Abstract

This paper identifies key determinants of individual, school, and quality of education outcomes and examines related policies, strategies, and project interventions to recommend reforms or possible reorientation. Two sets of data were used: (i) data on school resources and outputs from the administrative reporting systems of the Department of Education; and (ii) the 2002, 2004, and 2007 Annual Poverty Indicator Surveys. Analysis of individual, school, and quality of education outcomes showed that although school resources such as pupil–teacher ratio is a key determinant for both individual and school outcomes, and that per capita miscellaneous operating and other expenses are significant factors in determining quality of education outcome, socioeconomic characteristics are stronger determinants. Children of families in the lower-income deciles and with less educated household heads are vulnerable and less likely to attend school. Girls have better odds of attending school than boys. Working children, especially males, are less likely to attend secondary school. On the basis of these results, recommendations in the areas of policy and programs are discussed to help address further deterioration, reverse the declining trend, and/or sustain gains so far in improving basic education system performance outcomes.

I. Introduction

Filipino parents value education as one of the most important legacies they can impart to their children. They believe that having a better education opens opportunities that would ensure a good future and eventually lift them out of poverty. Thus, they are willing to make enormous sacrifices to send their children to school (Dolan 1991, De Dios 1995, LaRocque 2004). However, with a poor family's severely limited resources, education tends to be less prioritized over more basic needs such as food and shelter. Hence, the chances of the family to move out of poverty are unlikely. It is therefore, important that the poor be given equitable access to education.

The 1987 Philippine Constitution declares that education, particularly basic education, is a right of every Filipino. On this basis, government education policies and programs have been primarily geared toward providing access to education for all. The Philippines is committed to the World Declaration on Education for All (EFA) and the second goal of the Millennium Development Goals (MDG)— to achieve universal primary education by 2015.

EFA's framework of action has six specific goals in the areas of: (i) early childhood care and education (ECCE); (ii) universal primary/basic education; (iii) life skills and lifelong learning; (iv) adult literacy; (v) gender equality; and (vi) quality. In line with this framework of action, the Philippine EFA 2015 National Action Plan (UNESCO 2010) adopted in 2006 was formulated as the country's master plan for basic education.

In 2000, the Philippines reported that it has achieved substantial improvement in terms of access to basic education, but still faces challenges in the areas of early childhood care and development, internal efficiency, and learning outcomes (NCEFA 1999). Through the government's efforts to achieve the 2015 MDG targets, recent studies such as the Philippines Midterm Progress Report on the MDGs (NEDA and United Nations Country Team 2007, Table 1) assess that the probability of achieving universal primary education (MDG 2) in the country is low *(based on net enrollment rate, cohort survival rate, and completion rate)*. Similarly, the 2009 EFA Global Monitoring Report (UNESCO 2008) identified the Philippines to be among the countries with decreased net enrollment rate from 1999 to 2006, and with the greatest number of out-of-school children (more than 500,000). The Philippines's current performance in education based on the trends identified by the EFA and MDG indicators as shown in Appendix Table 1 is not also promising. It is quite likely that the EFA and MDG targets will not be met by 2015.

Overall, the Philippines has suffered a setback in most education outcome indicators. Although signs of recovery have been registered by some indicators, national targets for key EFA indicators such as intake and enrollment rates will still likely be missed in 2015.

How can the decline in the performance of EFA indicators of education outcomes be averted and improvements in those that registered recovery be sustained? This paper aims to address this question by identifying key determinants of selected major education outcomes, and on this basis, examine concomitant or related policies, strategies, and project interventions for purposes of recommending reforms or possible reorientation.

Previous studies have suggested that poverty incidence (socioeconomic status), government expenditure on education (as a percentage of gross domestic product [GDP]) and pupil–teacher ratio (PTR) are key determinants of school attendance or net enrollment rate. Except for a few studies covering a specific area in the country, most related studies in the Philippines examine the relationships of education outcomes and inputs using exploratory correlations and regressions of inputs and factors that may affect education outcomes. These studies do not have an explicit theoretical model to guide the analysis, and hence could be considered to have been done on a piecemeal basis, without being able to explore the relationships of all the major factors in one comprehensive analysis. For example, Maligalig and Albert (2008) concluded that there is evidence that government expenditure on education and poverty incidence are directly related to net enrollment ratio, but failed to ascertain the degree of the relationships as well as the efficacy of other factors that may affect school enrollment.

There are many other methods that could be employed in identifying key determinants of education outcomes, such as the education production function, which has been used by many studies cited throughout this paper. Another method is the randomized evaluations that have already been done in other countries like Kenya, Nicaragua, and United States; or the natural experiments study conducted in Indonesia by Duflo (2001); or the qualitative methods that are being conducted as part of the Trends in International Mathematics and Science Study. The education production function approach usually refers to a mathematical equation between outcomes and inputs and a statistical method for estimating those relationships. The success of this approach is contingent upon available data and the application of suitable statistical methods in estimating the production function. Both randomized evaluation and natural experiments render controlled comparisons. However, both require extensive planning prior to the implementation of the study.

For the purposes of this study, as randomized evaluations and natural experiment were not possible, key determinants of education outcomes were identified by estimating an education production function based on the combination of data from the Department of Education (DepEd) administrative reporting systems, and the Annual Poverty Indicator Survey (APIS) conducted by the National Statistics Office (NSO) in between the Family

Income and Expenditure Survey (FIES). Section II of this paper identifies the conceptual framework that was used; Section III presents the results; while Section IV discusses the policy implications. The last section presents the conclusions and recommendations of the study.

II. Conceptual Framework

Many studies on the determinants of education outcomes are based on an education production function that defines a mathematical relationship between inputs and education outcome[1] Y such as

$$Y = Y(I, F, R) + e \quad (1)$$

where Y is a function of I and F, which are individual characteristics and family socioeconomic factors, respectively, R is school resources, and e represents unmeasured factors influencing schooling quality. Depending on the availability of data, this mathematical relationship is estimated using suitable statistical models, of which the best is identified through evaluation of the model's goodness of fit and adherence to assumptions.

The output of an education production function is usually some achievement that can be measured through indicators. Among these are intake and enrollment rates, cohort survival rate, dropout rate, and repetition rate, which are all EFA indicators. Another key education outcome indicator is the learning achievement rate or learning outcomes usually measured through national standardized tests.

The education production function described in equation (1) requires both measures of individual and family socioeconomic characteristics as well as school resources. Previous studies in the Philippines as well as in other countries indicate that there are individual and household characteristics that influence children's participation and performance in basic education (Bacolod and Tobias 2005, DeGraff and Bilsborrow 2003, UIS 2005). These studies suggest that family background and socioeconomic factors are as important as school resources in determining whether a child will attend school, survive, and complete an education level, and achieve an acceptable level of learning outcome. In fact, Hanushek (1986) concluded that socioeconomic factors are stronger determinants compared to school resources.

Individual characteristics such as age, sex, and parents' educational attainment are important factors in achieving better education outcomes. For example, based on the

[1] In economic theory, this should be output, which is the result of the production function, while outcome would be the utility of the output. However, in this study, output and outcome are used interchangeably.