

Full Length Research Paper

Economics of quality education and paths leading into and out of quality education: Evidence from Debre Markos University, Ethiopia

Tsegaye Molla

Department of Agricultural Economics, College of Agriculture and Natural Resources, Debre Markos University, Debre Markos, Ethiopia.

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The difference in economic development among nations entirely emanates from difference in human capital development as it is the priority pathway out of poverty, diverse socio-economic and environmental crises. Although, huge investment in human capital development has long been made, mere investment will never lead to quality labor force unless paths for quality education are well substantiated. This study identifies viable paths to quality education using cross-sectional survey design by making data acquisition from 150 students selected using multistage sampling. Factor analysis and path analysis were employed to identify principal components explaining most of the variation in academic performance and to identify statistically significant paths leading into and out of quality education, respectively. Accordingly, labor market demand (unemployment), student's learning-attitude, communication skill, curriculum teaching method and learning facility are statistically significant factors, together explaining 74% of the variation in academic performance of students. Path analysis result indicated that the availability of learning facilities and macroeconomic situations (perceived unemployment and perceived employment-by-chance) is statistically significant. Thus, paradigm shifts in both internal (students and institutions) and external forces are needed. Specifically, ensuring cumulative grade point average (CGPA)-based employment as compared to chance-based employment followed by fulfillment of learning facilities will equip students for better academic results. Besides, the interaction of curriculum revision and learning facilities, and assisting students from low-income family are necessary policy synergy interventions to realize the quest of "quality education-quality labor force for economic development" if implemented with greater inter-sector integration from micro to macro levels.

Key words: Quality education, paths to quality education, policy synergy.

INTRODUCTION

Improving educational quality requires a focus on institutions and efficient education spending (WB, 2007).

Investment in human capital development should be the primary focus for every nation that aspires to achieve

E-mail: tsegayem4@gmail.com. Tel: +251-921284526.

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economic growth. It is a proven fact that the difference in economic development among nations stems from the difference in human capital development. This is because human capital investment is the path out of diverse socio-economic and political progress of nations.

Human development is still a challenge in Ethiopia. Human Development Index (HDI) value of the country stands at 0.442 (HDI, 2015). Since the intervention of Millennium Development Goals, Ethiopia is classified as a low human capital development country despite significant improvements in educational programs. Ethiopia's vision, during the period of GTP II, in its quest to become a middle-income country (UNDP, 2014), is to build an education system which assures quality and equity in education by 2019/20 with the aim of producing competent human resource for the country.

Development of tertiary education is identified by the education sector as major priority in the country to ensure the relevance and quality of education at all levels besides general education and TVET (FDRE, 2015). Acting dynamically through education policy reform is imperative towards achieving sustainable human capital development in Ethiopia. Hence, this study aimed to identify feasible paths for higher education institutions to attain quality education.

METHODOLOGY

Sample size and sampling technique

This study was done in Debre Markos University, Ethiopia. Debre Markos University is one of higher education institutions established in 2007. Multi-stage sampling procedure was used to select sample of undergraduate students. The first stage involves purposive selection of students of Agriculture College followed by stratification of the sample into five departments for sample representativeness. Finally, after identifying the sampling frame containing the complete list of all students per stratum (department), 150 sample students were randomly selected using probability proportional to size sampling technique.

Methods of data analysis

Cross-sectional survey design was used to collect data from sample undergraduate students. Data collection was done by administering questionnaire comprised of items pertaining to the study objective. Before the actual data collection, the questionnaire was restructured by conducting pilot survey with few undergraduate students to obtain reliable data.

To achieve the objective of the study, factor analysis was employed to analyze primary data collected from sample students. This is because it is popularly used by many researchers (Kyoshaba, 2009; Ibrahim et al., 2009; Irfan and Shabana, 2012; Georgis et al., 2012; Samuel and Kibrom, 2015) to reduce many variables to smaller principal factors and to pinpoint which of the factors have the most impact (DiStefano et al., 2009; Williams et al., 2010; An and Sean, 2013) for variation in academic performance of students thereby easing policy interventions for urgent remedial action. OLS regression model was fitted by regressing perceived student's academic performance (dependent variable) upon Likert-scale score results for identification of theoretically valid and

statistically significant variables (factors) determining student's academic performance. Regarding measurement of academic performance, some researchers have used five-point Likert scale (Georgis et al., 2012; Irfan and Shabana, 2012), while others preferred to use GPA (James, 2005; Jessica, 2006; Victor, 2011) as a valid measure of student's academic achievement given that the assessment and grading procedures used by teachers is accurate (James, 2005). However, the appropriateness of cumulative grade point average (CGPA) is conditional upon academic results limited to specific subjects/courses, particular semester, year and single test scores. Despite that, using CGPA has the problem of convergence; hence, not indicative of differential academic performance by students in every course and semester.

For the purpose of this study, academic performance of the student was measured using a five-point Likert-scale (proxy for quality education ranging from strongly agree to strongly disagree) as a valid measure for capturing the variability in their academic performance. Various factors drawn from literature and researcher's personal experience were considered by factor analysis for extraction of principal factors. Factor analysis used in this study is formulated as:

$$Z_{p \times 1} = \lambda_{p \times m} F_{m \times 1} + e_{p \times 1}$$

Where, Z = $p \times 1$ vector of variables; λ = $p \times m$ matrix of factor loadings; F = $m \times 1$ vector of factors and e = $p \times 1$ vector of error or residual factors (Sharma, 1996).

Perceived score values of selected factors were used for path regression analysis for predicting student academic performance and validating statistically significant paths to attain quality education. Path regression equation fitted to identify feasible paths leading to better academic performance of students is given below:

$$AP = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + e_i$$

Where, AP = perceived academic performance; a = regression constant (the value of intercept); b_1 , b_2 and b_3 are regression coefficients and e is the error term.

RESULTS AND DISCUSSION

Pathways leading into and out of quality education

Factor analysis

Dynamic studies on quality education deterrents are required to take proactive and reactive measures for delivery of quality education among higher education institutions in Ethiopia. Factor analysis was done to extract principal external and internal factors determining quality education. The KMO value was 0.656 for all items included for analysis and the corresponding test statistic value for sphericity was found significant, indicating appropriateness of the data for factor analysis as shown in Table 1.

To account for factors that influence students' academic performance, the factor components with Eigen value greater than 1 were considered and 7 factors were extracted (Table 2). Accordingly, these seven factors explain 74% of variations in academic performance of

Table 1. KMO and Bartlett's test.

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.656
	Approx. Chi-square	616.626
Bartlett's test of sphericity	df	210
	Sig.	0.000

Source: Survey, 2016.

Table 2. Total variance explained.

Component	Initial Eigenvalues			Rotation sums of squared loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	5.534	26.353	26.353	4.024	19.162	19.162
2	2.190	10.430	36.783	2.309	10.995	30.157
3	2.090	9.952	46.735	2.088	9.941	40.098
4	1.730	8.238	54.973	1.890	9.002	49.100
5	1.563	7.442	62.416	1.784	8.497	57.597
6	1.336	6.360	68.775	1.756	8.360	65.957
7	1.098	5.227	74.003	1.690	8.046	74.003
8	0.905	4.312	78.315			
9	0.783	3.730	82.044			
10	0.659	3.139	85.184			
11	0.658	3.133	88.316			
12	0.439	2.089	90.405			
13	0.432	2.055	92.460			
14	0.348	1.658	94.118			
15	0.289	1.376	95.494			
16	0.244	1.160	96.654			
17	0.192	0.917	97.570			
18	0.180	0.856	98.427			
19	0.154	0.735	99.162			
20	0.130	0.618	99.780			
21	0.046	0.220	100.000			

Source: Survey, 2016.

students. Specific to components, labor market problem is the external component explaining the largest variation (more than 19%) in academic performance (Table 3).

Path regression analysis

To identify statistically significant components, path regression analysis was done (Table 4). Path regression result of academic performance predictors indicated that the labor market (demand for job) negatively and significantly determine students' motive towards better academic performance. This is because whenever employment opportunities are scanty out there, their hope for future employment will be dwindled which in turn erode their academic motive. Learning facility is also a statistically significant variable which has positive

influence on academic performance of students signifying adequate provision of required facilities (like ICT, laboratory technology and reference materials) through prioritization. Besides, the interaction of fulfilling learning facilities and curriculum reform will significantly improve students' academic results than either alone strategy signifying the need for policy synergy.

Conclusion

Labor market situations (adequacy of labor market demand) and employability are external factors that largely jeopardize student's motive for better academic performance followed by adequate learning facilities. Even internal forces have conditional effect on quality education as they are driven by external forces altogether,

Table 3. Factor loading.

Factor	Item	Loading
Labor market problem	Employment inadequacy	0.927
	Employment not considering CGPA	0.886
	Employability after graduation	0.816
Entrepreneurial motive	Entrepreneurial intent after graduation	0.767
Learning facilities	Lack of adequate laboratory	0.892
	Lack of adequate ICT	0.846
	Lack reference materials	0.820
School environment	Student guidance from teacher	0.789
	Friend/peer relationship	0.562
	Learning preference	0.535
Student personality	High school background	0.867
	Learning motive	0.724
	Learning-attitude	0.657
	Communication skill	0.615
	Student expectations	0.586
	Academic preference	0.561
Curriculum	Lack of practicum	0.867
	Group learning	0.856
	Internship	0.527
Family background	Low income family	-0.649
	No family	-0.622

Table 4. Estimation result of path regression model.

Variable	Academic performance without interaction effect	Academic performance with interaction effect
Labor market problem	-1.355***(0.587)	-1.403***(0.610)
Entrepreneurial motive	1.511(1.884)	1.547(1.902)
Learning facility	0.864**(0.455)	0.817**(0.467)
School environment	0.293(0.471)	0.270(0.422)
Student personality	0.190(0.170)	0.168(0.129)
Curriculum	0.117(0.152)	0.140(0.163)
Family background	-0.138(0.218)	-0.106(0.189)
Learning facility and curriculum	-	1.153***(0.271)
Constant	0.547(0.312)	0.487(0.297)
Observations	150	150
R-squared	0.488	0.572

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$.

to guarantee better academic performance of students. The interplay result will ultimately impact supply of quality

labor pertinent to sustain economic development of the country.

POLICY RECOMMENDATIONS

For production of quality labor from huge education investment, identified paths leading into and out of quality education should be relieved with more focus on external and internal forces exacerbating learning morale of students.

The Ministry of Finance and Economic Development (MoFED) has to promote expansionary fiscal and monetary macroeconomic policies aimed at increasing employment opportunities which will absorb more graduates based on academic merit/performance.

Employer institutions should give value to CGPA-academic performance to ensure fairness on behalf of CGPA-based employment than pursuing prevailing chance-based employment. Whenever vacant jobs are announced, employers should recruit qualified labor using a mix of criteria like CGPA, practical exam and interview. This might encourage student to work harder for high academic performance as it will be later required to secure employment. To better solve the internal problems, Higher Education Institutions/Ministry of Education should capitalize and set priority to provide learning facilities required for assuring quality education.

Equipping students with entrepreneurial morale, integrating group-learning and assisting students from low-income family background are necessary interventions to realize supply of quality labor force for economic development of the country.

Educational institutions have to go through curricular revision and monitoring to add assessment methods aligning practice with theory, abandon simultaneous delivery of block and parallel courses, and relieve student communication problems being language which pampers progress of quality assurance in education.

Policy synergy (hurdle-rule) involving grassroots participation of education policy (educationalists), employment policy (business), economic policy (economists) and other stakeholders is also among necessary policy interventions in the pursuit of realizing quality education which will in turn lead to production of quality labor force needed for economic development. Therefore, it seems necessary to appropriately review and solve problems associated with policies lacking genuine and equitable implementation.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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