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# Technical Efficiency of State Universities in Sri Lanka: A Study on Social Science Disciplines

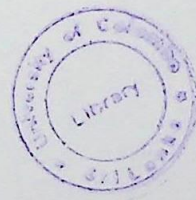
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2012 / PhD / EC / 02

A Thesis submitted to the University of Colombo in fulfilment of the requirement for the degree of Doctor of Philosophy in the Field of Economics



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2016



## ABSTRACT

Higher education particularly higher education sector plays a significant role in the development and growth of a nation. Higher education sector acts as a major source of human capital and as a main driver of knowledge economy as well. During the last few decades higher education sector in Sri Lanka has undergone a rapid expansion and reforms with the involvement of government and other funding agencies in order to enhance its quality and standards. Simultaneously, social science disciplines in state universities sector have a great concern due to the frequent criticisms towards its academic excellence. Graduates from social science disciplines have generated burning social problems and graduate unemployment is a crucial issue. Under these circumstances, Ministry of Higher Education (MHE) have made timely efforts with an aim of enhancing quality and relevance of undergraduate education in state universities giving special attention to social science disciplines. The assignment was financially supported by the World Bank. The implementation of IRQUE<sup>1</sup> project was one of the turning points in undergraduate education in Arts stream. Performance of social science disciplines in terms of knowledge production is vital in many respects. Limited number of seats in state universities, free provision of tuition and university life expenses in terms of "Mahapola scholarship" or "Bursaries", free provision of hostel facilities and high rate of unemployment is some of the crucial that performance evaluation is attended. However, it is hardly available such research endeavours in relation to social science disciplines.

Accordingly, the main objective of current study was to conduct a technical efficiency analysis empirically in terms of undergraduate education in social science disciplines. Because, undergraduate education is considered to be a process of human capital production for diverse society. The broader objective of measuring technical efficiency of social science disciplines in Sri Lanka state universities were divided into four main research questions: (i) Do social science disciplines generate additional output measures than traditional GPA? And are joint education production process existing? (ii) Is human capital production process of social science disciplines technically efficient? If not, what improvements of outcomes might be possible? (iii) Do all programmes equally perform? Are there any significant deviations of the levels

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<sup>1</sup> Improving Relevance and Quality of Undergraduate Education



of technical efficiency among different social science programmes? And (iv) What are the decisive determinants of knowledge production and its technical efficiency or inefficiency in the field of social sciences in state universities sector?

The empirical research work entirely based on primary data collected through a sample survey. It was administrated over the all respective faculties and departments for the period from August, 2014 to July, 2015. According to the objective of the study, students were the basic sampling unit. Thus, a well-structured questionnaire was administered for data collection. There were two samples in this study. One sample was 1002 in size and restricted including only to undergraduates those who were following special degree in economics. The second sample was comprised with 2258 undergraduate students who has enrolled for the selected social sciences for the study. All academic levels except first year (1000 level) were considered in this study. A random sampling processes were adopted in data collection process. Each university department was divided into strata and each stratum comprised with undergraduates who has enrolled for the degree programmes in the respective departments. A simple random sample from each strata has then taken. Departmental records has considered in secondary data collection and the reports of University Grant Commission (UGC) and Central Bank of Sri Lanka (CBSL) were also employed. Data has been collected on student characteristics, family background factors and institutional factors. Key dependent variable of the study was Grade Point Average (GPA). Two other dependent variables were also introduced rather than using traditional GPA, i.e. Attitude towards Economics and Economics Attitude Sophistication.

The statistical analysis has been completed under two key research themes; that is Education Production Function and Technical Efficiency Analysis. The production function approach employed the joint production concept introduced by Rao (1968). Joint production function of economics knowledge production was estimated and evaluated using canonical regression analysis. The empirical endeavour was entirely based on the work by Vinod (1969). Economics Attitude Sophistication and Attitude towards Economics have been introduced as two additional outputs with the traditional GPA in the production of economics knowledge for the first time in Sri Lanka literature of economics of education. Two – stage data envelopment analysis was employed in determination of level of technical efficiency of Economics Degree Programmes as well as all other social science degree programmes selected for the current study.



The data envelopment analysis (DEA) models estimated under output – oriented framework assuming variable returns to scale for the knowledge production processes. Tobit regression was estimated as a truncated regression model assuming that all efficiencies less than one are taking to be zeros. Thus, the truncation point was considered as zero. Efficiency scores were derived in the first stage using data envelopment analysis and those efficiency scores have been used as the truncated dependent variable in Tobit regression. Non-discretionary factors were considered as independent variables in the Tobit analysis. In addition, Kruskal – Wallis tests was employed to determine the significance of the efficiency differences prevailed among different disciplines as well as degree awarding institutions.

Empirical findings revealed that Economics Knowledge Production process evidently produces multiple outputs jointly within the teaching - learning process. Institutional and family background factors are not important determinants of economics knowledge production. Economics knowledge gained at Advanced Level examination, first year performance, entry qualification for the special degree programme, English proficiency and peer's effect are the most prominent determinants of education output index in canonical regression. In terms technical efficiency of the teaching – learning process, economics degree programmes in state universities are not fully efficient and thus further improvement is possible. Findings of technical efficiency analysis led to some criticisms regarding the evaluation system in Arts stream. Therefore, the current evaluation system should be thoroughly reviewed and revised in terms learning outcomes.

In terms of efficiency analysis, any of the social science disciplines is not fully efficient. However, they maintain considerably a high level of technical efficiency. There are substantial and statistically significant efficiency variations among different disciplines as well as different institutions. Accordingly, at least 20 percent of further improvement is possible for each of disciplines. The economics discipline is comparatively more efficient and efficiency determinants are also varying between economics and other disciplines.

The general conclusion is that social science disciplines maintain considerably a higher level of technical efficiency in the process of human capital production. One can conclude that this is due to the reforms of this sector under IRQUE project and other ongoing policy changes. However, explicit performance indicators are not available for



the period before the operation of IRQUE project for conducting before and after analysis.

In general this thesis has made significant contributions to fill the gap in the existing body of knowledge in some extent. This study has provided empirical evidence related to the education production function and technical efficiency in state universities giving special reference to the social science disciplines. This the first study to discuss the efficiency issues in state university education in Sri Lanka particularly in Arts stream. Second, this is the first to apply the joint education production function for undergraduate learning in economics in state Sri Lankan universities. Finally, current study introduces two stage - DEA and canonical regression to field of productivity and efficiency of higher education in Sri Lanka literature of economics of education. Therefore, this study greatly influences even for future studies in education production and efficiency in Sri Lankan context.