

THE EFFECT OF PUBLIC POLICY ON THE DEMAND FOR HIGHER EDUCATION IN PAKISTAN: CASE OF COVID-19

Muhammad Ibrahim Shah^{1*}, Noor Jehan², Amreena Begum³, Ghazala Naheed Beig⁴, Waheedullah⁵

^{1*}M.S. Scholar, Heriot-Watt University Edinburg Campus, Scotland; ²Assistant Professor, Department of Economics, Abdul Wali Khan University, Mardan Khyber, Pakhtunkhwa, Pakistan; ³Lecturer, Department of Sociology, Abdul Wali Khan University, Mardan Khyber, Pakhtunkhwa, Pakistan; ^{4,5}Lecturere, Institute of Management Sciences, University of Agriculture, Peshawar, Khyber Pakhtunkhwa, Pakistan.

Email: ^{1*}hmisks@gmail.com, ²noorjehan@awkum.edu.pk, ³amreena@awkum.edu.pk, ⁴ghazala@awkum.edu.pk, ⁵waheed_hr@aup.edu.pk

Article History: Received on 19th March 2021, Revised on 29th June 2021, Published on 30th June 2021

Abstract

Purpose of the study: This research was conducted in the peak days of the Covid-19 pandemic. The intention was to know the effect of public policy of online classes on demand for higher studies.

Methodology: The data was collected online through Google forms via direct requests in different students groups. The probability that a student will continue studies if online classes were continued was the dependent variable and hence a "1" response and a "0" response otherwise, so logistic regression was applied.

Main Findings: If there is a preparedness problem for online classes, there would be a decrease in another admission, while ease of adaptability will increase admissions. A unit increase in tuition fees significantly negatively affects the probability of admissions in the online system. A male student, a day scholar student, has more probability of continuing studies in the online system.

Applications of this study: This study is very fruitful in devising educational policy and government guidance. Online classes were a new thing for the majority of the students and institutions, and our results can be of great help in the future course of action.

Novelty/Originality of this study: The study developed a perceptive questionnaire about online classes, and it was found to be reliable based on Cronbach alpha value of .82. We run Principal Component Analysis on a reliable scale and three components were extracted in the process i.e. ease of adaptability, system-related and preparedness problem.

Keywords: Online Education, Public Policy, Covid-19, Demand for Higher Education, Principal Component Analysis.

INTRODUCTION

Background

Education has a long-lasting effect on the growth of a country. Due to this certainty, all the world nations agreed to provide free primary education to all their citizens. Higher education has also been termed the right of every human, and governments are advised to provide all necessary resources to their masses to gain higher education.

Education has its returns in various manners. Neoclassical economic surveys claim that the public investment funds should be assigned between the basis of rates of returns. Based on this standard, education does not perform poorly. (Psacharopoulos, 1993; Galbraith, 2019) claims that most studies in developing countries explain that the rate of return to education is normally high, especially in low-income countries like Pakistan, comparable to those investments in physical infrastructure. In the Pakistani setting, Pasha and Wasti (1989) have derived the social and private return to various levels of education. They conclude that the return to higher education is comparatively high. In recent years, as federal funding of universities has begun to decline, some institutions have begun to demonstrate a degree of dynamism and innovation in diversifying their funding sources. This will contribute to greater autonomy, accountability and quality within the system (Pasha, 1995; Simms, 2020).

Unfortunately, in Pakistan education system is suffering from a dilemma; Population bomb, non-availability of resources, lack of highly qualified young class teachers (technically/generally/medically), uneven political policies, martial law interferences, inefficiency in all government sectors, political involvement in the field of education, no familiarity with the state of the art technology in the education field, no proper format and guidelines for the research, overcrowded classrooms which are uncontrollable for the teachers, the worst of worst is allocation of budget for education by the government (federal and provincial). Moreover, the government's autonomy granted to the universities has also been made one of the political games by this unfortunate piece of land, i.e. Pakistan (Khan, 2018).

From 1951 to 1957 (Six Year Plan), the National Plan of Educational Development was the first deliberate effort to predict and provide for our necessity in different fields of education. The five-year plan from 1955 to 1960 (December 1957) catered to the 6 universities existing at that time with 16% of the budget for education. The National Commission on Education was held in 1959 which agreed that development of literate population is pivotal for achieving objectives related to adult education in our country. The five year plan from 1960 to 1965 was the reliance of all levels of education on one another and emphasized vocational and technical education. The five-year plan from 1965 to 1970 aimed to

provide such an education system that might facilitate transactions linked with science and technology, promotion of political, social, and economic development.

Moreover, it aimed to create harmony between spiritual and cultural heritage shadowed with harmony with the contemporary world. The New Education Policy was held in 1970 with the main objective of universal elementary education (Smith, 2017). The policy focuses on freebie and general registration up to Class V. The education policy of 1972 focused on higher education through the establishment of 6 new universities, 2 new engineering universities, nationalization of private institutions, and an increase in university enrollment 56 percent. The downside of the policy of nationalization was that the government faced financial constraints and increased development expenditure.

From 1972 to 1980: The main Aims were to eliminate inexperienced individuals within the possible nonstop time by applying basic education and a vast mature education programme. The Five Year Plan from 1977 to 1983 sought to balance access to education, improve teaching quality, improve institutions and research facilities and make higher education possible for youth in distant regions of the country (Bright, 2018).

The Five Year Plan from 1983 to 1988 believes that education is the most necessary funding for any educational programme of socio-economic growth. The Five Year Plan from 1988 to 1992 aimed to increase investment in engineering education, the setting up of the National Education Testing Service and some efforts in the areas of faculty and research development. The National Education Policy was held in 1992; The Shifting of high-level education from supply to demand-oriented study programming. Higher education became demand-driven, and research and community development were also prioritized to bring about social change. The five-year plan from 1993 to 1998 termed education an essential element of growth and a basic right of every resident living in the country.

The national education policy (1998 to 2010) stresses the provision of basic education needs. Moreover, it also supports the steps which are required for equal opportunity in higher education. The objective of education policy in 2017 is to enhance the education budget, science and technology, knowledge economy through higher education. The Significantly enhanced financial investment is because the quality of higher education pays relatively quick multiple dividends through creating a knowledge economy.

The education policy in 2019 policy suggests a kind of three dimensional higher education institutions systems i.e.(1) Research universities (2) Teaching universities (3) autonomous degree-granting universities. Its main purpose is to grant autonomy to universities (Manasseh, 2020).

Due to the widespread occurrence of covid-19, the Higher Education Commission of Pakistan (HEC) announced the commencement of online classes on the federal government's recommendations. So far, the classes have been materialized by most universities except a few. It was not a part of education policy earlier. Still, as the emergence of the pandemic was like an outburst, the policy needed to be adapted at once to save students time and continue education activities. Higher education intuitions are supposed to be well aware of technology use, but observation shows that students and teachers have faced so many problems. This research is adapted in anticipation to show the determining factors towards education demand in the online era of education (Zuhairi, 2020).

Statement of the Problem

Multidimensional Poverty Index (MPI) shows that the poorest area In Pakistan is Baluchistan. The serious challenge is the access of internet ability, worsened by the covid-19 pandemic. And the government had opted for online classes. There is a lack of internet facilities in the erstwhile FATA area and other areas in Pakistan. Those students who live in FATA are other areas they cannot maintain the classes. This is one facet of the problem. There are other aspects like raising expenses on the internet, purchasing new smartphones, and soft skills to use technology. The need is to know whether there still exists demand and what affects it in the covid-19 scenario.

Research Questions

1. Did pandemics affect the delivery and inception of education?
2. What is the effect of government policy related to covid-19 on demand for education?

Objectives

1. To study the perception of students about online classes.
2. To know the problem faced by students in the new system.
3. To analyze the demand for higher education amid the corona crisis.
4. To give recommendations for future education policy to increase the enrolments.

LITERATURE REVIEW

This section gives some details of research related to the topic under study. The details are given below.

(Walsh, 1935; Feldman, 2016) shows that investment in education is the key element of economic development.

([Campbell & Siegel, 1967](#); [Ghignoni, 2017](#)) shows the demand for education as negative to change in price and positive to change in income. As per econometric work, university attendance shows a positive relationship with parental education, family income, student ability and negative relation with tuition-related matters.

([Thomas 1974](#); [Allen, 2019](#)) examined higher education enrolment demand. The paper explores public policy variables (tuition, institutional location, institutional, educational expenditure per enrolling). They used cross-section data to explore that higher tuition leads to lower total enrolment. Enrolment is not a homogenous commodity. Charges like tuition fees may have a couple of effects on enrolment (substitution effect and net discouragement effect). The substitution effect is when college increases your tuition fee. Some students decide to enrol in another college and the net discouragement effect is another student may decide against enrolment altogether.

([Kohn, Mandel & Muns, 1976](#); [Cheng, 2007](#)) studied investigation of factors that influence college-going behaviour. The scholars/experts used McFadden's conditional logit maximum likelihood policy to guess the empirical model. They show that as family income increases the effect of parental education on college-going behaviour declines. It is to note that upper-class families' income harshly affects decisions related to students' tuition, room and boarding charges.

([Bishop, 1977](#); [Chitiyo, 2008](#)) derived 20 subgroups by dividing the family income and student ability. Sample consisted of 27,046 male high school students divided into 20 subgroups by family income and student ability. The Result clearly shows that high admission, tuition, travel cost, and board cost significantly negatively affect attendance.

([Eisele & Stephenson, 1982](#); [An, 2019](#)) used national longitudinal data to estimate the empirical study for the period of 1972 educational amendment on higher education. The Result shows that the proper availability of financial aid has increased the young women enrolment ratio, which is an attempt through this policy attached to higher education.

[Mingat & Tan \(1986\)](#) investigated the financing of higher education in developing countries. They focus on the possible success of loans schemes as a pay-back instrument in higher education. This paper has also shown that granting loans will be highly effective as a cost recovery instrument in higher education. Granting loans for the students are like the source of income afforded by the governments for education. There is an entirely different aspect of educational research. [Psacharopoulos \(1988\)](#) reflects the essential role of education in Economic development. The shift of policy towards public spending on education is evident from the work of [Birdsall \(1996\)](#). His work titles "Public Spending on Higher Education in Developing Countries: Too much or too little? In which it is stressed to invest in the lower level of education.

There was also research on the direct and Indirect Effects of parental education level on demand for higher education ([Kodde & Ritzen, 1998](#)). The Result shows that the family income, ability, and expectation directly affect the earning and employment and is indirectly affected by parental education. [Rolfe \(2001\)](#) reviews the effect of tuition fees on students' demands and expectations. It was observed that the higher the tuition fee the more are student-directed to consumerist attitudes towards higher education ([Menon, 2017](#)).

In the early 21st century, researchers started questioning the credibility of education policies. For instance ([Heyneman, 2003](#); [Grek, 2020](#)) points to the role of the World Bank in the education policy as much crucial as a backbone in the human skeleton. [Lin \(2004\)](#) shows that higher education has a positive impact on the economic development of Taiwan.

([Tarar, 2006](#); [Kazemi, 2020](#)) investigates Globalisation and Higher Education in Pakistan. The neoliberal reform currently in the process highlights the privatization of higher fees. The reform process undermines the concept of higher education as a public good. In the same year, [Psacharopoulos \(2006\)](#) shows a broad overview of human capital theory. He discussed the distributive execution of education fund policies.

([Brempong, 2006](#); [Osoba, 2017](#)) used panel data for the period of 1960 to 2000. He modified the neoclassical growth equation to estimate the relationship of higher education, human capital and economic growth in African countries. He found that higher education and human capital positively impact African countries' economic growth rate (per capita income).

([Keller, 2008](#); [Shuaib, 2019](#)) examined investment in primary, secondary, and higher education and its relation to economic growth and finds a significant relationship between higher-level education and economic growth. A similar study was made by [Aziz & Babar \(2008\)](#) for Pakistan focusing on higher education only. They find that a well-educated labour force results in economic growth. [Chaudhary et al. \(2009\)](#) found a long-run association between education and economic growth. For Punjab province, Pakistan [Malik \(2011\)](#) made a policy analysis in which he recommends scholarships for talented students of professional education. Economic growth and education have focused on many other studies ([Kaka & Khan, 2011](#); [Asghar & Zahra, 2012](#); [Ashraf & Ismat, 2016](#)).

[Hübner \(2012\)](#) found a negative effect of tuition fees on entry to education in Germany. In the same year, [Asghar & Zahra \(2012\)](#) concludes that public spending on education for primary level and secondary level is progressive and the public spending on education for a higher level is regressive in Pakistan. The size of inhabitants and its growth rate and composition negatively impact economic growth ([Ullah & Malik, 2015](#)).

(Ashraf & Ismat, 2016; Mbiti, 2016) show that the government of Pakistan and their investors in the education sector did not perform well to deliver quality education.

(Leslie & Brinkman, 2016; Bruckmeier, 2014) did "student demand studies". In this paper, the demand theory is applied to higher education. The Result has three aspects (1) enrolment rates in a negative relationship with tuition price (2) enrolment rates in a positive relationship with the amount spent on student aids (3) enrolment in higher institutions have a positive relationship with the tuition price charged by competitors.

(Jackson & Weathersby, 2016; Murphy, 2017) investigates individual demand for higher education. They confirmed that low tuition fees and student grants lead to a rise in enrolment.

(Qazi & Raza, 2017; Binsaeed, 2015) discussed the link between foreign direct investment and higher education development in Pakistan. They used time-series data from 1972 to 2013. It was found that foreign direct investment brings forward-thinking technologies, which require more expert and administrative labour force. People go for higher studies to improve their skills and gain a modest advantage in the labour market.

(Diemer & Khushik, 2018; Khushik, 2018) Critically analyses education policies of Pakistan from 1947 to 2017. The Result shows that education for sustainable development can be a key driver for higher education.

(Raza et.al., 2019; Khawar, 2021) examined higher education policies introduced by the Pakistan government for examining the causes of success and failure of these policies. The key suggestions are; government should empower Higher Education Commission (HEC) with financial and administrative authority to provide quality higher education at the doorsteps of people according to local and global needs. The government should ensure the execution of policies and plans related to higher education in true letter and spirit.

RESEARCH METHODOLOGY

Sampling

All the students pursuing higher education are a sample of this study. Attempts were made to collect as much data as we can, but 130 respondents returned the questionnaire.

Data Collection

Data was collected through Google forms. We have requested students in many groups to fill the form, but the response rate was very low. It took us a month to collect data.

Conceptual Framework and research model

This research has followed Bishop (1977) paper on demand for higher education. For the current research, the model was modified to accommodate current situations. For this purpose, the reduced-form model is:

$$\log[(P_i|1 - P_i)] = \theta_0 + \theta_1 X_{i1} \dots \theta_n X_{in} + u$$

P_i = The probability that the i th student will take new admission or registration in online classes.

X_1 = Total costs (tuition + transport + hostellife+ board - savings at home) at the low-cost university on affordable charges in the shape of minimum fees void for a local expense of accommodation index. $Hyp: \theta_1 < 0$.

X_2 = Tuition fee at the credible university on affordable charges in the shape of minimum rupees void for the local expense of accommodation. The coefficient on tuition is expected to be negative because (1) To gain accuracy, the tuition fee is measured more specifically than the other component affordable on minimum cost (2) As well other universities working in the public sectors in the state have also the same tuition fee and funds (3) Tuition fee psychologically affect the students planning. The sum of θ_1 and θ_2 is the total effect of tuition fee on attendance.

X_3 = fee in other institutions (colleges for same education).

X_4 = Social background in the neighbourhood means the community, good or bad, living with you at a stone through. Your social background may be rural or urban. Rural population means such strength of population that is not equipped with modern facilities of life.

X_5 = In the survey made about the foregone earnings, it was observed that the population faced low standard of living at local cost. It is satirical to say that after deduction of taxes from such lower wages the yearly earnings over unable to support anyone in the society and such factors harshly affected the attendance ratio at the university level. The local wage rate has both price and income effects on university attendance.

X_6 = The income of the parent. When there is no stronger financial support for the students, attendance at the university level will decrease. An average earning made by male college teachers, or accountants or electrical and mechanical engineers is no stronger to prove helpful for their children/generation to provide the best education. It should be positive because higher monetary returns to universities should enchant more students.

X_7 = Result in the last exam.

X8 = number of siblings.

X9 = It was observed that changing schools frequently may result in an unstable and temporary home environment. It may endanger the whole educational background which is available for the student concern. It will negatively impact the ratio of attendance at the college level. So it is proved that the coefficient on this variable is must be negative.

A logit statement of a statistical model of the university-attendance decision has been derived from choice theory by several authors (Bishop, 1977; Kohn *et al.*, 1976). A logit statement proved advantageous after analyzing this choice, as under. (a) Its coefficients are straight interpretable as measuring proportionate changes in the odds of an event. (b) It was found easy to translate predictable changes based on probability or elasticity. (c) It facilitated guess about individual data related to computable possibilities of its function.

Similarly, the research developed a perceptive scale about online classes for later incorporation in the logit model.

RESULTS AND DISCUSSIONS

Scale for Students Perception About Online Classes

The study developed a perceptive questionnaire/scale for online classes which taped student's perception about new policy of taking classes online. These statements were based on literature and preliminary discussions with the students. To check the reliability, Cronbach's alpha was calculated. The Cronbach Alpha shows that the developed scale is statistically reliable.

Table 1: Reliability Statistics

Reliability Statistics	
Cronbach Alpha	No of Items
.854	16

Factor Analysis for Finding the Items for Online Classes' Questionnaire

The KMO and Bartlett's showed that the sample is adequate to rely on the results.

Table 2: Factor Analysis for the questionnaire of online classes

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.841
	Approx. Chi-Square	941.143
Bartlett's Test of Sphericity	df	120
	Sig.	.000

Total Variance Explanation and Component Score Coefficient Matrix

The total variance explanation and component score coefficient matrix table show three items of the online classes' questionnaire. Preparedness Factor, adaptability factor and factor system-related factor.

Component of Online Classes Questionnaire

Based on the following components/ sub-factors of the online class's policy questionnaire were extracted. The first factor relates to preparedness related to deciding to start online classes, the second relates to the factor relating to the system and last the adaptability of the stakeholders involved.

Table 3: Component of Online Classes Questionnaire

1	The government took a hasty decision
2	I feel lost
3	Most of our teachers themselves are not well versed in technology
5	Question asking is not possible in this system
6 Preparedness	Class control is the biggest issue
7 Problem	Our teacher cannot give full attention during the class
8	We solve our paper in groups
1	People consider me on vacation
2	The fee is not appropriate
3 Systematic Factor	I would recommend the system for future assignments and quizzes
4	Our system does not support online classes
5	It is very easy to cheat
1 Adaptability	Our university has a good LMS
2 Factor	I feel comfortable in this system
3	Online classes have improved my technical capabilities.

Model Estimation (Admission in Case of Online Classes)

In table 4, the coefficients of the probability of further admissions in the case of online classes are given. It included three factors of a perceptive questionnaire related to online classes developed and tested for reliability in the same research. The responses of each category were indexed to arrive at a single score for further use in the regression model. It was assumed that there is an equal interval between two points on the scale. The preparedness statements were negatively ended as it was directed to the preparedness of the overall stakeholders. The coefficient shows that if there are preparedness problems, the demand for the online class will decrease, or the probability that a student will take further admission in case of online classes will decrease by almost 2%. The factor related to the system and culture has no significant effect on future admission in online classes. At the same time, there is a significant relationship between adaptability and the probability of further admission if online classes continue. If there is the ease of adaptability, there is more than a 2% chance of admissions in online classes. An increase in tuition fees has a negative and statistically significant effect on the probability of admissions in the online system.

Similarly, a male student is most likely to take admission and a day scholar student has more probability (almost 2%) of continuing studies in the online system. There is more likely for a male student to continue in the online system than a female student at a 10% significance level. Sibling number, the future expectation of salary, social grouping, area and last results were found insignificant towards the continuation of the online system. R Square is the coefficient of determination was .26 and hence 26% of the variation in the model is explained by explanatory variables. The model was significant as per the F value.

Table 4: Model Estimation (Further Admission In Case of Online Classes)

Preparedness problem	-.1971019	.0492215	-4.00	0.000	-.2945098	-.099694
Systematic	.0565531	.0589529	0.96	0.339	-.0601129	.1732191
Adaptability ease	.238381	.0467054	5.10	0.000	.1459524	.3308096
Sibling	.0415564	.0667828	0.62	0.535	-.0906048	.1737177
Expected Salary	-.0000002	0.00000047	-0.32	0.748	-0.0000010	0.00000077
SC1	-.1426667	.1284308	-1.11	0.269	-.3968274	.1114941
Tuition Fee	-0.00000306	0.00000141	-2.17	0.032	-0.0000058	-0.00000027
Area	.0497012	.0924526	0.54	0.592	-.1332598	.2326621
Gender	.1627766	.0954597	1.71	0.091	-.0261354	.3516885
Enrolment	.2967506	.1385549	2.14	0.034	.0225544	.5709467
Day Scholar	.1703912	.0832517	2.05	0.043	.0056385	.335144
Last Result	.0064473	.044518	0.14	0.885	-.0816526	.0945471
_cons	-.1700657	.3273383	-0.52	0.604	-.8178585	.4777272

F(12, 126) = 9.61(0.000), R-squared = 0.26

CONCLUSION

The study concluded three factors of perception related to online classes viz, preparedness factor, system-related, and preparedness problem. We found that if there is a problem with a new mode like online classes, there would be a decrease in another admission, and if there is the ease of adaptability in such a system, admissions will increase in the new semester. The tuition fee exerts a negative effect on new/other admissions. An increase in tuition fees has a negative and statistically significant effect on the probability of admissions in the online system. Similarly, a male student is most likely to take admission and a day scholar student to has more probability (almost 2%) of continuing studies in the online system. There is more likely for a male student to continue in the online system than a female student at 10% significance level. Sibling number, the future expectation of salary, social grouping, area and last results were found insignificant towards the continuation of the online system.

RECOMMENDATIONS

It is recommended to ease the process of the online system, decrease tuition fees and prepare students, teachers and system for a new setup before implementing it.

LIMITATIONS OF THE STUDY

The study was conducted in peak days of Covid-19, and there was complete lockdown. This limited the collection of face to face data. The online data request was also not responded to as expected because of the stress caused by the unforeseen pandemic.

CONTRIBUTION

The principal author develops the central theme of the empirical study and after applying different tests found the appropriate model to conclude the results. The second author supervised the study. While the third author analyzed the

research and concisely and concluded the finding of the study. The fourth and fifth authors made formatting and proof reading of the research study.

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