

Parents in Search for Quality Basic Education: Consumption or Investment?

Victorina H. Zosa, Anthony R. Zosa, and Mildred M. Estanda

Abstract— Post-2015 development and education agenda is expected to shift emphasis from education for all to access to quality education for primary, secondary and selected tertiary students. This paper defines the indicators of quality basic education, using multiple correspondence analysis. Prior to this, a log-linear demand model is specified to determine the economic factors behind the parental choice for quality basic education. The non-economic factors are incorporated using a logistic regression model. The indicators for quality basic education are defined, using multiple correspondence analysis. Data are obtained from interviews of high-income parents from the least developed regions in southern Philippines. Age, income and education of parents are important determinants in the decision of parents to enroll in private schools. Logistic regression results show that the parental choice of the best primary and secondary schools for their children include both consumption and investment considerations.

Keywords-component; *parental choice, quality basic education, rate of private return, consumption value of education, investment in human capital*

I. INTRODUCTION

Education, by transforming raw labor to quality labor, enhances the expected life-time earnings of an individual and expands the production possibility frontier of a country. During the early phase of development, two patterns are generally observed. *First*, education-augmented labor is found to be a substantial contributor to economic growth. For instance, Woodhall cites Denison's 1962 study that "increases in the level of education of the labor force accounted for as much as 23 percent of the annual rate of growth of GNP in the United States between 1930 and 1960", p. 3, [1], [2]. *Second*, time and money spent on education yields above-normal returns vis-a-vis investment in physical capital.

Cross-country estimates of rates of return (social and public) for primary, secondary and higher education reveal four trends, viz. (a) primary education yields the highest rate of return (social and private); (b) private returns are higher than social returns for all education and income levels; (c) low income countries (\$755 or less) provide the highest rate of social return, while middle income countries (to \$9265) post the highest rate of private return; (d) rates of return (social and private) are generally above the 10 percent yardstick for the opportunity cost of capital, p. 326 [3], [4]. .

Given the important role of primary education in economic growth, especially in developing economies, international development agencies crafted the 2000 Millennium Development Goals. It sets the target of attaining universal primary education, consistent with Education for All by 2015. Although this goal sent an additional 51 million children to primary schools from 1999 to 2014, there are still many children who have not attended school or dropped out early [5], [6]. Out of those who remained in school, an estimated 250 million have not acquired the cognitive skills of basic science and mathematics [5], [7]. Hanushek found out that cognitive skills (achievement scores in science and mathematics) is highly significant in explaining variations in economic growth, while school attainment is not significantly related to growth [8]. Further, Kaarsen pointed out the differences in education quality across countries. He estimated (a) that it would take three to four years for a child in a developing world to acquire the cognitive skills that his counterpart in the United States could learn in one year, and (b) over a fifth of the variation in economic growth could be explained by education quality [9]. Thus, it seems that while access (quantity) is a necessary condition for economic growth, it is not a sufficient condition.

The authors wish to thank the Social Science Research Training and Development Office, Ateneo de Davao, Philippines for the use of survey data and an anonymous donor for the partial funding of the field survey.

Post-2015 development and education agenda intensifies its focus on access to quality education, if inclusive growth is to be attained. The 2015 goal of universal primary education is expanded to include: (a) access and completion of quality secondary education, and (c) access to tertiary education, for qualified learners, leading to a certificate, diploma or degree [5], [10]. Quality education has many definitions, depending on the objectives. The next step, then, is to define quality education within the context of inclusive growth in a developing world.

This paper tackles the issue of defining quality basic education for a middle-income country like the Philippines (gross domestic product per capita of \$2765). The Psacharopoulos typology describes middle income countries to yield the highest rates of private return across development and education levels. In the Philippines, seven out of eight children are enrolled in public schools. This paper, however, explores the decision of one-eighth of the parents who would like to send their children to the best private primary and secondary schools. The assumptions are that parents view the best private schools as a signal mechanism for quality basic education.

In unbundling their schooling choice, parents could shed light on whether they view education expenditures as consumption or investment. This distinction has repercussions on government, business and household spending on education. For instance, the moral suasion to peg the annual increase in tuition to inflation rate might hamper efforts of schools to retain quality teachers and staff and to invest in quality facilities. This, in turn, might perpetuate the inattention to quality education, and widen the cognitive skill gap between the developed and developing countries.

The paper then sets out to attain three specific objectives. *First* is to estimate the demand for quality basic education of high-income parents. *Second* is to determine the non-economic factors in the parental choice of quality schools. And *third* is to identify the ideal attributes of quality primary and secondary schools, with the end-view that their graduates can readily gain access to quality tertiary institutions in the Philippines and elsewhere in the world.

II. DATA AND METHODS

A. Data

In the Philippines, the distribution of private primary and secondary (basic) schools varies across regions. Over 80% of private basic schools are located in the most developed region, or the national capital region. A mere 4% of private basic schools are sited in southern Philippines, which is the least developed region in the country. In addition, private basic schools in southern Philippines only account for 0.5% of all primary and secondary schools in the country. Offhand, the presence of private basic schools is correlated with the wealth of the region.

An inquiry into the factors affecting the parental decision to send their children to the best schools is conducted in three stages. Stage 1 investigates the economic factors in the parental choice of private schools. Stage 2 explores the ranking of non-economic factors in this choice. And, Stage 3 spells out the parents' perception of the attributes of the "best" quality school.

High-income parents from four dynamic cities in the least developed regions of southern Philippines are chosen as respondents. Their "wish" list is a theoretical construct of a bundle of attributes of the best or quality school, as defined by 408 wealthy parents. These parents, who have the financial capacity to enroll their children in the best private schools, are more likely to be located in the more dynamic city economies. The four cities are Cagayan de Oro, Davao, General Santos and Davao.

B. Sampling Design and Survey Instrument

A combination of sampling methods (quota, purposive, and snowball) was employed in the selection of the respondents. *First*, a quota of 100 respondents per city was initially set. *Second*, a local gatekeeper for each city assisted in identifying potential respondents based on the following criteria. The respondent is a city resident (a) with children who are enrolled in private primary and/or secondary schools or are too young to be in school, and (b) perceived to belong to middle or high income groups. And *third*, the respondents referred the interviewers to potential respondents, allowing the sample size to snowball. The field survey was conducted during the third quarter of 2013, and a total of 408 respondents were interviewed.

The questionnaire consists of four sections, viz., personal information of parents, ranked choice for

enrolling their children in private schools, features of an ideal private or best school, and willingness to pay for enrolling in the best school. The parental choice for private schooling can be stratified to reflect whether education expenditure is consumption or investment. The attributes of the best school can serve as a signal mechanism for quality education in the first-best scenario. And, the willingness to pay (WTP) is the price of quality education to parents.

C. Profile of the Respondents

Table I describes the characteristics of 408 respondents. The respondents are predominantly females (64%) and highly educated (96%), with 68% completing a college degree, and another 28% obtaining a postgraduate degree. Consequently, their family income per capita (\$ 10942) is roughly four times more than the country’s average income (\$ 2765) Their mean age is 40 years, still way below their income peak. On the average, they have two children, 58% and 25% of them are in primary and secondary schools, respectively. Thus, highly educated and high-income parents prefer to send their children to private schools.

TABLE I. PROFILE OF THE RESPONDENTS

Characteristics	Number	Percent
Total Respondents	408	100.0
Female	262	64.2
Higher education and beyond	392	96.1
College degree	279	68.4
Postgraduate degree	113	27.7
Average family income per capita (\$ 10942)	408	100.0
Class AB (\$ 23710 and above)	149	36.5
Class C (\$ 7699 and below)	259	63.5
Average age (in years)	40	
Average number of children	1.78	
Children in school	725	100.0
Primary	417	57.5
Secondary	178	24.6

D. Log-Linear Demand Model for Private Basic Education

The demand for basic education is estimated using survey data on Class AB or high-income families. The dependent variable, enrolment (Q_d), refers to the number of children in primary and secondary school. The independent variables include age of the parent (AGE), family income (INC), education of the parent (EDUC), and the willingness to pay for a quality

primary or secondary school or the tuition (P). The specification is given below.

$$\ln Q_d = f(\ln AGE, \ln INC, \ln EDUC, \ln P). \quad (1)$$

E. Logistic Regression

Parental choice for private basic education is determined by future and present benefits accruing to their children. If the benefits of the education expenditure are to be enjoyed in the form of higher potential income or increases in the value of human capital, then they are considered as investment. In this study, investment includes ‘best form of investment for the children’, excellent standard, and excellent preparation for college. The consumption value refers to the non-pecuniary returns to education derived from attending a particular school [11]. This study considers international recognition, status symbol, affordable tuition, personalized approach to learning, proximity to home, and religion to have consumption value. The Class AB parents are then asked to rank these nine categories, with 1 as the most important, and 9 as the least important.

Logistic regression is a statistical tool which analyses the relationships between a dichotomous dependent variable and an array of independent variables, which may be dichotomous, ordinal, or metric. In this study, the dependent variable is the willingness of the parent to enroll their children in the best primary and secondary school, which takes on the value of 1 (willing to enroll) and 0 (not willing to enroll). The independent variables include socio-economic attributes (age and education), income, investment, and the consumption value of education.

The Wald statistic is the test of significance for the relationship between the dependent and independent variables. If the coefficient of the independent variable is positive, then the modeled event is likely to occur. On the other hand, if the coefficient of the independent variable is negative, then the odds of the occurrence of the event decrease. A coefficient of zero means that the odds of the event do not change, one way or another.

F. Multiple Correspondence Analysis

Multiple correspondence analysis (MCA) is a descriptive and exploratory technique to show relationships among nominal or categorical data. The MCA graph, which plots the distance between the different categories, is based on a chi-square metric. Thus, the categories closest to each other are interpreted to have the strongest relationship, or the highest chi-square values, if analyzed using the

conventional cross-tabulation format. MCA is used to determine how college students in Turkey perceive quality education [12]. In this paper, MCA is used to ascertain the grouping of the quality attributes of the best primary and secondary schools.

III. RESULTS AND DISCUSSION

This section presents the economic and non-economic factors affecting parental choice for primary and secondary schooling, using log-linear regression and logistic regression, respectively. The clustering of the attributes of an ideal or best school, resulting from multiple correspondence analysis, allows one to come up with a tentative definition of quality basic education. This definition is drawn from the perspective of high-income families residing in the developing regions of southern Philippines. The tentative link between quality education and income levels is explored.

A. Estimated Demand for Private Basic Education

The demand for private basic education of high-income parents in southern Philippines is determined by their age, and economic factors like income, education, and price (tuition). Of the four independent variables, only income and education are significant determinants of basic education enrolment. The log-linear model specification reveals that the number of children in private schools is income-elastic and parent-education elastic. This means that percentage increases in income (+0.114) and years of parental schooling (+0.767) can significantly affect the percentage increase in their children schooling. Although a percentage increase in tuition dampens enrolment (-0.132), the value is not significant.

TABLE II DEMAND FOR BASIC EDUCATION

Specification	B	t	p-value
Constant	-2.288	-1.805	0.074
lnAGE	0.181	0.860	0.392
lnINCOME	0.114	3.253	0.001
lnEDUC	0.767	2.620	0.010
lnTUITION	-0.132	-1.749	0.083
R ² = 0.144			

B. Non-economic Factors in Parental Choice of Schools

Parents were asked to rank the most important factors affecting their decision to enroll their children in private schools. These factors were then classified according to their turn-around time. If the benefits of the education expenditure are realizable in the future, then they are considered as investment. However, if the benefits of school spending are only enjoyed while attending school, then they are considered as consumption [11].

‘Excellent standard’ is the top factor in the parental choice of private schools, which is categorized as consumption. The second and third important factors are ‘best form of investment for children’ and ‘excellent preparation for college’, respectively, which are categorized as investments. Ranked fourth to seventh are schooling costs which have consumption value like ‘personalized approach to learning’, ‘international recognition’, ‘proximity to home’, and ‘affordable tuition’. The two least important factors are ‘religion’ and ‘status symbol’.

TABLE III FACTORS IN PRIVATE SCHOOL CHOICE

Decision Factor	Expenditure Type	Overall	
		Median	Rank
Excellent standard	Investment	1.78	1
Best form of investment for children	Investment	3.28	2
Excellent preparation for college	Investment	3.72	3
Personalized approach to learning	Consumption	4.60	4
International recognition	Consumption	5.58	5
Proximity to home	Consumption	6.14	6
Affordable tuition	Consumption	6.30	7
Religion	Consumption	7.34	8
Status symbol	Consumption	8.84	9

This section considers the relationship of the dependent variable, which is the willingness of parents to enroll in the best primary and secondary school, and an array of independent variables. The dichotomous dependent variable takes on the value of 1 (willing to enroll) or 0 (not willing to enroll). The independent variable includes socio-economic metrics (age, education and income), ordinal-scaled investment classifiers (‘best form of investment for children’, and ‘excellent preparation for college’), and ordinal-ranked consumption classifiers (‘excellent standard’, ‘personalized approach to learning’,

‘international recognition’, ‘proximity to home’, ‘affordable tuition’, ‘religion’, and ‘status symbol’).

Logistic regression determines whether parent’s attributes, investment classifiers, and consumption values are significant in predicting the parental decision to enroll in the best school. Results show that age of parents, family’s willingness to enroll their children in the best schools (education expenditure as the best form of investment for children future), and international recognition are significant predictors for the enrolment decision of parents. Specifically, the negative Wald coefficients for age of parents, investment, and international accreditation could be interpreted as follows. Younger, high-income parents are more likely to consider enrolling their children in the best primary and secondary schools. If high-income parents consider education expenditure as the ‘best form of investment for their children’, then they are more likely to enroll their children in the best schools. Lastly, if high-income parents view international accreditation as a very effective screening and signal mechanism, then they, too, are more likely to send their children to the best schools.

TABLE IV. LOGISTIC REGRESSION FOR CHOICE OF BEST SCHOOL

Decision Factor for Best School	B	Wald	df	Sig.
Parent's Age	-0.066	13.445	1	0.000
Parent's Income	0.000	0.528	1	0.468
Parent's education	-0.118	2.874	1	0.090
Excellent standard	0.037	0.229	1	0.632
Best form of investment for child	-0.179	5.160	1	0.023
Excellent preparation for college	0.044	0.361	1	0.548
Personalized learning approach	-0.057	0.710	1	0.399
International recognition	-0.137	4.868	1	0.027
Proximity to home	-0.007	0.011	1	0.918
Affordable tuition	0.007	0.012	1	0.912
Religion	-0.027	0.214	1	0.643
Status symbol	-0.089	1.598	1	0.206
Constant	6.694	9.423	1	0.002

C. Attributes of Quality Basic Education

High-income parents, who are willing to send their children to the best private schools, were asked to describe the attributes of the ideal (best) private school. Over sixty percent of the parents prefer schools with international linkages, as indicated by the following: international accreditation (75%), exchange programs (71%), and foreign languages (63%). Over forty percent of the parents consider an

environmentally-friendly campus (53%) and the acquisition of globally-marketable skills (51%) as important attributes of quality basic education. Under half of the parents rate the quality of instruction, such as curriculum (45%) and foreign teachers (45%) as necessary for quality basic education. Over a fourth of the parents rate dormitories as an attribute of a quality school. A tenth of the parents are more futuristic in their insight that post-secondary education need not be diploma-driven. Rather, the best schools could also offer certificate and online courses.

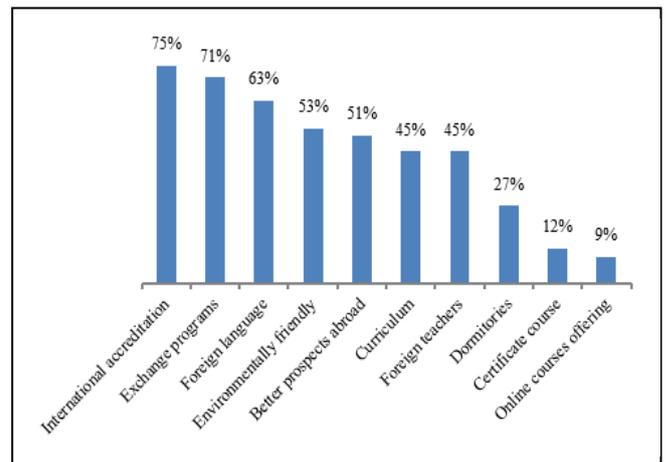


Figure 1. Attributes of Quality Schools: High-Income Parents

Multiple correspondence analysis (MCA) is an exploratory tool to show how categorical data tend to cluster with each other. The MCA graph plots the distance between the different categories, and the categories closest to each other display the strongest relationship, or have the highest chi-square values.

An MCA procedure was performed on what high-income parents in the developing regions of southern Philippines regard as the attributes of the best primary and secondary schools. The plot box below describes the first cluster with three indicators closest to each other as international accreditation, exchange programs and foreign language. Their almost overlapping proximity to each other in the graph indicates the very close relationship among these three indicators. Another cluster, though not so close as the first cluster, has the triad of foreign teachers, certificate and online courses. Curriculum, dormitories, prospects abroad, and environment-friendly campus are stand-alone.

It seems that high-income parents, who value international accreditation as a screening and signal mechanism for quality education, are also likely to consider exchange programs and foreign language as indicators of quality basic education. To some extent, parents who favor schools hiring foreign teachers would be amenable to allow their children to take certificate and online courses. It seems that parents perceive an internationally-accredited school as offering foreign language and pursuing exchange programs. They likewise consider certificate and online courses as world-class, if the curriculum is developed and taught by foreign teachers. Other quality attributes of basic education are dormitories, better opportunities abroad, and an environment-friendly campus.

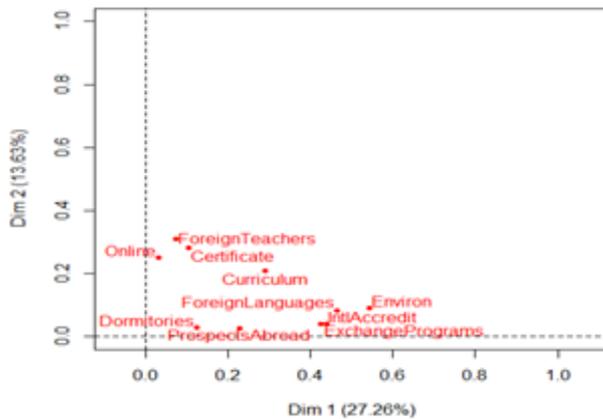


Figure 2. MCA of Attributes of Quality Schools

1

D. Discussion

The perceived trade-off between quantity and quality of basic education can be narrowed down by focusing on the determinants of quality education, and subsequently classifying them as consumption or investment (CI). The quality indicators are first identified and ranked by high-income parents from least-developed regions in a middle-income country. The criterion for the CI classifier is whether the quality indicator maximizes utility or wealth. Utility maximization is a consumption decision, while wealth maximization is an investment decision [13].

What are the economic determinants for the decision of parents to enroll their children in the best private schools? Children enrolment in private school is significantly determined by the triad of age, income, and education of parents. Expectedly, younger parents tend to have more children enrolled

in primary and secondary schools. Private basic education is a normal good, since parents choose to enroll their children in private schools as their wealth increases. The data indicate that the children are, at least, second-generation learners since their parents are well-educated. Chances are high that these children, when they complete their tertiary education, are more likely to raise well-educated children.

As a normal good, demand for basic education is assumed to be price sensitive. The relationship, however, between demand for schooling and its price is insignificant. This can be attributed to the observation that the parents' willingness to pay is 15% and 19% higher than the average price of primary and elementary schooling, respectively. The parents, thus, are reaping benefits or consumer satisfaction well-above the actual tuition. Or stated differently, schools can charge higher tuition to these parents, and still retain the children. One reason is the scarcity of private schools in southern Philippines. To a certain extent, private schools in southern Philippines operate in an environment of monopolistic competition, wherein schools can engage in price discrimination through branding. This image provides a signal to prospective users, such as tertiary schools or future employers, regarding the quality of the graduates.

TABLE V WILLINGNESS TO PAY OF PARENTS

Primary	Number
Average tuition (\$)	2347
Willingness to pay (\$)	2690
Consumer surplus	15%
Secondary	
Average tuition (\$)	2831
Willingness to pay (\$)	3383
Consumer surplus	19%

The consumption value of education refers to the attributes which influence the parental preference for specific schools. Like any other good, the decision to purchase education depends on an array of characteristics. The consumption value of education includes teaching style (personalized approach to learning), signals (international recognition and status symbol), price (affordable tuition), proximity (price of related good such as transport), and lifestyle (religion). The finding shows that parents are willing to pay more so that their children can enjoy a wide

array of non-academic attributes - such as quality signals, price (own and related goods), lifestyle, and amenities (dormitories and environment-friendly campus).

There are two broad clusters pertaining to the metrics of quality basic education (QBE). The first cluster is the parents' perception that the best schools should be internationally accredited, offering foreign language and pursuing exchange programs. The second cluster reveals that parents consider certificate and online courses as world-class, if the curriculum is developed and taught by foreign teachers. This is contrary to the common perception that parents would only want their children to take diploma degrees.

Only half of the parents consider the teaching-learning process (TLP), such as the quality of instruction (curriculum and foreign teachers) and the acquisition of globally-marketable skills, as QBE indicators. The TLP, however, should form the core QBE indicators to include learning time; teaching methods; assessment, feedback and incentives; and class size [10].

The results reveal that, generally, parents prefer consumption attributes over investments, which are intended to expand the production potential and wealth-creation opportunity of each student. This finding has some implications on the computation of the rate of private return to schooling. For instance, the cost-benefit analysis of the education expenditure of a family equates the cost of education to the direct cost of schooling (tuition) plus foregone production, lost earnings or other production. Benefits include increased labor productivity or wages plus private non-market effects such as better personal health, improved capacity to enjoy leisure, increased efficiency in job search, and increased personal choices [14].

If a large proportion of the direct cost of schooling has consumption value, then the production value and the consequent cost of education shall register a smaller value than what was initially represented. This means that the adjusted cost-benefit analysis shall have a higher rate of private return. An implication of this for basic education is that parents are still able and willing to pay for a higher tuition. And this is supported by the earlier finding that parents derive consumer surplus from purchasing primary and secondary education.

Finally, is spending on quality basic education considered consumption or investment? The results of the logistic regression on the parental choice of the

best school depict that the school spending is both consumption and investment. The significant determinants on the parents' willingness to enroll their children in the best school are age, 'best form of investment for the child', and 'international recognition', which serves as a signaling indicator for quality.

IV. CONCLUDING REMARKS

Human capitalists have argued that education is the best form of investment in human capital, especially in developing countries. Spending on schooling accounts for variations in income across countries, with the rate of social return highest in developing countries. This prompted international development agencies to encourage developing countries to pursue Education for All for primary students. In the post-2015 development and education agenda, there are moves to include access to quality education. The focus on increasing the quantity of primary schoolchildren in the developing economies has not improved their economic lot. Access to quality education is no longer limited to primary education, but is expected to cover both secondary and tertiary education.

Middle-income countries display the highest rates of private return for all education levels (primary, secondary and tertiary). In addition, their rates of private return exceed the rates of social return for all education levels. Within this context, the paper attempts to define the attributes of quality basic education from the viewpoint of high-income families. The metrics for quality education largely refers to a bundle of consumption attributes like internationalization and a world-class curriculum developed by foreign teachers. Only half of the parents consider the teaching-learning process, such as the quality of instruction and the acquisition of globally-marketable skills as indicators of quality education.

This paper demonstrates that education expenditure for basic education is motivated by both consumption and investment considerations. Part of the consumption-related school spending should be excluded from the cost-benefit analysis. This procedure leads to a higher rate of private return. Thus, parents are still willing to pay for a higher tuition.

This finding is relevant since, in countries like the Philippines, increase in tuition is pegged at the inflation rate. This practice has led to a decline in the quality of the teaching-learning process, as schools can no longer attract quality teachers.

- [14] A. Mingat and J. Tan, "The Full Social Returns to Education: Estimates Based on Countries' Economic Growth Performance", Human capital and development operations policy working papers no. HCD 73, 1996.

REFERENCES

- [1] M. Woodhall, "Economics of education: A review", in *Economics of education: Research and studies*, G. Psacharopoulos, Ed., New York: Pergamon Press, 1987, pp. 1-8.
- [2] E. F. Denson, *The sources of economic growth in the United States and the alternatives before us*, New York: Committee for Economic Development, 1962.
- [3] G. Psacharopoulos, "Returns to Education: an updated international comparison", *Comparative Education*, vol. 17:3, pp. 321-341, 1981.
- [4] G. Psacharopoulos and H. A. Patrinos, "Human capital and rates of return", in *International Handbook on the Economics of Education*, G. Johnes and J. Johnes, Eds., Massachusetts: Edward Elgar Publishing, Inc., 2004, pp. 1-57.
- [5] C. BerrE. Barnett, and R. Hinton, "What does learning all mean for DFID's global education work?", *International Journal of Educational Development*, vol. 40, 2015, pp. 323-329.
- [6] UNESCO, *Progress in getting all children into school stalls but some countries show the way forward*, Policy Paper 14/Fact Sheet 28, June 2014, in <http://unesdoc.unesco.org/images/0022/002281/228184e.pdf>.
- [7] UNESCO, *EFA Global Monitoring Report 2012. Youth and skills: Putting education to work*, Oxford University Press, 2012.
- [8] E. A. Hanushek, "Economic growth in developing countries: the role of human capital", *Economics of Education Review*, Vol. 37, 2013, pp. 204-212.
- [9] N. Kaarsen, "Cross-country differences in the quality of schooling", *Journal of Development Economics*, Vol. 107, 2014, pp. 215-224.
- [10] Y. Sayed, and R. Ahmed, "Education quality, and teaching and learning in the post-2015 education agenda", *International Journal of Educational Development*, Vol. 40, 2015, pp. 330-338..
- [11] B. A. Jacob, B. McCall and K. Stange, "The Consumption Value of Postsecondary Education", Gerard R. Ford School of Public Policy, Education Policy Initiative Working Paper, 2011, pp. 1-57.
- [12] N. Kalayci, and M.A. Basaran, "A combined approach using multiple correspondence analysis and log-linear models for student perception in quality in higher education", *Procedia Economics and Finance*, Vol. 17, 2014, pp. 55-62.
- [13] E. Lazear, "Education: Consumption or Production", *Journal of Political Economy*, Vol. 85:3, 1977, pp. 569-597.

AUTHORS' PROFILE

Dr. Victorina H. Zosa is currently the Executive Director, Research and Innovation Center, Lyceum of the Philippines University, Manila, Philippines. Her research interests include urban and regional development, economics of higher education, migration, and economics of innovation.

Anthony R. Zosa is a Member of Faculty in the Department of Mathematics, School of Science and Engineering, Ateneo de Manila University, Quezon City, Philippines

Mildred M. Estanda is a Member of Faculty in the Social Science Research Training and Development Office Ateneo de Davao University Davao City, Philippines