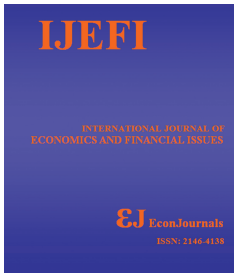

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Financial Comparative Analysis of State Public Universities of Punjab

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ABSTRACT

Finance is the strategic intent to boost the development and growth of all industries. Presently, Indian higher education has attained an impressive growth rate, and finance is playing a vital role in its continuous development and attaining a competitive edge. Therefore, the present study aims to analyze the financial performance of the Indian public universities located within Punjab. The data of universities' financial performance between 2003 and 2019 were taken into consideration. The Welch and post-hoc tests were employed to answer the research questions. The study found no significant difference in the income level of the universities but the results confirmed a significant difference in expenditure level. The findings of the study may draw the attention of academicians, and policymakers to build a balance between income and expenditure.

Keywords: Higher Education, Financial Performance, Reports, Budget
JEL Classifications: G2, H61, I23

1. INTRODUCTION

Education commands an important place in the socio-economic transformation of the country. In developing countries, the contribution of higher education is more essential (Glass et al., 2009) Apart from economic benefits, higher education conveys newer ideas, attitudes, and values and transforms the behavior of individuals. According to the World Bank, education is a strong tool for the enlargement of individuals by social and economic mobility. The globalization of the educational system has encouraged governments to reform their academic services to fulfill the needs of a global market (Feranecova and Krigovska, 2016). The educational system has now become commodified and the word quality connotes a commodity or product rather than processes. Higher education organizations are now complex and world-wide practicing a wave of quality appraisal. Education plays a significant role in the development of the country as it not only transforms people into educated citizens of the country but also brings significant development in productivity (Hossain and Mondal, 2019). It is imperative input for the prosperity and growth of the country. We cannot build a sustainable country without human development which depends on the vitality and health of higher education. India enjoys the third rank in regard to higher education system after China and United States. Thus, we can expect India to be a pivot hub for having largest education system among other countries.

The higher education system has a long history of one and a half centuries in India. India's population of illiterates in 2001 was greater at the time of independence in 1947 (Mehrotra, 2012). The share of the tertiary level in the educational industry is of significant substance. There were only 20 universities and 500 Colleges at the time of independence in India with 2.1 lakh students in higher education. Nowadays it has improved 47.9 times in the case of degree awarding universities and 82.02 times in colleges. In the case of student's enrolment, it has gone up to 174.49 times after independence (UGC Annual Report, 2019). Now there are about 962 Universities, 38179 Colleges, and about 9190 stand-

alone higher education organizations (All India Survey on Higher Education, 2019). There are many research studies shows that investment in education always pays back and it also indicates that return to higher education is higher even after adjusting for unemployment. But there is a lack of resources in all levels of education in India. Many universities whether state or central, private or public, affiliating, or non-affiliating, located in urban or rural areas, all are facing financial problems and it is believing that financial crisis will continue for some time or in the near future. There was an increasing huge gap between income and expenditure of the universities. This huge gap between income and expenditure was earlier forecasted by Radhakrishnan Commission on higher education in India in 1949 (UGC Annual Report, 2019). UGC gave many revenues and capital grants to universities, colleges, and other institutions in higher education in India. The expenditure by UGC on higher education has increased 4680 times after independence.

Recently observed statistics infers that with an escalation in students' enrolment in the universities on one side and with paucity of funds on the other side increases pressure at university level to perform effectively and efficiently (UGC Annual Report, 2019). To operate effectively and efficiently, higher education organizations need finance because finance has an impact on their overall work. So there is a need to study the financial performance of the universities. Although there are few meaningful studies published on higher education that explored the different aspects namely teaching efficiency, research efficiency, cost efficiency, and profit efficiency, nevertheless, to the best of the author's knowledge, academic literature lacks a study that can provide comparative insights on universities' financial performance. On the other hand, the majority of studies on the domain belong to developed countries. Recently Jayal (2019) also confirmed that the current situation of Indian higher education is still disturbing. Therefore, to fill this void, this study aims to analyze the income and expenditure of Indian universities. The findings can assist Indian universities to build ambidexterity between the income and expenditure, and accordingly strengthen their financial performance.

The paper is organized as follows. Section 2 describes the literature of the study. Section 3 describes the research methodology. Section 4 describes the analysis part and Section 5 concludes the results with some implications.

2. LITERATURE REVIEW

Education benefits society through knowledge creation and offers opportunities to individuals to generate income through their skills. However, with the increasing number of students in public universities with limited funding, fostering financial efficiency emerged as more than the necessity for survival in the globalized competition. Sharma (2013) emphasized that there should be a significant association between the teaching, research, and financial efficiencies of universities. However, Fisher et al. (2004) reported a gap in the operating structure of universities and colleges. Further, the literature has been divided based on the aforementioned efficiencies. Starting with the financing of universities followed by different types of efficiency, there are various researchers came up with specific research includes measuring the financial performance of non-profit organizations (Ritchie and Kolodinsky, 2003) as well as higher education (Tilak, 1997; Chandrasiri, 2003; Guthrie and Neumann, 2007; Hicks, 2010; Feranecova and Krigovska, 2016; Ahmad et al., 2018; Marginson, 2018; Yaohua et al., 2018; Hossain and Mondal, 2019). Fisher et al., 2004 studied the financial statements of US private colleges and universities and found that 60% of US private colleges and universities described a different operating measure. Mere research was highlighted as a concentration to literature in the conclusion of profit efficiency in higher education (Glass et al., 2009). Witte and Torres (2015) give an extensive review of literature on the efficiency of higher education and summarize input and output variables. Paper explains the research efficiency and teaching efficiency in higher education.

Different performance indicators have been used in the measurement of higher education throughout more than four decades of carrying out investigations. Efficiency has been widely used to measure the performance of higher education. The focus of efficiency analysis in higher education has been on teaching (Avkiran, 2001; Ferrari and Laureti, 2005; Kao and Hung, 2008; Lee and Worthington, 2016), research efficiency (Chu and Li, 2000; Ferrari and Laureti, 2005; Madden et al., 2014) and cost efficiency (Tyagi et al., 2009; Agasisti and Johnes, 2015). There are various studies regarding the Indian context as well as considering outside Indian nations concerning the financing of universities, financial efficiency, research efficiency, and teaching efficiency. But the present research revolves around the financing of universities along with defining the financial, research, and teaching efficiency in the viewing public universities of Punjab, Northern state of India. Mutula, 2001 studied the financing of higher education in southern and eastern Africa and found that there are developments within public universities. Glass et al. (2009) measure the cost efficiency of higher education by using financial ratios in the UK.

The most important study in the financing education is published in 1991 by Tilak and Varghese where he analyzed the pattern of funding higher education in India and suggested that there should be a need to make distinctions of fees and policies across higher education. Chandrasiri (2003) analyzed the financing of higher education in Sri Lanka and found that higher education institutions are facing with acute shortage of funds and are not promoting quality and efficiency because of a control-oriented system. Greer and Klien developed a new model on the financing of higher education institutions in the USA and found the ways of generating new revenue, but also enhance the transparency, accountability, and trust in higher education. Chapman and Doris (2018) developed a model to examine the feasibility of various student loan schemes for Irish students and for financing the students, contingent loan schemes approach to higher education financing is more feasible in terms of affordability and for government schemes. Huang (2017) develop a model that can give guidance to Japanese higher education for financial reforms. Jacob et al. (2017) focused on the financing trends in Southeast and Oceania Asia and provide guidelines to stakeholders to meet financial funding challenges. Margison 2018 measured the global trends

in UK higher education and concludes that the main resources of revenue of these UK higher educations' are from tuition fees from students instead of relying on international students. Teichler, 2018 discussed the changes in the financing of higher education institutions in Germany.

3. RESEARCH METHODOLOGY

For this investigation, three universities namely Panjab University (Chandigarh), Guru Nanak Dev University (Amritsar) and Punjabi University (Patiala) located within Punjab state of India were shortlisted. The reason behind this was that all three are public universities and deal in similar thrust areas (e.g. Arts, Commerce, Science, and Engineering). These universities emerged as top three public universities within Punjab according to Scopus Institution Ranking[1], 2019. The secondary data on income and expenditure from 2003 to 2019 were retrieved from universities' annual budget reports. Data were examined using Statistical Package for Social Sciences (SPSS) version 23.0. Further, the Levene's test was applied to access the homogeneity of variance. Based on Levene's outcome, the appropriate test was chosen for further analysis. Under Levene's test, there is a difference between the mean scores of universities for both income and expenditure (Tables 1 and 2). The results assumed unequal variance for both income (Levene statistic = 6.119, and P = 0.004) and expenditure (Levene statistic = 8.655, and P = 0.001) as P < 0.05. According to Welch (1947), in case of unequal variance, the Welch test should be taken into the use which was further strongly recommended by other researchers. Kandiah et al. (2006) also advocated that Welch is robust in the case of assuming unequal variances. Accordingly, we applied the Welch test and posthoc tests were used to answer the research questions.

1 SCIMAGO (Scopus) Institutions Ranking: https://www.scimagoir.com/rankings.php

Table 1: Test of homogeneity of variances (income)

Income			
Levene statistic	**Df1**	**Df2**	**Sig.**
6.119	2	45	0.04

Table 2: Test of homogeneity of variances (expenditures)

Expenditure			
Levene Statistic	**Df1**	**Df2**	**Sig.**
8.655	2	45	0.01

Table 3: Results of the Welch test for income

Income				
	Statistic[a]	**df1**	**df2**	**Sig.**
Welch	1.162	2	28.063	0.327

Asymptotically F distributed

Table 4: Results of the Welch test for expenditure

Income				
	Statistic[a]	**df1**	**df2**	**Sig.**
Welch	5.153	2	27.463	0.013

Asymptotically F distributed

4. EMPIRICAL RESULTS

In this section, attempts have been made to convert the data into valuable information to answer the research questions as follows:

4.1. Financial Performance in Context to Income

To compare the income of three universities, the Welch test was employed. Herein, the null hypothesis stated that there is no statistically significant difference between the income means of three universities. Table 3 reports the Welch test results. As per information depicted in Table shows that, F value (2, 28.06) = 1.162, and P = 0.327. According to Welch (1947), the P-value should be below 0.05 to reject the null hypothesis. Hence, the null hypothesis which stated that there is no statistically significant difference between the means of the income of three universities was accepted as the P > 0.05. Based on the findings, it is pertinent to mention that the income of Panjab University (Chandigarh), Guru Nanak Dev University (Amritsar), and Punjabi University (Patiala) is not statistically different.

4.2. Financial Performance in Context to Expenditure

In the next step, the expenditure of three universities was subject to the comparison. Herein, the null hypothesis stated that there is no statistically significant difference between the expenditure means of three universities. Table 4 reports the Welch test results associated with the expenditure. Herein, results reported F (2, 27.463) = 5.153, and P = 0.013. The P < 0.05 provide support for the rejection of the null hypothesis stated there is no statistically

Table 5: Multiple comparisons

Dependent variable: Expenditure						
Games-Howell post hoc						
					95% Confidence interval	
(I) Variable	**(J) variable**	**Mean difference (I-J)**	**Std. error**	**Sig.**	**Lower Bound**	**Upper Bound**
Punjab University (PU)	PUP	1219302515.06250	636513743.02061	0.153	−353893100.5736	2792498130.6986
	GNDU	1783152562.50000*	554821073.82722	0.011	388832508.0563	3177472616.9437
Punjabi University (PUP)	PU	−1219302515.06250	636513743.02061	0.153	−2792498130.6986	353893100.5736
	GNDU	563850047.43750	466382364.69921	0.459	−597841251.1625	1725541346.0375
Guru Nanak Dev University (GNDU)	PU	−1783152562.50000*	554821073.82722	0.011	−3177472616.9437	−388832508.0563
	PUP	−563850047.43750	466382364.69921	0.459	−1725541346.0375	597841251.1625

*. The mean difference is significant at the 0.05 level

significant difference between the expenditure means of three universities. Therefore, it is pertinent to conclude that at least expenditure means of one university significantly differs from other universities.

Further, we applied a posthoc test to identify the expenditure mean of which university/universities differ/s from others. Under the post hoc test, we used Games–Howell test. According to Silla et al. (2005), under the post hoc, Games–Howell is a robust test in case of unequal variances. As contained in Table 5, the posthoc test compares the differences among three government universities. There was a significant difference in expenditure between Panjab University and Guru Nanak Dev University (P = 0.011).

5. CONCLUSION AND IMPLICATIONS OF THE STUDY

The study aims to offer deep understating about the financial performance of the Indian state public universities by providing the comparative analysis of income and expenditure levels. To achieve this aim, we tested research hypotheses using the data financial performance data from three public universities located in Punjab, India. The research outcomes have provided insights about balancing financial performance in terms of income and expenditure. Instead of increasing research heed among academicians, policymakers, and researchers on university performance, the literature lacks empirical articles exploring universities' financial performance. Hence, this article extends the previous contribution by comparing the universities' income and expenditure. As concern to income, the present investigation confirms no statistically significant difference in the income of universities. On the other hand, the study confirms the difference in the expenditure of Panjab University (Chandigarh) and Guru Nanak Dev University (Amritsar). However, the study didn't found significant expenditure difference between Punjabi University (Patiala) and Guru Nanak Dev University, and between Punjabi University and Panjab University.

The study found that the mean expenditure of Panjab University (Chandigarh) has more than the mean differences of Guru Nanak Dev University (Amritsar). These three universities have functioned on a deficit budget and faced severe financial constraints. The financial analysis of universities reveals that there is a mismatch between financial policies, income, and expenditure needs. The funds are not optimally utilized and grants are not able to keep pace with the fees of the students. Panjab University has to be functioned on the expenditure otherwise it will have to face many problems regarding salaries of the teachers, lack of quality time given by the teachers, demotivating environment, and lack of student support due to lack of funds. We have found that state public universities need to be supported by state and central government to reach the minimum standards and grants should be given to encourage healthy competition among universities in higher education institutions. The financial deficit of these public universities has to be met up by pooling resources from all possible sources such as central and state government.

6. LIMITATIONS AND FUTURE DIRECTIONS OF THE STUDY

The present study has many limitations too. First, the sample size is small. The current study collected data from three state public universities of Punjab in India. Second, the study undertook only income and expenditure variables to examine the financial performance of the universities. Therefore, future studies could include other variables of financial parameters as well and the sample size should be increased to cover a large number of public and private universities.

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