age

65+
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4

None
Primary
Sec.
Tertiary
Vast Literature

Conclusion

• Education as cost-effective long run social Protection.
• When you add other known benefits of education, you get much larger positives.