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The Role of Income and Employment on School Participation Rate in Pasay City and Eastern Samar[1]

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The Philippines committed itself to the United Nations' Millennium Development Goals (MDG), one of which is the universal access to primary education by 2015. To address the goal, supply factors and demand factors must be considered. Supply factors refer to the ability of the government to provide resources to finance elementary education. Demand factors refer to the variables affecting household's decision to demand educational services such as income, education cost, and demographic characteristics of the households: age structure and family characteristics. This study explored the extent to which household income and household head employment status influence elementary school participation rate among urban and rural households. Based on household data, it was empirically verified that the magnitude of household income does not significantly affect school participation. Although household income has a very small impact on school participation, it must not be ignored because of the probability that households will use the additional income received to augment the insufficiency of basic sustenance that can aid in increasing school participation. Another important result of the study is the varying and positive impact of the employment status on school participation in Pasay and Eastern Samar respectively. School participation can be guaranteed if the household head is employed. This dictum does hold true in Pasay City and Eastern Samar evidencing that parent's employment status plays an important role in the school participation of children as suggested in the literature.

Keywords: employment status, human capital theory, millennium development goals on education, and school participation

The Philippine government has committed the country to the United Nations Millennium Development Goals (MDG), one of which is the universal access to primary education by year 2015. This is a daunting task given that the net enrollment rate is only 85 percent in the 2008 to 2009 school year and the wide variability of school participation rates across regions.

To address the MDG target on education, both supply factors and demand factors have to be considered. Supply factors refer to the capacity of various institutions to provide increasing resources to finance elementary education including the hiring of teachers, construction of school facilities, and the provision of books, school supplies, and other educational inputs. On the other hand,

demand factors refer to the household's decision to demand educational services. This can refer to a host of variables including household income, cost of education, and demographic characteristics of the households such as age structure and family characteristics.

From a strategic perspective, what is crucial in the attainment of the MDG on education is to target the demand factors notwithstanding the importance and crucial role played by the supply factors. The increasing trend of non-attendance and withdrawal from the school system is likely influenced by demand factors including family income and opportunity cost more than the capacity of public institutions to provide of educational facilities. Once these demand factors are identified at the household level, various institutions like lower government units (LGUs) and non-government organizations (NGOs) can provide the appropriate interventions to address the non-attendance of children.

Given this backdrop, it is vital to understand the factors that influence non-attendance. In particular, the study is interested in the economic factors, specifically the role played by household income and employment status of household head in school participation rate.

This study is significant to policy makers in their attempt to answer the MDG on education. In particular, it is relevant to LGUs and NGOs since these institutions can undertake empirically-based interventions in enhancing school participation rate at the household level. This is more effective than the usual increase in budgetary allocations made by the national government to 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.

THE DEMAND FOR EDUCATION

The Human Capital Theory

The human capital theory, which views education as a form of investment where individuals compare the direct, indirect, psychic, and opportunity costs of education with the future benefits of education. Individuals continue to invest in education until its marginal benefits are equal to its marginal costs (Schultz, 1960). A key characteristic of this theory is Adam Smith's notion that investment in education and skill formation is a significant factor in economic growth, just as investments in physical plants and equipments are too. Furthermore, Becker (1965), Becker and Lewis (1973), and Todaro and Smith (2006) deemed that investment in knowledge, skills, and health will not only benefit the individual, but can also increase an employer's or country's human capital resource pool and potential productivity.

Moreover, the theory corresponds to the decisions of a household in evaluating the determinants of investment in schooling. Becker and Tomes (1993) proposed that the household head makes decisions regarding the proper allocation of the family's economic resources. The allocation of family resources to the children is affected by the nature of these resources as well as the timing of their distribution. Thus, altruistic parents maximize household utility with respect to the number of children, the quality of children, a composite consumption good, and the leisure of household members, which is subjected to income and time constraints for the household members. Optimization results to a set of reduced form household demand function for the number of children, children's education, the consumption good, leisure, as well as the derived demand function for the market goods and labor force participation.

Consequently, the demand for children's education can be represented as a function of household income, market prices of inputs, unearned household income, and a set of child, household, and community characteristics. It is assumed that parents are altruistic and that imperfect capital markets exist. As a result, this situation produces causal relationships between prices, income, and an individual's school participation. Since education is assumed to be a normal good, higher income and wealth will increase school participation holding other

factors constant. Likewise, if schooling is deemed to be an investment good, a positive relation will still exist between schooling and income under imperfect capital markets, since higher income households are able to send their children to school. However, the largest part of education cost is the opportunity cost of children's time that can be spent by being part of the labor force instead of in school (Haveman & Wolfe, 1984).

Income and Employment as Determinant of School Participation

Studies that explained why an individual enters school through analyzing the impact of various factors affecting school participation and educational attainment have been considered essential in justifying Adam Smith's view that education is as important as investments in physical plants and equipment in promoting growth and development for the entire economy. These studies can be categorized into three groups, namely, the transfer of education across generations, the family characteristics to which an individual belongs, and the characteristics of the individual's society and environment (Borromeo, Castillo, & Lopez, 2007).

Estimation on demand for education has been influenced by domestic factors including employability, domestic economic progress, rate of return, and availability of credits. Income has been a significant determinant based on the study of Hauser and Daymont (1977) that looked at how the financial capability of households affects the demand for education or school participation of children in a household. They observed that each dollar of parental income is positively related to educational demand. Tullao and Rivera (2008) verified this result and was able to observe that income and relative prices are deemed to be important determinants in the estimated demand equations for basic education**.** Furthermore, Björklund, Ginther, and Sundström (2004) concluded that a two-parent household is expected to have high household income while a single-parent household is associated with low household income since only one parent is providing for all the needs of the children.

More importantly, family characteristics are also significant factors affecting school participation and demand for education. These include school attendance and eventual educational attainment of children in the family (Borromeo et al., 2007). Family structures are also considered to be determinants of education as Biblarz and Raftery (1999) show that the education of the parents in a family is positively associated with their children's educational attainment. Agreeing with these findings are Lillard and Willis (1994) and Binder and Woodruff (1999), who also found out that students whose heads of the family do not belong to the labor force report reduced educational attainment. These results imply that students will demand education based on their parental achievements, societal status, and family size.

Another underlying theory behind the demand for education is the Blau and Duncan Model of Social Attainment cited by Haller and Portes (1973). It hypothesizes that educational and occupational status is transferred among succeeding generations, from the parents to their children, through the status attainment process. Likewise, it also hypothesizes that parental positions exert a significant and positive effect on the eventual schooling that is achieved by their children (Haller & Portes, 1973). This is augmented by the Wisconsin Model stating that the socioeconomic status of the family affects children's educational and eventual occupational attainment. Undeniably, households who are economically privileged are more likely to have higher school participation compared from financially-constrained families who have to prioritize their demand for basic needs such as food, clothing, and shelter before investing in education (Chevalier & Lanot, 2001).

METHODOLOGY

In tracing the impact of household income and household head employment status on school

participation among children in urban and rural areas, the 2008 household data from Pasay City and 2007 household data from Eastern Samar available from the Community Based Monitoring System (CBMS) was utilized. The CBMS database is an appropriate dataset for this study because it is specifically used for needs identification, design and monitoring of program interventions at all geopolitical levels, and research.

Given the framework of analysis, the functional relationship of the variables influencing the school participation in households for Pasay City and Eastern Samar is shown by Equation 1.

$$SPR_i = f(HI_i, NOFW_i, ESHH_i, HSIZE_i, NELEM612_i, EDUHH_i, AGEHH_i, SHGR_i, DSW\_NEAR_i, ELECT_i, TYPMAT_i, URBAN_i) \quad (1)$$

Where:

SPR_i is the school participation rate of household *i*. This is measured by the number of children in the household with age ranging from 6 to 12 who are attending grade school divided by the total number of children in the household with age ranging from 6 to 12 years old.

HI_i is household income that consists of earned family income, internal and external remittances, and other sources of income. The a-priori expectation is that higher level of family income will enable families to send their children to school, thus increasing school participation rate.

$NOFW_i$ is the number of family members who are working overseas. This variable is an indication of the presence of external source of income. The a-priori expectation is that it has a positive effect on school participation rate since these members are sources of remittance income.

$ESHH_i$ is the employment status of the household head. This is a dummy variable indicating whether employment is permanent ($ES\_PERMANENT_i$), seasonal ($ES\_SEASONAL_i$), temporary ($ES\_TEMPORARY_i$), or others (ES_OTHERS_i). Categories assume a value of 1 if the household head is permanent, seasonal, temporary, or others, and 0 otherwise.

$HSIZE_i$ is the household size. The size of the family will have a negative impact on the school participation rate. Other things being equal, we expect that a smaller family will have a higher school participation rate. Larger families may tend to spend more on basic necessities like food, clothing, and shelter while education may take a second priority.

$NELEM612_i$ is the number of household members, with age 6 to 12, who are attending elementary education. Since these members are those who

#	Highest Educational Attainment	#	Highest Educational Attainment
0	No Grade	24	Fourth/Fifth Year High School
1	Day Care	25	High School Graduate
2	Nurser/Kindergarten/Preparatory	26	First Year PS
11	Grade 1	27	Second Year PS
12	Grade 2	28	Third Year PS
13	Grade 3	29	PS Graduate
14	Grade 4	31	First Year College
15	Grade 5	32	Second Year College
16	Grade 6/7	33	Third Year College
17	Elementary Graduate	34	Fourth Year College or Higher
21	First Year High School	35	College Graduate
22	Second Year High School	36	With units in Masters / Doctors
23	Third Year High School	37	Masters / Doctors Degree

demand for education, this is expected to have a positive impact on the school participation rate.

$EDUHH_i$ is highest educational attainment of household head. Various literature have established that the educational attainment of parents do have an influence on the educational attainment of their children. Thus, we expect that family headed by highly educated individual will have higher school participation rate. Show on the other is the numerical representation of the highest educational attainment of the household head as used in the CBMS dataset. Note that a higher number is assigned to higher levels of education.

$AGEHH_i$ is the age of household head. There is a positive relationship between the age of the household head and household school participation rate. As the head of the family matures, we expect that more children in the household will be attending schools. Moreover, aside from the level of psychological maturity, this variable also captures the level of income earned by the household head. As the household head matures due to experience, it is expected that the level of income that can flow into the households will be larger. Thus, as the household head matures, the there will be more inflow of income in the household which can be used to send children to school. Hence, school participation rate will increase.

$SHGR_i$ is a dummy variable to indicate the state of hunger of a household. It assumes a value of 1 if the household experienced hunger or food shortage. Prevalence of hunger in the family may lead to lower school participation rate of children. Higher level of hunger may also lead to higher school drop out rate.

DSW_NEAR_i indicates the distance of the household from the source of water. It assumes a value of 1 if the distance of household from source of water is near and 0 otherwise. Note that when the water source is inside the household fence or yard and/or outside the fence or yard but less than 250 meters, it is deemed to be near. On the other hand, when the water source is more than 250 meters away from the household and/or the distance is undetermined, it is deemed to be far. Difficulties in getting water may lead to lower school participation rate since school children are required to be neat when attending school.

$ELECT_i$ is a dummy variable to indicate the presence of electricity in the household. It assumes a value of 1 if the household has electricity and 0 otherwise. School attendance may be influenced by the presence of electric power in the household since children will have to do school works under a well-lighted environment.

$TYPMAT_i$ is a dummy variable to indicate the strength and type of building materials used in the construction of the walls and roofs of the respective houses. It assumes a value of 1 if the walls ($WALLSTRONG_i$) and/or roofs ($ROOFSTRONG_i$) are made of strong materials and 0 if the walls and/or roofs are made of light materials, salvaged materials, or a mixture of strong, light, and/or salvaged materials. Aside from school environment, the physical environment at home can also affect school attendance and performance. The more sustainable human settlements are the more conducive for learning. Furthermore, the type of material used in the construction of houses also captures the level of household wealth. It is likely that households using stronger materials for the construction of their respective houses are wealthier than those who do not. Therefore, the wealthier the household is, the more likely that they will send their children to school thus increasing school participation rate.

$URBAN_i$ is a dummy variable to indicate the level of urbanization where the household is situated. It assumes a value of 1 if the household is situated in the urban area and 0 otherwise. Urbanization, which can be deemed part of socioeconomic development, improves access and proximity to schools by improving transportation and communication infrastructures; and such influences the decision of household heads to send

their children to school. Hence, it is expected that if the household is situated in urban areas, school participation will be higher. Note that this variable will not appear in the regression for Pasay because it is already an urban area.

An econometric analysis will be undertaken to estimate the participation rate of school children in households. We will treat the cross-sectional data with Ordinary Least Squares (OLS) regression to analyze the statistical significance of the various variables on school participation. The general model specification is shown by Equation 2. Although the focus of this study is only on income and employment, the other determinants of school participation as enumerated by the literature, which are held constant in the analysis, must still be included.

$$SPR_i = \beta_0 + \beta_1 HI_i + \beta_2 NOFW_i + \beta_3 ES\_PERMANENT_i + \beta_4 ES\_SEASONAL_i + \beta_5 ES\_TEMPORARY_i + \beta_6 HSIZE_i + \beta_7 NELEM612_i + \beta_8 EDUHH_i + \beta_9 \ln AGEHH_i + \beta_{10} SHGR_i + \beta_{11} DSW\_NEAR_i + \beta_{12} ELECT_i + \beta_{13} WALLSTRONG_i + \beta_{14} ROOFSTRONG_i + \beta_{15} URBAN_i + u_i \quad (2)$$

RESULTS AND DISCUSSION

The results of the Ordinary Least Squares Regression for Pasay City and Eastern Samar are shown in Table 1. Note that all results shown in Table 1 are already corrected for violations of the Classical Linear Regression Model

Table 1
Ordinary Least Squares Regression Results for Pasay City and Eastern Samar

Variables ($Y_i = SPR_i$)	Pasay		Eastern Samar	
	Estimated Coefficient	$P > \|t\|$	Estimated Coefficient	$P > \|t\|$
HI_i	0.0000	0.000	0.0000	0.000
$NOFW_i$	0.0156	0.673	-0.0085	0.203
$ES\_PERMANENT_i$	0.0169	0.371	0.0315	0.000
$ES\_SEASONAL_i$	-0.0243	0.548	0.0331	0.000
$ES\_TEMPORARY_i$	-0.1442	0.088	0.0186	0.002
$HSIZE_i$	-0.0187	0.050	-0.0444	0.000
$NELEM612_i$	0.3047	0.000	0.2699	0.000
$EDUHH_i$	-0.0008	0.607	0.0020	0.000
$AGEHH_i$	0.0000	0.963	0.0037	0.000
$SHGR_i$	-0.4789	0.000	-0.0130	0.001
DSW_NEAR_i	-0.0052	0.771	0.0042	0.206
$ELECT_i$	0.1655	0.015	0.0352	0.000
$WALLSTRONG_i$	0.0267	0.281	0.0072	0.083
$ROOFSTRONG_i$	-0.0106	0.589	0.0110	0.006
$URBAN_i$	.	.	-0.0034	0.279
Constant	0.3059	0.002	0.3910	0.000
Number of Observations	1,095		39,563	
F (15, 39,547)	.		1,508.87	
Prob > F	.		0.0000	
R-squared	0.4352		0.4281	
Root MSE	0.2875		0.2697	

(CLRM) assumptions of multicollinearity and heteroscedasticity.

Results show that household income is statistically significant in explaining school participation rate. Since education is deemed to be consumption good, by income effect, higher level of household income will enable families to send their children to school because education is integral to the formation of the children in the household, thus increasing school participation rate. Moreover, it can be implied that a household who has a substantial amount of income belongs to a higher income group; hence, it will send its children to school. However, the magnitude of the effect of household income on school participation is minuscule. One explanation for this result is the high public provision of elementary education in the Philippines. Also, the distribution of household income is positively skewed wherein a significant number of household have relatively low income. Hence, as household income increases, it does not allocate a huge amount of income to finance the direct cost of education that will lead to higher school participation. Since primary education is publicly provided, households tend to allocate their additional income to finance the indirect cost of education as well as other household costs such as food, clothing, and shelter.

On the other hand, the employment status of the household head in Pasay City shows varied results. Being permanently employed has a positive but insignificant impact on school participation rate. Note that being permanently employed refers to the existence of a stable and secure job that brings about a continuous flow of income into the household. Hence, being permanently employed will guarantee the capacity of parents to send its children to school. However, the insignificance can be explained behaviorally by the fact that parents who are permanently employed are those who cannot monitor the study habits of their children since they are preoccupied with their jobs. There is a trade-off between the capacity to earn more and the capacity to monitor the academic well-being of children. However, there are still a lot of reasons regarding the insignificance permanent employment on school participation.

Meanwhile, being seasonally and temporarily employed has a negative impact on school participation. However, only temporary employment is significant. Results imply that there is a tendency for a household head temporarily employed to reduce the chances of sending its children to school. Note that being temporarily employed means that the household head does not have a stable means of sourcing income because they would only work for only a certain period of time. With an unstable source of income, this implies that the family will have a smaller amount of money to spend for. Due to this premise, the family will have a harder time to be able to send their children to school because of the costs involved whether in private or public school especially that they are in an urban area where the standard of living is higher. Hence, the priority of the household is to supply for the daily and immediate needs of the household members. Furthermore, being temporarily employed in an urban area implies that the person is usually part of the lower income bracket, which does not have a strong financial capacity to send their children to school because of the environment they live in.

A similar explanation is also seen for the insignificance of being seasonally employed. Such a decrease in the school participation rate can be attributed to the inconsistent flow of income into the household. Undergoing education entails stable income due to the surplus of expenses incurred not only for tuition fees, but also for transportation, food and schools materials. If income is highly fluctuating and unpredictable, school participation can also fluctuate. Being unable to sustain a student's education during certain periods of the year, there is no guarantee that a child will stay in school. This may result in a significant drop in academic performance, and eventually lead to dropping out of school. Furthermore, seasonal and temporary employments will result to the inadequacy of income which will force households to send their children to work instead to school (Todaro & Smith, 2006). Note that there

is a wide array of blue-collared jobs available in urban areas.

On the other hand, looking at the results from a provincial area, represented by Eastern Samar, household income is statistically significant in explaining school participation rate. As explained above, since education is deemed to be consumption good, by income effect, higher level of household income will enable families to send their children to school, thus increasing school participation rate. However, the magnitude of the effect of household income on school participation is infinitesimal. One explanation for this result is the public provision of elementary education in the provinces. Also, the distribution of household income in Eastern Samar is positively skewed or the mass of housheold distribution is concentrated on the left where the values of household income are relatively low. Such result also implies that as the income of the household increase, it does not allocate a huge amount of income to finance the direct cost of education that will lead to higher school participation. Since primary education is publicly provided, households tend to allocate their additional income to finance the indirect cost of education as well as other household costs such as food, clothing, and shelter.

On the other hand, the employment status of the household head, whether permanent, seasonal, or temporary, is positive and statistically significant in explaining school participation rate. Regardless of the employment status of the household head, as long as the household head generates income for the financing not only the direct cost of education but also the indirect and psychic costs of education, school participation will increase. Note that having a permanent job status and seasonal job status has the highest marginal contribution to school participation rate of 0.0315 and 0.0331 respectively, while having a temporary job status has the lowest impact in increasing school participation rate of 0.0186. Hence, the more stable the job the household head is, the more assured that children will be able to finish school and avoid dropouts.

CONCLUSION AND RECOMMENDATIONS

The overall objective of this study is to explore the extent to which household income and household head employment status influence elementary school participation rate among urban and rural households. Based on household data, we have empirically verified that the magnitude of household income does not significantly affect school participation. Since education is deemed to be a consumption good, such result does not imply that the income effect does not hold true. As the income of households increases, they will also increase their expenditures on normal and superior goods and services including education; however, Eastern Samar is a provincial area where primary education is publicly provided. Hence, income will be allocated to non-educational expenditures. It might also be the case that households, whether in Pasay City or Eastern Samar, base their decisions including whether to send their children to school on permanent income rather than transitory income. The income reported by households when the survey was conducted may have been transitory income and may have been lower than what the household normally earns over a longer period.

Another important result of the study is the varying and positive impact of the employment status on school participation in Pasay and Eastern Samar respectively. School participation can be guaranteed if the household head is employed. This dictum does hold true in Pasay City and Eastern Samar where the estimated coefficient has shown intuitive relationship with school participation evidencing that parent's employment status plays an important role in the school participation of children as suggested in the literature.

The primary objective of this study is to test the significance of these factors in determining elementary school participation rate and to draw policy implication that LGUs and NGOs can undertake or intervene in addressing non-participation which can contribute in meeting the MDG. Although household income has a very small impact on school participation, it

must not be ignored because of the probability that households will use the additional income received to augment the insufficiency of basic sustenance that can aid in increasing school participation. On the other hand, there might be other determinants of school participation, aside from household income and household head employment status, which must be explored. Thus, from the perspective of promoting universal access to primary education, there might also be a need to intervene using these avenues to improve school participation.

NOTE

[1] This study was culled from the research conducted by Tullao and Rivera (2009) entitled *Economic, Demographic, and Other Factors Affecting School Participation among Children in Urban and Rural Households: The Case of Pasay and Eastern Samar* funded by the Community Based Monitoring Survey (CBMS).

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