The Effects of Household Size and Other Factors on School Participation in Urban and Rural Households: Case of Pasay City and Eastern Samar in the Philippines

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December 2011
• Philippines
  – Millennium Development Goals: **Universal access to primary education by 2015**
  – Department of Education (DepEd):
    • SY 2008 to 2009: the net enrollment rate is 85 percent.
  – National Statistical Coordination Board (NSCB)
    • the number of Filipino children that do not have access to primary education has increased to 16.8 percent in 2007 from 15.6 percent in 2006

• **Supply Factors**
  – ability of the government to provide resources to finance education including the hiring of teachers, construction of school facilities and the provision of books, school supplies, and other educational inputs.

• **Demand Factors**
  – Factors including household income, cost of education, and demographic characteristics of the households (age structure and family characteristics)
Introduction

• School participation completes the link between population, education and economic growth → investment in human capital

• Objectives
  - To measure the elementary school participation rate among urban and rural households
  - To identify demographic factors, economic factors, and household characteristics that may influence elementary school participation rate among urban and rural households
  - To test the significance of factors determining elementary school participation rate
  - To draw policy implications that LGUs and NGOs can undertake or intervene in addressing non-participation which can contribute in meeting the MDG.
• **Significance**
  - answer the MDG on education and manage population growth
  - undertake empirically-based interventions in enhancing school participation rate at the household level.
  - address the supply factors affecting school participation rate since the LGUs and NGOs can identify the relevant demand factors that affect the communities that they served.
Demand for Education

**Why get an education?**
- Transfer of education across generations
- Family characteristics
- Characteristics of society and environment

**Determinants**
- Trivial Factors (distance of school to homes, entrance exam difficulty, grade requirements)
- Financial Capability (income and wealth)
- Family Characteristics (family size, educational attainment of parents, employment of parents)

**Human Capital Theory**
- Factors that increase the return on education:
  - Employability
  - Domestic Economic Progress
  - Rate of Return
  - Availability of Credits
Demand for Education

- **Models of Education Demand and School Participation**
  
  - Lillard & Willis (1994) and Binder & Woodruff (1999): relation between educational attainment of parents and children are significantly positive
  
  - Blake (1981): number of children inversely affect the quality of education each child receives due to the reallocation of resources to other survival needs
  
  - Eijick and de Graaf (1995): family size reduces children’s educational attainment, parental resources support the career of their children
  
  - Blau and Duncan Model of Social Attainment: educational and occupational status is transferred across succeeding generations through the status attainment process. Parental positions exert a positive, significant effect on schooling of children (Haller & Portes, 1973)
Demand for Education

- Models of Education Demand and School Participation

  - Wisconsin Model: socioeconomic status of the family affects children’s educational and eventual occupational attainment (Chevalier and Lanot, 2001)

  - Becker & Lewis (1973): resource dilution, quality of education and quantity of children are interrelated

  - Björklund, Ginther, & Sundström (2004): two-parent households are associated with higher income relative to single-parents

  - Mahler & Winkelmann (2004): family resource allocation is different for children depending on the order of birth
Demand for Education

• Models of Education Demand and School Participation

  - López & Valdés (2000): rural areas have less access to schools and teachers, higher opportunity costs due to agricultural employment opportunities

  - Hannum (1999): infrastructure in urban areas worsen rural-urban educational inequality

Methodology

• Data Requirements
  - Community Based Monitoring System (CBMS)

• Model Specification

  \[ SPR_i = f(HI_i, NOFW_i, ESHH_i, HSIZE_i, NELEM612_i, EDUHH_i, AGEHH_i, SHGR_i, DSW\_NEAR_i, ELECT_i, TYPMAT_i, URBAN_i) \]

• Estimation Procedure
  - Ordinary Least Squares Regression (OLS)
Methodology

- **SPR** = School Participation Rate
- **HI** = Household Income
- **NOFW** = Number of OFWs in the Household
- **ESHH** = Employment Status of Household Head (Permanent, Temporary, or Seasonal)
- **FSIZE** = Household Size
- **NELEM612** = Household Members Age 6 to 12
- **EDUHH** = Educational Attainment of Household Head
- **AGEHH** = Age of Household Head
- **SHGR** = Experienced State of Hunger (1 = Yes; 0 = Otherwise)
- **DSW_NEAR** = Distance of Water Source (1 = Near; 0 = Otherwise)
- **ELECT** = Availability of Electricity (1 = With Electricity; 0 = Otherwise)
- **TYPMAT** = Strength of House Construction Materials (1 = Strong; 0 = Otherwise for Walls and Roofs)
- **URBAN** = Urbanity (1 = Urban; 0 = Rural)
### Results for Pasay City

| Variables          | Estimated Coefficient | Robust Standard Error | $P > |t|$ | Number of Observations | $R^2$ | Root MSE |
|--------------------|-----------------------|-----------------------|--------|------------------------|-------|-----------|
| $HI_i$             | 0.0000                | 0.0000                | 0.000  | F (15, 39,547)         |       |           |
| $NOFW_i$           | 0.0156                | 0.0370                | 0.673  | Prob > F               |       |           |
| $ES\_PERMANENT_i$  | 0.0169                | 0.0189                | 0.371  | R-squared              | 0.4352|           |
| $ES\_SEASONAL_i$   | -0.0243               | 0.0404                | 0.548  | Root MSE               | 0.2875|           |
| $ES\_TEMPORARY_i$  | -0.1442               | 0.0844                | 0.088  |                        |       |           |
| $HSIZE_i$          | -0.0187               | 0.0095                | 0.050  |                        |       |           |
| $NELEM612_i$       | 0.3047                | 0.0176                | 0.000  |                        |       |           |
| $EDUHH_i$          | -0.0008               | 0.0016                | 0.607  |                        |       |           |
| $AGEHH_i$          | 0.0000                | 0.0009                | 0.963  |                        |       |           |
| $SHGR_i$           | -0.4789               | 0.0330                | 0.000  |                        |       |           |
| $DSW\_NEAR_i$      | -0.0052               | 0.0179                | 0.771  |                        |       |           |
| $ELECT_i$          | 0.1655                | 0.0677                | 0.015  |                        |       |           |
| $WALLSTRONG_i$     | 0.0267                | 0.0248                | 0.281  |                        |       |           |
| $ROOFSTRONG_i$     | -0.0106               | 0.0196                | 0.589  |                        |       |           |
| $URBAN\_i$         |                      | dropped               |        |                        |       |           |
| Constant           | 0.3059                | 0.0970                | 0.002  |                        |       |           |
# Results for Eastern Samar

| Variables (\(Y_i = \text{SPR}\)) | Estimated Coefficient | Robust Standard Error | \(P > |t|\) | Number of Observations |  \\
<table>
<thead>
<tr>
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<td>(HI)</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.000</td>
<td>F (15, 39,547)</td>
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<tr>
<td>(NOFW)</td>
<td>-0.0085</td>
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<td>Prob &gt; F</td>
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<td>(ES_PERMANENT)</td>
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<td>R-squared</td>
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<td>Root MSE</td>
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<tr>
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<td>(ELECT)</td>
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<td>(ROOFSTRONG)</td>
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<tr>
<td>Constant</td>
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Number of Observations: 39,563
Findings

• **School Participation Rate**
  - Pasay: 78.87% out of 13,877 households
  - Eastern Samar: 76.46% out of 40,326 households
  - These estimates are alarmingly lower than the national average net enrollment rate of 85%

• **Household Income**
  - Infinitesimally small, yet significant, positive effect on school participation, implying higher income encourages families to send children to school
  - Income distribution is positively skewed, implying most households have low income levels

• **Number of OFW**
  - Positive, but insignificant effect on school participation, due to remittances affecting the decision to send children to school or to migrate
Findings

- **Employment Status**
  - In Pasay, Permanent employment has positive but insignificant effect, possibly due to security of tenure. Seasonal/temporary employment has negative and significant effect due to unstable income flows.
  - In Eastern Samar, both permanent and temporary employment encourage children to go to school.

- **Household Size**
  - Negative, significant effect on school participation, implying that a bigger household will allocate less funds for education.

- **Educational Attainment of Household Head**
  - Pasay: negative and insignificant, consistent in rural areas.
  - Eastern Samar: positive and significant.

- **Age of Household Head**
  - Pasay: Positive but insignificant.
  - Eastern Samar: Positive and significant.
Findings

- **State of Hunger**
  - Negative and significant effect on school participation.
  - The pervasiveness of hunger in the household truly lead to lower school participation

- **Accessibility of Water**
  - Pasay: negative but insignificant effect
  - Eastern Samar: positive but insignificant effect
  - Does not confirm the relevance of hygiene to school participation

- **Presence of Electricity**
  - Positive and highly significant effect on school participation
  - Electricity is a complementary resource that help children study
Findings

• Housing Features
  - Pasay: insignificant effect
  - Eastern Samar: positive and significant effect
  - Physical environment at home affects school performance and participation

• Urbanization
  - Households situated in the urban area has a negative and insignificant impact on school participation rate.
  - Education is not affected by whether or not the household is situated in the urban or rural area
Recommendations

• Policy Recommendation
  - Because of the spatial-differential impacts of socio-economic and demographic factors, intervention can be done at the local government unit level
  - Priority must be placed on addressing population growth, especially since family size decreases school participation rate.
  - Opportunities to raise household income should be increased such as employment opportunities, particularly in rural areas
  - Intervention can be done through the enhancement and provision of public services such as:
    • food distribution and medical support
    • housing services and employment generation
Recommendations

• Socioeconomic Development and Urbanization
  - Improvement of access and proximity to schools
  - Improvement of transportation and communication infrastructure
  - Enhance school and labor market opportunities
  - Provide job opportunities that will provide households with permanent employment and permanent income
  - substitutability between education and other goods will be mitigated
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End

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