AN IMPACT EVALUATION OF GOVERNMENT SCHOLARSHIPS ON STUDENTS SUCCESS: A CASE STUDY OF UNIVERSITY OF TURBAT

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(CGP #01-058)

RASTA CONFERENCE

Monday 28th & Tuesday 29th March 2022

PC Bhurban, Murree

RESEARCH FOR SOCIAL TRANSFORMATION & ADVANCEMENT

Pakistan Institute of Development Economics

Islamabad

ABSTRACT

This study tries to investigate the short to medium term impact of government sponsored scholarships on undergrad students' academic performance and other success outcomes. Taking advantage of the recent initiatives of governments at both federal and provincial level for introducing undergrad scholarship programs that provide us a quasi-natural experimental research design, this study utilizes a difference-in-differences (DID) approach to estimate the impact of scholarships on students' academic and success outcomes. Using University of Turbat as a case study, we compare academic performance outcomes — Percentage marks, GPA, or CGPA — of students who held scholarships with academic performance outcomes of those in the same sessions, departments and degree programs without having scholarships before, during and after the awards. Our results show that, the HEC Ehsaas scholarship program—which is designed to support financially the needy students' — seemingly increased the academic performance of male students only with a percentage point of 4.10 in their semesters' marks. This improvement is significant economically because an additional of 4.10 percent marks could secure a student from dropping out at the university's enrolment or change the grade of a student from B to B+. In order to tracing out channels through which this impact could possibly happen, this study tests a number of hypotheses to validate the findings. These findings indicate that male students when obtained scholarships are less likely to depend on their parental income for the university related expenses than female students. Also, they are more likely to focus in their study by taking class notes seriously in the class compared to their counterpart male students who did not hold scholarships. The positive impact of scholarship on students' others success outcomes (e.g. students' retention, engagement and satisfaction, acquisition of skills and competences, and career success) particularly for male is also validated in a number of t-tests by using our survey data. Surprisingly, this did not find any evidence on the impact of merit based scholarships on students' academic performances.

***Keywords*:** *Impact evaluation, scholarship, academic success, academic performance, difference-in-differences; quasi-natural experiment.*

PREFACE

Access to higher education is considered a privilege for deprived population globally. Pakistan is no exception where very few people could afford to get the opportunity for higher education. In past, higher education was a main concern of government; however, since the inception of Higher Education of Commission of Pakistan, a little more attention has been given to the unprivileged population to get better access to higher education. In order to uplift the higher education in the country, the government of Pakistan has initiated various scholarship programs at both federal and provincial levels (e.g. HEC-Ehsaas scholarship, HEC-Need scholarships and BEEF scholarship, etc.). The aims of these scholarships were to increase the access of tertiary level education to the deprived population.

The purpose of this study is to focus on government sponsored scholarships (merit or need based) and understand the trickle down impact on students' academic performance and other success outcomes by taking the University of Turbat as a case study.

This study was not possible without the cooperation of financial aid office and semester cell of the University of Turbat for providing the relevant information on scholarship programs and the gazettes of results. The scholarship funding agencies also helped for providing their assistance for data collection and providing other details through interviews. The students' of University of Turbat provided support for properly filling out the questionnaires. We offer our special thanks and acknowledgement to various individuals and institutions for the accomplishment of this study. This project would not have been completed without the financial and technical support of the Pakistan Institute of Development Economics (PIDE) under its research-based grant program 'Research for Social Transformation and Advancement' (RASTA). The Project Management Team of RASTA under the leadership of Dr. Nadeem Ul Haque, helped us throughout the process of this journey. The mentoring of Dr. Durr-e-Nayab and Mr. Omer Siddique guided the team to come up with this accomplishment. Dr. Faheem Jehangir Khan ensured every possible support for the execution of this project. Dr. Sajid Khan and others in the Project Management Unit of RASTA team have smoothly coordinated for all administrative and financial matters. The counseling of Research Advisory Committee (RAC) during the mid-term review was helpful for redesigning the project and their comments were supportive for carrying out the work at this stage.

The Vice Chancellors of BUITEMS, University of Balochistan, SBKW University and University of Loralai very generously permitted this team to carryout Key Informant Interviews (KIIs) and Focused Group Discussions (FGDs) in their respective universities. The Chief Executive Officer of Balochistan Education Endowment Fund (BEEF) and his team are acknowledged for their support in comprehending the entire process of scholarship awards and for providing other policy related documents.

The cooperation of Prof. Dr. Jan Muhammad, Vice Chancellor University of Turbat is acknowledged for his permission to carry out the survey and his directions to various sections in University of Turbat for provision of utmost support to this team. Mr. Mukhtar Hussain helped for Student Information System, Mr. Nadeem Jan timely provided examination results and Mr. Abdul Jabbar collaborated for provision of scholarships data of students. All Deans and Head of Departments were helpful for conducting the survey.

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LIST OF ABBREVIATIONS

BEEF	Balochistan Education Endowment Fund
BUITEMS	Balochistan University of Information Technology, Engineering and Management Sciences
CGPA	Cumulative Grade Point Average
CPEC	China-Pakistan Economic Corridor
CSEQ	College Student Experiences Questionnaire
DID	Difference-in-Differences
FAO	Financial Aid Office
FGDs	Focused Group Discussions
GDP	Gross Domestic Product
GPA	Grade Point Average
HEC	Higher Education Commission
HEIs	Higher Educational Institutes
HoD	Head of Department
ISAC	Institutional Scholarships Award Committee
KIIs	Key Informant Interviews
KPK	Khyber Pakhtunkhwa
NBP	National Bank of Pakistan
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PMFRP	Prime Minister Fee Reimbursement Program
RASTA	Research for Social Transformation and Advancement
SBKWU	Sardar Bahadur Khan Women University
SDGs	Sustainable Development Goals
SIS	Student Information System
UIS	UNESCO Institute for Statistics
UNESCO	The United Nations Educational, Scienctific, and Cultural Organization
UNICEF	The United Nations Children's Fund
UoB	University of Balochistan
UoL	Univesity of Loralai
UoT	University of Turbat

INTRODUCTION

1.1 Background

Education is proved to be a leading instrument for enhancing economic growth. It helps to uplift human capabilities through knowledge, skills and create a progressive and strengthen society. The education benefits are not only limited for the national economy but individuals are also benefited from it. But unfortunately, one-sixth of the world children, adolescents and youth - 258.4 million people - were out-of-school in 2018 and shockingly 93 million of them were from South Asia (UNESCO Institute for Statistics (UIS), 2019b). Pakistan has the world's second-highest number of out-of-school children, after Nigeria. An estimated 44 % of the children aged 5-16, i.e. 22.7 million children, were not enrolled in school in 2017 (Hunter, 2020). Further sizeable disparities among regions, socio-economic status, and gender exist. For instance, 78 percent of girls from Balochistan and 58 percent of girls and 52 percent of the poorest children in Sindh are out of school (UNICEF, 2020).

The situation of higher education in Pakistan is not adequate compared to its neighboring countries. The chance of getting higher education in Pakistan is only 4% of people which is much lower than in India and China – 11% and 20% respectively (Nasreen & Afzal, 2020). One of the poor and dilapidated conditions of education in Pakistan is due to its low government spending on education. For instance, government spending on education for last two decades remained 2% of GDP (Ali, Hakim, & Abdullah, 2016). Government of Pakistan reduced its spending on education from 4 percent (target) to 2.9 percent of its GDP in 2017 (Hunter, 2020). In years 2019-20 the total education expenditure declined from Rs 868.0 billion to Rs 611.0 billion (Figure A 1). It decreased by 29.6 percent which is alarming situations for country's education. Pakistan only focused on primary and secondly level education and the tertiary/higher level was neglected (Aziz et al. 2008).

Among other socio-economic and cultural constraints, poverty is one of the biggest hurdle for the development of higher education in Pakistan (Razi, 2016). Getting higher education is even much harder for female than male and that is because, inter alia, money or financial problem is the core hindrance in the way of females' growth in higher education (Abid & Khan, 2017; Amin, Tatlah, & Afghani, 2018; Hashmi, Shahzad, & Kanwal, 2016; R. Khan, Khan, & Khan, 2020). Lack of financial resources is the key barriers, every marginalized community in Pakistan face to participate in higher education (e.g. slum dwellers) in Pakistan (Awab-us-Sibtain, Usman, & Husnain, 2020).

Under SDGs, Goal 4, 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all', some global targets were set by representatives of the global education community, including to ensure equal access of affordable and quality higher education to all genders, persons with disabilities, and indigenous peoples (targets 4.3-4.5) (UNESCO Institute for Statistics (UIS), 2019a). In order to accomplish these targets by 2030, global community also committed (target 4.b) that by 2020, the global enrolment of students in higher education should increase significantly by the means of expanding number of scholarships in developed countries for the students of developing countries. Though there are no such precise records on number of scholarships, according to one estimate the developed countries provided public scholarships to only 1% of students in developing countries in 2015 (UNESCO Institute for Statistics (UIS), 2019a).

In order to reduce poverty and control income distribution, the development of higher education could be a considerable policy option (Qazi, Raza, Jawaid, & Karim, 2018). For that end, the government of Pakistan has taken several initiatives towards supply side (e.g. development faculty members) and demand side (e.g. accessibility/participation of students in HEIs by providing scholarships) of higher education in Pakistan. Both federal and provincial governments of Pakistan have launched several scholarship programs in Pakistan Under the umbrella of human development program HEC initiated various merit and need based scholarships for specific region (Gwadar-China Scholarship program, Indigenous scholarship, Aghaz-E-Haqooq-E-Balochistan Project, Undergraduate Scholarship Program for the students of Gilgit-Baltistan) and national level scholarships such as prime minster fee reimbursement scheme for less developed area (the scheme is closed), Indigenous Ph.D fellowship program, HEC need based scholarship, Ehsaas Undergraduate Scholarship Program.

Though an intensive body of research studies on the subject area is available, a methodological rigorous study on impact evaluation in the context of Pakistan is missing. For instance, studies highlight that scholarship programs in general increase the chance of accessibility to educational institutions, increase students' enrolment, and improved their survival, retention, and academic performance (Barrow, Richburg-Hayes, Rouse, & Brock, 2014; Bettinger et al., 2017; Schudde & Scott-Clayton, 2016; Timilsana, 2017). In the context of Pakistan, B. U. Khan, Shah, and Gul (2019) in a survey based a self-administered questionnaires from 350 HEC-need based scholarship in four districts of KPK Pakistan and found that the scholarships considerably effect on education outcome positively—increased enrollment of student, improved attendance and reduced dropouts from universities.

In term of causal relationship between scholarship and students' academic performance, the study of B. U. Khan et al. (2019) has limited policy implications. Though the impact of scholarship on students' performance they found positive, this relationship could not explain the story of students who were not awarded scholarships and were excluded from their study. Also, what would have happened to the educational performance of observed students if they did not get scholarship? What would have happened to academic performance of those students who were enrolled in the same class of scholarship-awardees but were not awarded any scholarships? These and other similar policy relevant questions that motivate us to design this impact evaluation research. This impact evaluation will also improve our understanding and knowledge base on the effectiveness of government scholarships as interventions on student academic performance and success.

1.2 Impact Evaluation

In order to identify the effectiveness and successes of government' need or merit based scholarship programs in the province of Balochistan, we conducted a rigorous short to medium term impact evaluation by taking the University of Turbat as a case study. In this evaluation, we took the scholarship programs which were initiated by both provincial and federal governments as policy interventions. Evidence derived from this impact evaluation helps us understanding how these scholarship programs are contributing by providing opportunities to students in Balochistan province to access the higher education as well the success or barriers for failure for the implementing the programs. The findings of this case study are applicable to university with similar institutional setting and characteristics.

1.3 Research Questions/Hypotheses

The main objective of the study is to investigate the impact of financial aids on students' success by taking the University of Turbat as a case study. More precisely, it is designed to answer the following four research questions:

1. *What is the impact of government sponsored scholarship programs on the academic performance of students in the University of Turbat?*
2. *What is the impact of access to scholarships on students' success beyond their academic performance in the University of Turbat?*
3. *Which type of financial aids is a better intervention tool for supporting students to get access to higher education institutions located in the underprivileged regions of Pakistan: need based scholarship or merit based scholarship?*
4. *What are the key constraints, challenges, or barriers in the process of implementation, monitoring and evaluation of the scholarship programs?*

In order to find evidence on the impact of scholarship programs on students' success empirically we have tested the given hypotheses:

- *H1: Students with scholarship do well significantly in acquiring credit points (% marks in semester) than students without scholarships at UoT.*
- *H2: Students with scholarship become more engaged and acquired more skills, knowledge and other competence than students without scholarships at UoT.*
- *H3: The average retention rate (promotion to next semester) of students with scholarships is much higher than the students without scholarships at UoT.*
- *H4: There exists a significant difference in the academic success outcomes between merit-based scholarship awardees and need-based scholarship awardees at UoT.*
- *The study also explored further the impact of the scholarship programs on academic success on different subsection samples (e.g. gender, degree program, etc.).*

The rest of the paper is organized as follows. In Section 2 we discuss the most relevant literature of this study, followed by the section 3 which conceptualize the impact of financial aid on students' academic success in HEIs setting. In section 4, we explain our research setting and a brief description of scholarship programs. In section 5, we introduce the data and methodology, followed by a detailed section (6) on main results and discussion. Finally we conclude the findings of this study in section 7.

LITERATURE REVIEW

In a global context the significance of scholarships are profoundly acknowledged across all levels of education. Specifically, in the year 2015 it got more importance when the United Nation Sustainable Development Goals (SDGs) emphasized the inclusion of scholarship programs as a tool for achieving its goals. The research has also identified scholarships as significant instruments for the nation's development and growth. In this connection, rigorous research can be found in the literature while establishing the importance and the impact of scholarships on multiple psycho-social and economic variables. According to the extent of literature financial aid and scholarships could directly affect students' academic motivation which eventually results in good academic performance. Campbell and Neff (2020) reviewed 105 research articles on scholarships in the framework of international higher education, found that six primary outcomes of these scholarships would develop skills and build human capital, bring social change, promote sustainable development, internationalize institutes, improve diplomatic ties and enhance the access for education.

In addition, several studies reported the empirical evidences of the link between the scholarships or financial aid and students' academic success, motivation, satisfaction, retention and engagement (Alon, 2011; Angrist et al., 2015; Glocker, 2011; Millea et al., 2018; Mulyaningsih et al., 2022; Waskito & Azizah, 2013). In their seminal work Ganem and Manasse (2011) found that scholarships have a manifold impact on students' academic achievement, motivation and success. The academic success measured by students' persistence, progression and timely completion of degree (Ganem & Manasse, 2011). Moreover, researchers highlighted the need of institutional scholarships for student success as it considered as essential tool or predictor for success. Mushtaq and Khan (2012) have identified several antecedents of college scholarships that affect student' performance and engagement. In another study researcher Watson et al (2014) found interesting findings of their research, that scholarship has a positive ripple effect on siblings, parents, relatives and neighbors'. Particularly, it encourages parents to get other children into education as the burdens or expenses of educating children would be compensated through scholarships. Furthermore, they argued that social distance emerged among the students those who were the scholarship recipients and those who were non recipients of scholarships, researchers also argued that the scholarship stipend changed the course of student's lives, eventually; over half became the most educated person in their family and town. Above all, these findings suggest that the social and economic value of scholarships needs to be evaluated in a greater spectrum (Watson et al., 2014).

In another empirical study Cagasan et al. (2019) found that graduate students' perceived contribution of scholarships to academic success. The findings showed that a majority of the students (89%) were able to finish their studies within the prescribed time. Almost all of the students (97.8%) believed that scholarships contribute to graduate students' persistence and timely degree completion. The majority of students (93.3%) need financial support in order to stay at University. Further surveys revealed scholarships reduced students' stress level (48.9%) and that some students claimed that the financial assistance helped them with their living expenses (60%) and finish their education on time (Cagasan et al., 2019). In a correlation investigation, Bliven and Jungbauer (2021) established that, student motivation, self-determination, and persistence is positively related to student recognition programs, acknowledging the students efforts and other achievements in a university. In addition Rana et

al. (2021) argued that scholarships enhance the quality and standards of education among the scholarship recipients and further recommended that in some scholarship programs less holistic which may not be able to cover the whole expenses of the students, in such circumstances the financial institutions should provide schemes for education. In recent empirical investigation of Mulyaningsih et al. (2022), researchers found that large scale targeted government scholarships has very strong impact on students' performance , in particular ; those who are least privileged and living their lives in poor condition in Indonesian context.

CONCEPTUAL FRAMEWORK FOR IMPACT OF FINANCIAL AID ON STUDENTS' ACADEMIC SUCCESS IN HEIS

The conceptual framework of this study is built on the comprehensive meta-analysis of York, Gibson, and Rankin (2015). They define academic success (which is different from student success) based on Astin's (1991) Inputs-Environments-Outcomes (I-E-O) Model as the theoretical framework for their study. According to IEO model, the outcomes (O) of higher education are conditioned to the inputs (I) and the environment (E). Lately, the Astin's model was further explained by Pascarella and Terenzini (2005), in which they include demographic characteristics such as family backgrounds and academic and social experiences in the inputs; the setting of HEIs including people, programs, policies, cultures, and institutional experiences in the environment; and finally student characteristics, knowledge, skills, attitudes, values, beliefs, and behaviors after graduation in the outcomes. Combining both Astin's model and York et al. discussion of analytical review of literature and the definitions of academic success, this study follows the given conceptual framework (see Figure 1).

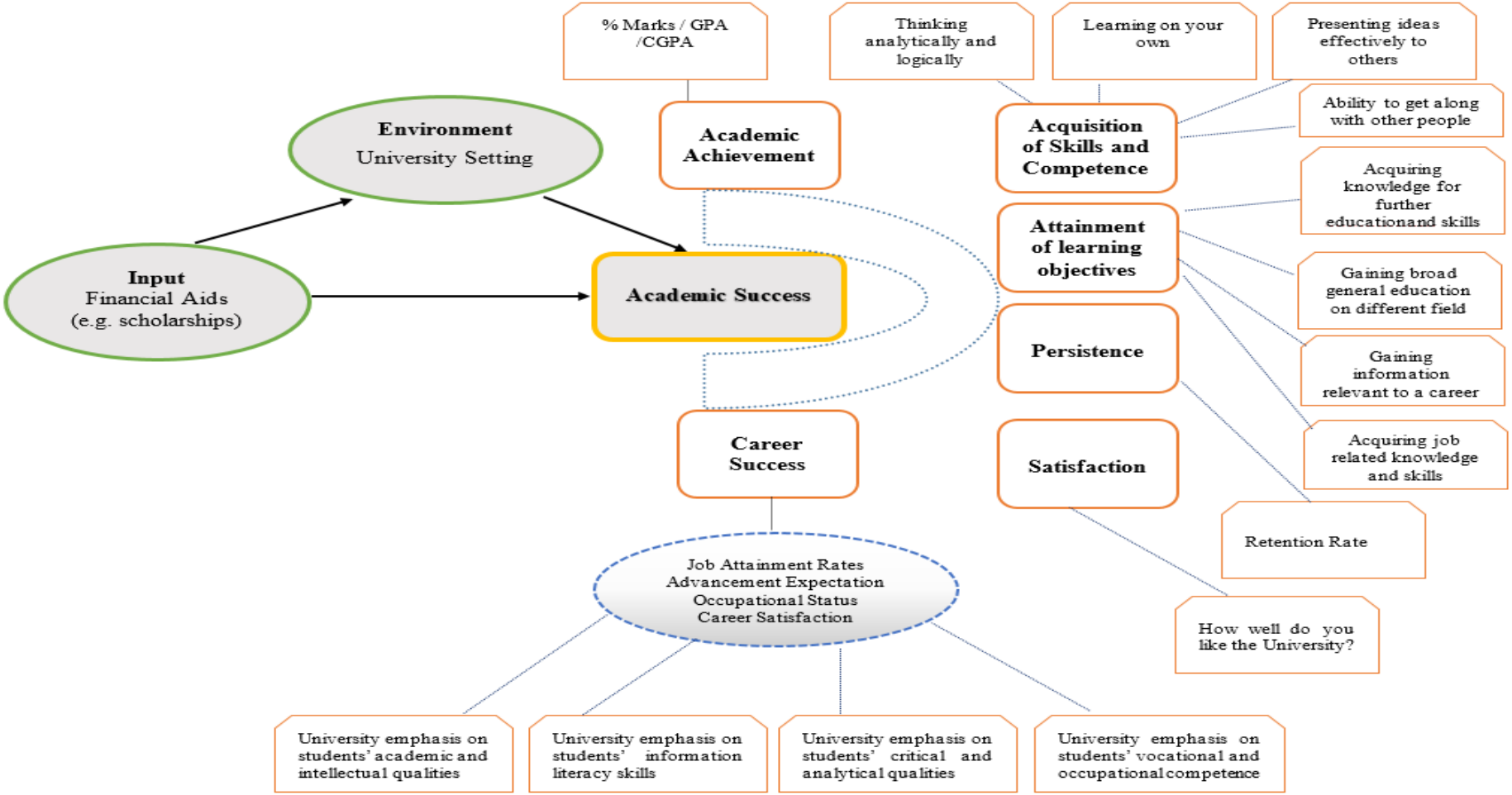
3.1 Inputs

Demographic characteristics of students, their family backgrounds, and academic and social experiences which are the necessary inputs for achieving academic success. We modified the model by including the variable of interest (i.e. financial aids) of this study as an additional input. *Financial aids* includes additional supports by governments, philanthropists, or other sources in terms of scholarship, fee concession etc. to students that helped them to concentrate their study during degree program and achieve high level of academic success. In this study, we measure financial aids by using the government sponsored scholarship amount to be paid to students in the form of their tuition fees, stipend, etc. Currently there are three major source of financial aids operating for undergrad students at the University of Tubat, namely, HEC need based, HEC Ehsaas scholarship and BEEF merit based scholarship programs. The o*ther Inputs* for this study include student previous academic records (matric and intermediate percentage marks, age, gender, parent education etc.).

3.2 Environment

Environment which includes people, programs, policies, cultures, and institutional experiences in the HEIs could affect students' academic success. In a university setting, *people* includes number of faculty members, student teacher-ratio, or number of teachers having PhD degree, etc. *Programs* includes degree programs offered by a university and students enroll themselves. The *cultures* of a university could influence students' academic success. In a diversified cultural setting, the interaction with others who are coming from different backgrounds may influence students learning and career pursuit. In this study our research setting is the University of Turbat, located in Turbat city. It is far away from other cities of Pakistan therefore it attracts students who are mostly belong from poor families of the same region. Therefore, the culture of UoT is less diversified in terms of students' ethnic or family backgrounds. Finally *institutional experiences* may also influence students' performance and success. In order to capture the environmental and institutional variation in our analysis, we include degree programs and districts fixed effect to capture these unobservable characteristics in our model.

Figure 1: Conceptual Framework for Impact of Financial Aids on Students' Academic Success



3.3 Outcome: Academic Success

In this impact evaluation we use academic success as our outcome variable of interest. York et al (2015) define and thoroughly discussed term in a greater detail in their meta-analysis. They define academic success as "inclusive of academic achievement, attainment of learning objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance." *Academic achievement* is the students' academic performance and ability which could be measured by students' GPA, grades in a course or assignment (York et al, 2015). They further separate the term '*academic achievement*' from two other terms '*acquisition of skills and competence'* and '*attainment of learning objectives '* though these terms were used interchangeably for measuring academic success in literature (see page 6, York et al, 2015). In this study, we opt the terms academic achievement, acquisition of skills and competence, and attainment of learning objectives for measuring the academic success in our empirical analysis. We measure the first term by students' GPA, CGPA or percentage marks in a given semester and the latter two terms by several students' self-reported questions from a survey dataset we have conducted at the University by using the College Student Experience Questionnaire (CSEQ)[1] (Pace and Kuh, 1998).

Persistence is another academic success in our model which can be defined as "persistence corresponds to students' continued progression in an academic degree despite institutional transfers or stopping out" York et al (2015). Usually it is measured by students' graduation and students' retention rates, but due to data limitation we measure it with students' promotion rates to the next semester based on university's institutional policy for promotion, probation or dropout.

Satisfaction, though, is not itself a component of academic success but it is an outcome that includes other aspects of students' wellbeing such as students' perception regarding institution and climate, their goal achievement which affect their ability to succeed at the university level academically (York et al, 2015). Therefore, including satisfaction is an outcome variable in our model capture other contextual components which are deem necessary for learning and academic success. It can be measured by students' satisfaction level of the university's facilities and academic environment and also their engagement in educational activities. Student engagement in a university setting is an essential aspect for comprehending students' satisfaction, persistence and class attendance. We used survey questionnaire to ask several questions for measuring students' satisfaction and engagement level in the university. Such activities may include using campus library, labs, centers for reading, writing, etc. or their involving discussing issues with faculty and other students.

Finally, as suggested by York et al (2015) in their meta-analysis that c*areer success* is a part of academic success which includes both, intrinsic and extrinsic measures of it. It can be defined in several ways but it includes early job outcomes such as job offers, employment status, job performance, job satisfaction, and organizational satisfaction (York et al. 2015). Due to data limitation, we used students' self-reported responses or perception about their educational prospect, the prospect of their career in the field, their level of background or specialized knowledge and skills that would help them in future to find and qualify their desired jobs.

[1] The CSEQ is a product of the Center for Postsecondary Research & Planning at Indiana University (College Student Experiences Questionnaire (CSEQ) : Institutional Research Swarthmore College).

RESEARCH SETTING

4.1 Background of University of Turbat

University of Turbat (UoT) was established in May 2013 under the UoT Act 2012 and recognized by HEC as the 168th public sector university in the country on 12th March 2014. It is the second public sector general university in the province after the University of Balochistan. The establishment of this institute has not only fulfilled the desire of the public in this southern part of Balochistan province, but it also covers majority of districts scattered into wide geographical locations as previously the only general university was in Quetta, the provincial headquarter of Balochistan. The primary objective for the establishment of this university was to address higher education challenges in Makran Division of the province consisting of three districts namely, Kech, Gwadar and Panjgoor besides adjoining districts of Awaran, and other districts of Rakhshan Division. The establishment of this institute has met the higher educational need of nearly one fifth of the population of the province.

The geographical position of UoT is accessible to all districts of Balochistan due to the envisaged China Pakistan Economic Corridor (CPEC) route as UoT is sited on main M-8 connecting Gwadar to rest of the country. Turbat city is the divisional headquarter of Makran Division connecting other two districts of Gwadar in the south and Panjgoor on the north east and Turbat is the second most populous city of the province after Quetta.

After conversion into a full-pledged university in 2013, the university expanded its academic departments from three to fifteen with four faculties by offering twenty five programs in various disciplines. Apart from the main campus in Turbat city, it established one sub-campus in Gwadar in 2017 (recently converted into a full-pledged university) and another sub-campus in Panjgoor in 2020. The enrollment status and gender wise strength of the main campus along with campuses is 3,414 students of which female students are 1,335 representing 39.10 percent. From the University's records, it was observed that the dropout rate from the undergrad programs (starting from 1st to 8th semester) is very high i.e. 33%. Along with institutional policy, financial constraints, is one of the major reason for dropping out students from the university enrolment (UoT's annual reports).

UoT has three main types of need or merit based scholarships; HEC Need Based Scholarship, HEC Ehsaas Undergraduate Scholarship, and Balochistan Education Endowment Fund (BEEF). Under these programs, about 901 and 980 scholarships were awarded to students in 2019 and 2020 respectively (see Table 1).

Table 1: HEC and BEEF Scholarship Programs at UoT in 2019 and 2020

Name of scholarships	2020	2019
HEC-Ehsaas Scholarship Program	437	657
HEC-Need based Scholarship Program	63	38
BEEF- Merit based Scholarship Program	480	206

Source: Document Records of UoT

4.2 A Brief Description of Scholarship Programs

In this impact evaluation we used three major types of scholarships for the undergrad students in University of Turbat who who are/were enrolled in graduate programs (4-5 year) in any department of UoT. The rationale behind taking undergrad students as a unit of observation follows as: four to five years degree programs consist of eight to ten semesters which provide sufficient number of observations for analyzing the impact of scholarships during and after the programs. By using students' data at undergrad level programs we will be able to estimate the scholarship impact on students' academic performance or other outcomes beyond student academic performance. The HEC Ehsaas scholarship program is purely for students who are enrolled in undergrad programs (4-5 year) and also BEEF provides a huge amount of scholarships to this level— about 40-45% of the total scholarship amount (see A1 and A2 in appendices, for further details).

HEC-Ehsaas Undergraduate Scholarship Program

Under its social safety net program, the Government of Pakistan has also initiated Ehsaas undergraduate scholarship program in 2019 for supporting undergraduate students financially (Government of Pakistan, 2020; Higher Education Commission Pakistan, 2020a). In a policy brief it stated that "*this is the largest ever need-based undergraduate scholarship program in the history of Pakistan*" (Government of Pakistan, 2020). The Program focuses to attract needy for higher education in universities and colleges of the underprivileged areas of Pakistan. This program aims to provide 50,000 undergraduate scholarships with an average budget of Rs. 6 billion annually that would continue 4 to 5 years for a target of 200,000 awards. Half of the scholarships are reserved for female. The scholarship covers tuition fee and a stipend of Rs.4000 per month during the degree program. The general eligibility criteria are; a) student belong to a family with family income less than Rs. 45,000, and b) a student may retain the scholarship during the rest of the program if his/her academic performance is satisfactory. c) The eligible student must be enrolled in an undergraduate degree programs (4-5 year) offered at 119 public sector universities of Pakistan including the University of Turbat—the University of interest—for this impact evaluation. The HEC, Pakistan has awarded 657 and 437 scholarships to the undergrad students of UoT with 40% and 43% of female awards in 2019 and 2020 respectively (see Table 2). Compared to its size the HEC has awarded the University of Turbat than other public sector universities in Balochistan more generously in year 2019 and 2020.

Table 2: HEC Ehsaas Scholarships: Four Public Sector University in Balochistan in 2019 and 2020

Name of Universities	2020			2019		
	Total	Male	Female	Total	Male	Female
UOT	437	248	189	657	394	262
UOB	282	156	126	435	227	208
UOL	24	23	1	62	61	1
BUITEMS	235	147	88	594	517	77

Source: Financial aid offices of given universities in Balochistan

HEC-Need Based Scholarship Program

HEC-Need Based Scholarship Program was started for the purpose of providing opportunity — through financial support—to brilliant and needy students of deprived families and underprivileged class in the least-developed areas of Pakistan in order to obtain a high quality education at the public sector institutions /universities of Pakistan (Higher Education Commission Pakistan, 2020b). Compared to other scholarships, very limited due to budget constraints: only 5% of the recurring budget of a university is reserved for need based scholarship. The eligibility criteria which is very minimum as compared to other types of scholarships. The need assessment is the prerequisite for inclusion in this program which is mainly based on factors—such as family's status, their total monthly income or expenditure, and household assets. The scholarship covers tuition fee and a stipend of Rs.6000 per month during complete program. The eligible students must be enrolled in any undergrad degree programs (4-5 year) offered by the 94 public sector universities in Pakistan. Only 38 and 63 students were awarded HEC need based scholarships in year 2019 and 2020 respectively including both undergrad and grad students (See Table 1 above).

BEEF Scholarship Program

Government of Balochistan, under its finance department, had established an educational endowment fund of Rs. 5 Billion and then for the purpose of investment, monitoring and disbursement of the fund, a company, namely, the Balochistan Education Endowment Fund (BEEF) was formed and registered under the Companies Ordinance, 1984, Section 42. The main objectives of BEEF are to increase provincial literacy rate, enrolment and retention rates of students in different institutions, create talented human resource and improve socio-economic and poverty conditions in the province of Balochistan (Government of Balochistan, 2016a, 2016b, 2017, 2018). From the proceeds of the endowment fund, BEEF has been awarding need and merit based scholarships to the talented and needy students mainly belong to Balochistan province. BEEF also awards scholarship to students at secondary, intermediate, master (2-years), professional degrees (4-5 year), MS/MPhil, and PhD levels. For undergrad (4- 5 year) degree programs, BEEF usually selects top 10-20 students from the list of top 20-40 students provided by the universities located in Balochistan. BEEF has awarded scholarship to about 21,000 students with an amount of more than Rs.591 million so far (see BEEF Policy Guideline 2019-20, Government of Balochistan, 2020). Further details are given in Table A1 in the appendices.

EMPIRICAL ANALYSIS STRATEGY

In this impact evaluation, we utilize a mixed method for estimating the short to medium term impact of government sponsored scholarship on students' academic success in a public sector university in Balochistan, Pakistan. Below we present a simple estimation model for analyzing the impact of scholarships (T) on students' success outcomes (Y):

$$Y = \beta_0 + \beta_1 T + \mu$$

Furthermore we expand the above model by using the outcome model of Albouy (2004) in which we evaluate the government scholarship programs impact on students' success outcomes (such as academic performance that is measured by % change in marks or GPA/CGPA) Y_i:

$$Y_i = \beta_0 + \beta_1 T_i + \beta_2 Post_i + \beta_3 T_i * Post_i + \varepsilon_i.$$

In the above difference in differences (DID) model, where T_i is the treated group (T = 1, 0), 1 indicates students who were/are awarded a scholarship (i.e. treatment group) and 0 indicates similar students who were not awarded any type of scholarships before the scholarship programs launched or due to financial constraints during the scholarship programs (i.e. control or comparison groups). We extract students' outcome, specifically students' performance outcome (i.e. students GPA/CGPA or percentage marks) for two periods or semesters ($Post_i$ = 1, 0), 1 indicate the time period (i.e. the semester(s)) during and after the treatment group received scholarships (post-treatment) and 0 indicates the time period (or semester(s)) before that the students received their scholarships. The index *i* represents students (*i = 1, 2…, N*) with at least two observations each, one for before the award and second for during or after the award. ε_i is the idiosyncratic error term.

Furthermore, in this quasi-experimental design in which treatment assignments (scholarships) were not made by a randomized process but rather on some arbitrarily criteria (either they were selected by need based or by merit based easements). Due to their selection criteria, it is quite possible that the comparison groups become a sandwich between two possible treatment groups (need and merit based scholarship awardees). On the one extreme, students who were eligible for merit-based scholarship would probably have better standards of living than the rests. For example, the chance of students who could avail the BEEF merit based scholarship awards would probably get the same awards for each succeeding year due to their higher academic achievements (e.g. CGPA) which would also be highly correlated with their family social status. On the other extreme, students who could avail a need-based scholarship would have weaker standards of living because of their eligibility criteria to be included for the award. And the HEC Ehsaas scholarship program is an example of such program that selects students based on the need assessments.

In order to avoid biased estimates that may be possible due to the selection biased and given the availability of data, we expand the model by including other control variables or the student level baseline characteristics S_i, program level characteristics control P_j. and district control D_k Thus the functional form of the estimation model becomes:

$$Y_i = \beta_0 + \beta_1 T_i + \beta_2 Post_i + \beta_3 T_i * Post_i + \sum_i \gamma_i S_i + \sum_j \delta_j P_j + \sum_k \theta_k D_k + \varepsilon_{ijk}.$$

Where S_i is the student background information (i.e. students' previous academic records—percentage marks in matric and intermediate, parents' education, gender, age, etc.). P_j is a set of dummy variables that control for degree programs and departmental level variations and D_k is a set of dummy variables that control district level variation. The difference-in-differences (DID) estimation technique is applicable where we have sufficient numbers of observations in both treatment and control groups and two periods (pre – post semesters of scholarship intervention). We use students' records who were enrolled in sessions 2017-20 and 2018-21 for our main DiD analysis. The model is estimated by OLS and standard errors are robust. In other cases (such as using survey based dataset), though we still have observations for both the treatment and control groups (students with scholarship and without scholarship), but due to losing the pre and post intervention interaction, we either applied t-test or multiple regression model to estimate the impact of scholarships on other dimension (quantitative-nature) of student academic success such as student retention rate, their engagement and satisfaction etc.

DATA AND METHODOLOGY

6.1 Data

In order to understand the impact of scholarship on students' academic performance and success, we used a triangulation of mixed method by collecting administrative data from one of the public sector university in Balochistan along with a survey in the same university, Key Informant Interviews (KIIs), Focused Group Discussion (FGDs) and policy documents from the scholarship monitoring bodies (Higher Education Commission of Pakistan (HEC) and Balochistan Educational Endowment Fund (BEEF).

Quantitative Data

This study used a wide range of secondary quantitative data (e.g. students' academic performance measured by student' marks in percentage GPA and CGPA; students' retention rates, and students' percentage marks in matric and intermediate levels) were collected from several sources of the University of Turbat. These sources include students' semester gazettes from the office of the controller examinations, MIS records from the IT section and the lists of awardees and other scholarship documents from the financial aids office (FAO). These sources also provided us information on other control variables which were used in the analysis including gender, age, district, and BS programs, and sessions (2017-20 to 2021-24).

Survey Data

In addition to quantitative data, we intended to investigate the impact of scholarships on students' academic success beyond their academic performance, therefore we complemented this study with a survey's data which we were conducted in November and December, 2021 at the University of Turbat. The survey questionnaire was adopted from the CSEQ[2] (Pace and Kuh, 1998) and with some amendment of background information. There were 141 questions in the survey questionnaire including: students' background information; their experiences using library, computer labs, course learning materials, and writing; their experiences with faculty; using campus facilities; personal experiences; scientific and quantitative experiences; opinion about the university; environment of the university; and progress level of their knowledge, skills and competence. We used EvalBee application[3] and designed our questionnaire accordingly. In our survey the students' used their answer sheets to mark their selected option on the sheet. We extracted the data in excel format from the EvalBee after the scanning of answer sheet (see Figure A 3). We generated a pseudo list of students roll numbers which were used in the survey and later on merging the survey data with other datasets.

By using the examination gazettes of semester, we framed the sampling framework of this study. The latest gazette results of the students were used for the enrolment of existing students at the university. As per semester results, the total population of this survey consisted of 1,826 students who were enrolled in the 13 undergrad degree programs of the four faculties of UoT. Except one

[2] The CSEQ is a product of the Center for Postsecondary Research & Planning at Indiana University (College Student Experiences Questionnaire (CSEQ) :: Institutional Research :: Swarthmore College).
[3] The EvalBee (Free OMR answer sheet scanner, a mobile app) is basically designed to create for multiple choice question exams and generate instant exam reports by scanning answer sheets with phone camera.

program (LLB, 5-year), all others programs were for four years. The cohorts of this study included students who were enrolled in sessions 2018-21, 2019-22, 2020-23, and 2021-24.

The official approval from the Vice Chancellor of University of Turbat for conducting the research activities at the university has been taken and upon requesting to departmental heads (HoDs/Deans/Directors) we conducted the survey under our supervision in their classroom (see Figure A 2 for approval). We read out each question loudly in Balochi language and students marked them on their answer sheets. Despite the tough schedule of classes at the university, we have successfully collected 960 responses from the students. After cleaning and merging this dataset with other datasets, out of which 579 (60.31%) questionnaires were finally usable for our analysis purpose.

Other Instruments for Data Collection

In addition to the survey and secondary sources data, we have also conducted key informant interviews (KIIs) from the concerned officials of BEEF, the University of Turbat, University of Loralai, University of Balochistan, SBK Women University, and BUITEMS. We have conducted 17 KIIs; including 13 from the universities (i.e. focal person of the FAOs, chairpersons or deans of department or faculties, and members of the Institutional Scholarship Award Committee (ISAC)) and 4 concerned officials from the monitoring agency (BEEF). The survey tools for this analysis were taken from MacAuslan, *et al.* (2019) study. In addition to that we have also conducted four FGDs among students who were awarded any type of scholarships under investigation in the given four public sector universities of Balochistan (UOB, BUITEMS, SBKWU, and UOL). Each FGDs comprised of 10-12 students. The key questions in FGDs or in interviews were based on the scholarships' impact other than the students cognitive learning skills (i.e. academic performance) such as scholarships' spillover effect or externalities (both positive and negative) in the form of supporting their siblings' education, part-time jobs, reasonable stipend amount, pressure for retaining scholarship etc.

In addition to that, the main focus of discussions and interviews were also on the areas of need assessment, programs' monitoring and process evaluation, budget constraints, barriers for implementation, delays in payments, knowledge and information dissemination, data recording, maintaining and updating etc. The discussions and interviews were in students' or interviewees' most compatible language and recorded in our mobile phones with their consent (signed by them). The audio tapes were transcribed in the recorded language first and then translated in English for the analysis purpose.

In addition, for the purpose of assessing the process of implementation, monitoring and evaluation, we also collected documents that contained information on scholarships. This exercise was done for extending the scope of this study to the entire process of scholarship programs beyond the University of Turbat by including the processes and experiences of other universities in Balochistan. That's because institutional context factors such as institutional failure in managing the process of scholarship can distort the overall discussion of governance issue.

6.2 Descriptive Statistics

The unit of observation in this analysis is student who was/is enrolled in any of the thirteen undergrad programs (4-5 years) of University of Turbat (for programs detail see Table A3). We made a huge dataset by combining four datasets: student information system (SIS), gazettes results, scholarship lists, and survey datasets. By utilizing all datasets, though we lost a huge number of observations, but still we had sufficient number of observations to do several estimation analysis. After cleaning the data, overall the dataset consists of 1,740 individual observations, of which 66.84 % are male and 33.16 % are female. Out of which about 55.86 % of overall students, 51.07 % of male and 65.51 % of female were awarded any type of scholarships. On average, the distribution of scholarship on district wise as follows as, about 61, 70, 75, and 92 percent of students from the district of Turbat, Punjgoor, Gwadar, and Awaran in general and 70, 80, 83, and 100 percent of females respectively were receiving any type of scholarships at the University of Turbat. The bachelor of studies in natural sciences (e.g. Bio-Chemistry, Biotechnology, Botany) are very popular subjects for female students and about nearly of students in general and above 70% of female were receiving the scholarships (see Table A3 for further detail). Table 4 shows descriptive statistics of the students' academic performance —the variables of interest for this study. On average students secured 60.29 percentage marks (in terms of GPA or CGPA, it is 2.35 and 2.47 respectively) in comparison group and students secured 75.74 percentage marks (in terms of GPA or CGPA it is 3.24 for both) in the control group.

Table 4 shows a significant difference between outcome variables of interest in the treatment group (students having scholarship) and control group (students having no scholarships) that were observed before the scholarship programs were launched at University of Turbat. For instance, among enrolled students in different undergrad programs of the university, the average percentage marks of students without any expected scholarship was 55.40 which was 75.89 percent for students with an expected scholarship before the scholarship programs were launched.

Overall the percentage of marks of students, on average, in the control group increased by 10.16 point but surprisingly it was reduced by 0.25 point after the award of scholarships. Descriptive statistics in Table 4 further reveals that the academic performance of students in both treatment and control groups either before or after the award vary significantly for the samples of students based on their gender (male vs. female). For instance, the average differences of percentage of marks between male-without-scholarship vs. male-with-scholarship and female-without-scholarship vs. female-with-scholarship 20.02% (i.e. 75.16% - 55.14%) and 20.89% (i.e. 77.20% - 56.31 %) respectively. Interestingly, the percentage marks of a female student who have secured a scholarship increased on average from 77.20 to 78.49 but it reduced to 75.16 to 73.94 when the awardee is a male student.

Table 3: Descriptive Statistics of Students' Academic Performance (in Percent, CGPA and CGPA): Session 2017 and 2018

Outcome Variable	Percentage Marks				GPA				CGPA			
	Scholarship Non Awarded Students		Scholarship Awarded Students		Scholarship Non Awarded Students		Scholarship Awarded Students		Scholarship Non Awarded Students		Scholarship Awarded Students	
	Obs.	%	Obs.	%	Obs.	mean	Obs.	mean	Obs.	mean	Obs.	mean
Before the Award												
Total	542	55.40	778	75.89	552	1.98	782	3.21	548	2.06	777	3.22
Male	423	55.14	500	75.16	431	1.96	504	3.19	429	2.05	502	3.18
Female	119	56.31	278	77.20	121	2.04	278	3.25	119	2.11	275	3.28
During and After the Award												
Total	1922	61.67	3938	75.70	1929	2.46	3940	3.25	1930	2.56	3939	3.24
Male	1403	58.93	2415	73.94	1407	2.35	2415	3.15	1408	2.42	2415	3.16
Female	519	69.08	1523	78.49	522	2.86	1525	3.41	522	2.91	1524	3.36
Scholarship Types												
Total	2464	60.29	4716	75.74	2481	2.35	4722	3.24	2478	2.47	4716	3.24
HEC Ehsaas			4064	75.47			4070	3.22			4065	3.21
BEEF			342	79.02			342	3.52			342	3.57
HEC Need			310	75.54			310	3.27			309	3.28

Data Source: Authors' own calculation based on UoT's, results gazettes and scholarship awardees' lists.

RESULTS AND DISCUSSION

Education is proved to be a leading instrument for enhancing economic growth. It helps to uplift human capabilities through knowledge, skills and create a progressive and strengthen society. The education benefits are not only limited for the national economy but individuals are also benefited from it. Poverty and financial constraints are the core hindrance in the way of growth in higher education. In order to reduce poverty and control income distribution, the development of higher education could be a considerable policy option. For that end, the governments of Pakistan (both at federal and provincial levels) have taken several initiatives towards students' participation in HEIs by providing them scholarships. These scholarships are of two main types; need-based and merit based programs operating in public sector universities located under underprivileged areas of Pakistan. This rigorous short to medium term impact evaluation will be carried out to assess the situation of three different type of scholarship programs (HEC-Ehsaas scholarship, HEC-Need scholarship and BEEF scholarship programs) and their impact on students' academic success in the University of Turbat (UoT). We drop the HEC need based scholarship for the first part of this impact evaluation because of number of reasons: First, the size in terms of number of awardees are few due to the size in the budget of HEC's recurring grant. Only 5% of the HEC recurring grant in university is allocated for the HEC need based scholarship. So there are few observations for the awardees compared to non-awardees of scholarship. Second, and most important reason is that this scholarship is awarded from the first semester and we loss the pre-intervention records of outcomes of variable of interest (percent marks, GPA or CGPA, etc.). Therefore, the main analysis of this study in this part is focused on HEC Ehsaas Scholarship program and BEEF programs.

Our variable of interest in this study is student academic performance which we measured by students percentage marks in the semester. The percentage of marks of students at the university level is higher for students who received scholarships than for those who did not receive any scholarship, both before and after the intervention happened (see Table 4 for further detail).

In order to test the hypotheses—whether the intervention of government sponsored scholarship programs have brought any significant impact, positive or negative, on students' academic performance —we used ordinary least square (OLS) method to estimates the coefficients of interest. Both matric and intermediate percentage marks along with parental education control variables are included in the regression for controlling the student background information. Also, the fixed effects at degree programs, semesters, and district levels were also included for further controlling the institutional or district level variations in the datasets. Robust standard errors are presented in parenthesis.

7.1 Impact of Scholarship on Students' Academic Performance

This study—by utilizing a quasi-natural experiment research design with a difference-in-differences (DID) estimation approach—examines the impact of the government sponsored scholarships on academic performance of students who are /were enrolled in a undergrad programs in UoT and having a scholarship with academic performance of similar students who are/were enrolled in the

same undergrad degree programs but having no scholarships. The results from the regression model of impact of scholarship on student academic performance are given in Table 4.

Starting with the baseline regression (column 1, Table 4), the estimated coefficients of βs indicate that overall there is no seemingly significance impact of parental education or student intermediate marks on students' academic performance in term of securing percentage marks in the undergrad programs, however, the percentage marks in matric is seemingly a better predictor for obtaining marks later in undergrad programs.

Results from the Table 4 indicate that, on average, students who held a scholarship obtained an additional of 4.58% marks (see Column 1) with 2.43% if he held a need based scholarship (see column 4) and 9.39% marks if he/she held a merit based scholarship (see column 7) compared to similar students who did not hold a scholarship. Due to learning experiences, the academic performance (in percent marks) of all students increased after the post-intervention semester.

Coming to our variable of interest, the estimated coefficient indicates that the government sponsored scholarship, on average, seemingly did not affect the academic performance (percentage marks) of undergrad students with scholarship compared with the academic performance of undergrad students without scholarship during and after the intervention happened.

In order to examine the gender heterogeneous effect of the scholarship on students' academic performance , we run two separate regressions; one for male (2) and one for female (3). Interestingly, our results show that the female students in our sample performed significantly better than the male students after the scholarship intervention (7.18% vs. 4.5%) but the overall intervention of scholarship programs did not bring any short to medium significant impact on students' academic performance on students having scholarship compared with their counterparts for both genders.

Since the eligibility criteria and nature of scholarships are different based on need or merit, therefore we did another exercise in order to tease out the impact of scholarship on academic performance by splitting our samples in two: Need Based Scholarship (columns 4-5) and Merit Based Scholarship (Columns 7-9).

Results in column 4 show that the HEC Ehsaas scholarship programs (i.e. the eligibility criteria is purely based on need assessment) increased the percentage marks of those students who held a scholarship compared with those who did not. In other words, on average, students who held an HEC Ehsaas scholarship compared with their counterpart students who did not hold any type of scholarships performed well by obtaining an additional 3.10% marks in the upcoming semesters (third to eight) after the intervention happened. Further analysis shows that the impact of scholarship on students' academic performance in overall sample for HEC Ehsaas program is due to male students only and for female the estimated coefficient is insignificant. Due to the award of HEC Ehsaas scholarship program, the performance of male students in the undergrad programs increased by 4.10% which is not only statistically but economically significant; this percentage value can change a student's grade from B to B+ for example.

Columns 7 to 9 of Table 4 show that the impact of BEEF Merit Based Scholarship on the academic performance of undergrad students with a BEEF scholarship award compared with those who did not hold any type of scholarship; the estimated coefficients of overall along with both gender are insignificant. There might be several reason behind why there is no impact of BEEF scholarship on student academic performance. But the main reason is from our FGDs (BUITEMS, UOT, LORALAI, SBK) explained a major portion of it. 3 out of 4 FGDs strongly preferred and appreciated the HEC Ehsaas programs and remaining one FGDs appreciated it because as per their opinion, students should be rewarded for their performance and since there are several need based scholarships programs are out there at the university level, BEEF is just one among all which is based on merit.

Table 4: Program-Semester Fixed Effect Estimates of the Government Scholarships on Students' Academic Performance

Outcome Variables: Semester Marks (in percent)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall Sample			Need Based Scholarship (Ehsaas Program)			Merit Based Scholarship (BEEF Programs)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Educated Parents (at least one graduated from school)	-0.00	0.30	-2.20*	-0.42	-0.33	-1.87	0.18	0.01	1.45*
	(0.63)	(0.84)	(1.26)	(0.71)	(0.91)	(1.30)	(0.61)	(0.94)	(0.80)
Intermediate Marks (%)	0.05	0.06	-0.011	0.03	0.07	-0.028	-0.06	-0.13**	-0.07
	(0.03)	(0.06)	(0.06)	(0.04)	(0.06)	(0.07)	(0.03)	(0.06)	(0.05)
Matric Marks (%)	0.21***	0.14***	0.56**	0.21***	0.12**	0.61**	0.14***	0.15***	0.00
	(0.05)	(0.05)	(.23)	(0.05)	(0.06)	(0.24)	(0.04)	(0.05)	(0.11)
Scholarship Holders	4.58***	4.95***	1.92	2.43**	1.21	4.52**	9.39***	10.31***	9.18***
	(0.90)	(1.10)	(1.60)	(1.17)	(1.31)	(2.26)	(0.90)	(1.21)	(1.26)
Post Scholarship Semester	5.20***	4.5**	7.18***	4.41**	3.01	8.75***	4.27***	3.37**	6.61**
	(1.69)	(1.90)	(2.51)	(1.86)	(1.96)	(3.17)	(1.51)	(1.69)	(2.61)
Scholarship Holders x Post Scholarship Semester	0.39	-0.15	0.54	3.10**	4.10***	-2.58	-0.75	-1.58	-0.13
	(1.46)	(1.78)	(2.02)	(1.39)	(1.55)	(2.51)	(1.47)	(1.86)	(1.98)
Observations	869	603	266	759	529	230	634	436	198
R – square	0.2943	0.2743	0.3809	0.2940	0.2928	0.3683	0.4597	0.4290	0.5983
District Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Semester Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Program Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Observations comprise of students enrolled in session: 2017-20 (5^{th} to 8^{th}) and session 2018-21 (3^{rd} to 8^{th}). Robust standard errors are in parenthesis.* p<0.1, ** p<0.05, *** p<0.01. Models estimated by OLS.

Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' surveys, and authors' own survey at UoT.

7.2 Possible Reasons for High Academic Performance of Male Students

In order to investigate the possible causes of getting extra points in terms of percentage marks by male students in their semester results due to the HEC Ehsaas scholarship, we utilized data from the survey we have conducted during November and December, 2021 at the University of Turbat. Given the regional socio-economic conditions, culture constraints, one can think several reasons but here we limit our analysis and discussion on two possible causes. First, in a male dominated society where outgoing or marketplace job is an option for a male students to finance his university level expenses but that comes with a cost for him to concentrate his education. Our survey data also depicts this fact that there is a significant difference between male and female who meet their university expenses. Male students mostly financed their expenses by themselves and for female these expenses are mostly meet by their parents or spouses. From Table A 4 (column 1) in the appendices, it is clear that on average 19.35% of more female than male depends on parental income for their university expenses. But looking at the statistics below of the same column the burden of parental support of their children seemingly reduced when scholarship awarded to their daughters or sons but the reduction of parental financial burden on their son, average reduced about two times more than their daughters seemingly due to the scholarship awards. Elaborating the case further it is quite clear from our self-reported survey data that on average 9.26% of male students and 5.66% female students meet their university expenses mostly by themselves (column 2 of Table A4). For male students, the scholarship awards seemingly helped about 4.91% of students to depends on scholarship and for female students the difference of percentage of students between scholarship awarded and non-awarded is insignificant. We also observed from our survey data that the scholarship awards has seemingly reduced the attitude of female students for taking notes from their class lectures, however, the awards did not bring an significant difference between students with scholarship and students without scholarship in notes taking attitude (see column 3 Table A4).

Together the above mentioned evidence, we have tried to disentangle the potential causes for justifying why male students in our sample who got extra points in their semester results in percent. One possible explanation may be the reason that male students if they get scholarships also could get extra time due to their job related working hours and focus for their study at the university. Eventually they get an improved performance due to class participation. To justify this line of arguments, we tested this hypothesis by running two regressions. We regressed the dependent variables (parents meet the university expense of students and students took detailed class notes during class) on dummy variables of scholarship holder and male student including controls of district, semester, age and parental education (see columns 1 and 2 of Table 5). The results show that 14% of students who hold a scholarship is less likely to depend on their parental income for their university expenses compared to their counterparts, students without any scholarships. Compared to female students, male students are also less likely depends on their parental income for their education expenses. In other words, an additional of 13% of parents meet their daughters' university education expenses than their sons' educational expenses. Coming to our variable of interest that is the interaction term (scholarship holders x male), the 12 percent of male students who got a scholarship reduced the dependency of their parental income for university education compared to female students who got a scholarship and those students who did not get any type of scholarship.

Further strengthen the argument, we also investigated whether there happened a significant difference in the attitude of male students in class participation or notes taking who got a scholarship awards than their counterparts and female students. The DiD estimates show a difference of 0.69 points between male students who obtained a scholarship than other counterparts with or without scholarship (see column 2 of Table 5). Together with the results of Table A4 (column 3), it shows that this difference is not due to a difference of male students who got scholarship but rather female students who got scholarship are less likely to take class notes during their class lectures. It can be inferred from this analysis that the scholarship may make a difference in academic performance of male students due to the reduction of their dependency on self and parental financial means. Unlike female, the award of scholarship make any difference in their non-serious behavior in the class for note taking in the class.

Table 5: Possible Causes/Channels of Scholarship That Improve Male Students' Academic Performance

Outcome Variables	Parents meet students University expenses (Value = 1, and 0 otherwise)	Students Took Detailed class notes during class (never, occasionally, often, very often)
Scholarship holders	-0.14***	-.031
	(0.05)	(0.23)
Male	-0.13***	-1.10***
	(0.04)	(0.20)
Scholarship Holders x Male	-0.12*	0.69**
	(1.06)	(0.28)
Observations	863	849
District Fixed Effect	Yes	Yes
Semester Fixed Effect	Yes	Yes

Note: Observations comprise of students enrolled in sessions 2018-21 to 2021-24. Robust standard errors are in parenthesis.* p<0.1, ** p<0.05, *** p<0.01. Model (1) is linear regression model (2) is an ordered logistic regression.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey's data.

7.3 Robustness Checks on Main Findings

Alternative Measures for Academic Performances

In our main analysis, we measured academic performance with semester marks in percentage with the intention to capture the maximum variation of the dependent variable. But there are other measures are available which are important in semester system and those are grade points average (GPA) and cumulative grade point average (CGPA). There is a reason that we did not choose these measures for our main analysis. In the semester system once a student gets a GPA or CGPA of 4 in a semester and he/she maintained it with each succeeding semester then the outcome variable of interest does not vary for that individuals but his/her percentage marks may vary according to his/her performance in each succeeding semester. We did this analysis as an extension of previous results in order to validate our findings further. The columns 1 to 3 and 4 to 6 of Table A5 present the findings of HEC Ehsaas scholarship impact on students' academic performance in terms of GPA

and CGPA respectively. As expected, on both measures, the academic performance of male students increased by 0.313 and 0.183 points in their GPA and in CGPA respectively after the scholarship awards compared to their counterparts male students who had no scholarship. On the other hand there is no sufficient evidence that the academic performance of female students on these measures increased due to the awards of scholarships.

Placebo Experiment

A serious concern of time trends that may be existed in the data under analysis due numerous confounding factors, so the estimated coefficients we got from our DiD analysis would be biased. Therefore, we did a placebo experiment to the robustness of our results especially for HEC Ehsaas Program for which we have got a positive impact of scholarship on male students' academic performance. The basic assumption of this placebo experiment is that the Ehsaas scholarships were awarded to students in first and third semester of sessions 2018-2021 and 2017-20 rather than the actual scholarships that were awarded in third and fifth semester of sessions 2018-2021 and 2017-20 respectively. Since we have sufficient number of observations in both pre and post intervention, therefore we could estimate the impact of the pseudo scholarship awards on students' academic performances.

The findings from this placebo exercise further strengthens our initial findings. Here the estimated coefficients of our variable of interest in all cases remained statistically insignificant (see columns 7 to 9 of Table A5). Based on evidence extracted from this placebo experiment further proposes that the need based scholarship could affect the academic performance of male students a reasonable percentage points.

7.4 Impact of Scholarship on Students' other Success Outcomes

Persistence (Retention)

With the given data the direct measures of retention rate is not possible. We measure it with University of Turbat Policy for probation and minimum requirement for degree award. The student would be drop-out from the enrolment of the university if he/she could not maintain a minimum CGPA of 1.3 and between 1.3 – 1.7 he/she would be on a probation. Then he/she has to be enrolled in the University if he/she could maintained their CGPA of 2.0 which is required CGPA for degree award. By using this policy intervention, we have created a dummy variable, namely expected retention which hold a value of 1 if a student whose CGPA is greater and equal than 2 and 0 otherwise. Because a student whose CGPA is greater than 2 could more probably retain his/her enrolment in a degree program and be promoted than a student whose CGPA is less than 2. We use this indicator to test the hypothesis that who is the most vulnerable to drop out or could not complete a university degree: a student with or without scholarship?

We do a mean comparison of t-test to check the difference between percentage of students in treatment group (students with scholarship) and comparisons group (students without scholarship) who could not complete their degree requirement and would be dropout. Here we can use the data from students who are/were enrolled in session 2017-20 to session 2021-24. The results are shown

in Table A 6. In our sample, overall 17.76% more student without any scholarship are vulnerable and are expected to not maintain their required CGPA in order to acquire an undergrad degree. On average male students are seemingly more vulnerable than female to dropout from the enrolment if they do not have any scholarship. Among students who had no scholarship about 19% of male and 12% of female had less than 2 CGPA and could be dropped out without any degree completion.

Student Engagement and Satisfaction

Table A 7 shows the mean differences of scales of different indicators as proxy to measure students' engagement and satisfaction level between students who held scholarships and students who did not held any scholarships. On scale 0 to 3, students generally liked the University of Turbat more on average (i.e. 0.19 point) if they held HEC Ehsaas Scholarship than students who did not. However, the difference in the likeness of UoT was held significant for only male students (see column 1 of Table A 7).

For engagement of students which is one of the important factor for student academic success and for which we used four indicators which possibly measure the level of students' engagement in activities for their academic pursuit (see column 2 to 5 of Table A 7). The scale for measuring the level of students' engagement in different activities at UoT was 0 to and 3 which indicates never, occasionally, often, and very often respectively in their ascending order. When we asked student how often they talked with their instructor about their courses materials including their grades, assignments, arranging make-up classes, etc. we observed that, among respondent students, the average score for students with scholarship was 2.08 and for students without scholarship it was 1.71; a significant difference (0.37 points). Though this significant difference was observed for both genders, it was much higher for male students (0.46) than female students (0.21). Similarly we have asked another question to students how often they discussed their career plans and ambitions with a faculty member. The average score was low for both groups (treatment and control and both genders (male and female), but interesting it was much higher for male students who held a scholarship than all other cases (see columns 3 of Table A 7).

In order to trace students' satisfaction and engagement at the University environment, we have pushed students further by asking them a personal experience question that is how often they ask for a friend for help with a personal problem. Here we also observed that students most likely asked theirs friends for helping them in their personal problem if they had any scholarship and this observation was held for male students only (see column 4 of Table A 7). Finally we have also asked students another question about their engagement in learning activities by using campus facilities. The question was how often they used computer labs or centers to improve their study or academic skills such as reading, writing, etc. Overall the mean score on this scale was very low which means either the campus facilities of UoT are limited to students or there is limited students' engagement in the university's labs or centers or may be any other reasons which is beyond the scope of this study. The significant difference of mean scores of 0.18 and 0.26 for total and male samples shows that within the limited usage of campus facilities by students, the students who held a scholarship and particularly male students if having scholarships used these facilities for their learning purpose much greater than their counterparts (See last column of Table A 7).

Attainment of Learning Objectives

The degree programs in universities are generally designed in ways that universities provide students a learning environment for doing the experiences that are necessary for acquiring education, knowledge, skills or information which could be applicable for specific careers or jobs, professional or scientific fields, or even a wide range of general education. Here we used four indicator to measure students' perception about the learning objectives of their programs they were enrolled by linking them with their potential career prospects.

These indicators are measured on a 4-points scale, 1(very little) to 4 (very much). Overall students response on these indicators were positive and above 2.5. For the first two questions we have asked students about their experiences up to now at UoT, (Q1) to what extent did they feel they have acquired knowledge and skills applicable to a specific job or type of work and (Q2) to what extent did they feel they have acquired background and specialization for further education in a professional, scientific, or scholarly field. The responses on these questions are almost same. Though students have responded this question very positively, overall we found no significance difference in mean scores between students with and without scholarships, however we observed an additional 0.10 and 0.13 point scores in male students with scholarship than their counterparts, respectively in Q1 and Q2. On the other hand, we surprisingly found a negative difference of mean scores of students with scholarship and their counterparts in the female sample in both questions (see columns 1 and 2 of Table A 8). Further strengthening and validating our findings on this line of argument, we have asked two additional similar questions to students on the same scale. The responses were positive in both treatment and control groups and their mean score differences were significantly high for both genders in both questions (see columns 3 and 4 of Table A 8).

Acquisition of Skills and competences

Acquisition of skills and competence is another concept that explain academic success of students. By utilizing survey questionnaire, we asked students several questions related to acquisition of skills and competence. We used four of them here to support the argument that scholarship make a difference in students to be focused and acquire skills and knowledge which are necessary for a career success. For example, we asked them to rank their experiences on a 4-point scale (1 to 4: very little to very much) on the question that is up until now at the University of Turbat to what extent did they feel that they gained an ability to think analytically and logically. The mean score for overall sample was high for both treatment and control groups but it is 0.17 point higher for treatment group than the comparison group and that this huge difference in mean score values is due to the high score of male students who held an HEC need based scholarship (see column 1 of Table A 9 for further details). We have asked another question to students of UoT about their ability to learn on their own in order to pursuing ideas, finding information when they needed, etc. Interestingly, the mean scores of all cases—students with or without scholarships and both male and female—were above 3 out of 4-points scale. But a significance difference of mean scores was observed in male sample due to 0.12 additional points in the treatment group (see column 2 of Table A 9). Similarly, the students were asked about their ability to present ideas and information effectively when speaking to others on the same scale, a 0.23 point difference in the mean scores of male students with scholarship and without

scholarship found which further explained our earlier findings that the scholarship had made an impact of male students' academic success. Here the difference of mean score of female students with or without scholarship is opposite (see column 3 of Table A 9). Finally on the question of their ability to get along with different kind of people, the average responses was about 3 out of 4-point scale but we observed a statistically significant positive (negative) difference in the mean scores of students with and students without scholarships in our male (female) sample (see Column 4 of Table A 9).

Career Success

Career can be defined in several ways which includes both, intrinsic and extrinsic measurement of academic success. York et al (2015) included early job outcomes such as job offers, employment status, job performance, job satisfaction, and organizational satisfaction which can be measured by the perception of students about their education, the prospect of their career in their field, finding and qualifying satisfying jobs, etc. In this context, we asked students to share their experience or feeling about the emphasis of University of Turbat on various aspect of students' development. For example, when we asked them to express their feeling about the emphasis of academic, scholarly and intellectual qualities on a 7-point scale (1 to 7: lowest to highest), we found that their overall mean scores were above the expected mean score (3.5) in all cases. However, we also observed a significance huge difference of mean score (0.24 points) in the male sample (see column 1 Table A 10). On the questions that are the UoT emphasized on students information literacy skills (column 2 of Table A 10) and students critical, evaluative and analytical qualities (see column 3 of Table A 10); the differences in mean scores are positive and significant in both samples that means students with scholarship had higher perception about their career success related skills that they acquired at UoT. Surprisingly the students showed no difference of their opinion on a question of vocational or occupational competence that is directly related to their career success (see column 4 of Table A 10). That may be due to the reason that the University of Turbat is a general type of public sector university in Balochistan and also isolated from industrial locations. Students with limited opportunities to industrial exposures in the form of internship, work and study, therefore they may not articulate their thoughts on their career success yet generally independent of scholarship awards.

7.5 Findings on Process and Monitoring Evaluation

The analysis of process, management and governance of these scholarship programs are challenging for all stakeholders. Using our qualitative data, which we have extracted from the FGDs and KIIs from five public sector universities in Balochistan as well as policy documents from the five public sector universities in Balocistan, HEC and BEEF, we did a thematic analysis under the umbrella of OECD's six evaluation criteria; relevance, coherence, effectiveness, efficiency, impact, and sustainability OECD, 2021).

Relevance

Reviewing the policy documents of HEC Ehsaas and Need based and BEEF scholarship programs, we observed that the objective of BEEF and HEC Scholarship programs are very clear and relevant. These are aligned with provincial, national and global as well as institutional polices and priorities. For

example both scholarships are designed to support the talented or less privileged students who could not otherwise pursue their higher education without financial support. HEC Ehsaas programs support female equally or even more (for example, in it is more than 50% in University of Turbat, see table for detail). The objectives of these scholarship programs are aligned with SDGs (e.g. SDG1, SDG4, SDG5, and SDG8).

Since the BEEF programs are providing scholarships to students at six degree levels (secondary to MS/MPhil level) so the main objectives of the program have a greater relevance in context of socioeconomic condition of Balochistan Province which were clearly endorsed by our KIIs especially the focal person of financial aid office and head of departments at the universities. From thematic analysis, we observed that the BEEF scholarship program is poorly designed that includes students only who belong to one of these two extreme families based on their socio-economic conditions (talented and extremely vulnerable individuals). The program is designed to provide financial incentives to talented students and the eligibility criteria for inclusion is the students' previous academic performance (CGPA of last two semesters). Since there is no other criteria for inclusion and exclusion in the pool of scholarship awardees, the early academic performance is highly correlated with current academic performance of students and also correlated with socio-economic conditions of the family (in terms of availability and accessibility of resources for education). Though the BEEF scholarship recipients in our FGDs realized this, they argued with other scholarship and tried to justify their scholarship amount as a reward for their better performance. As per the argument of one BEEF recipient in a FGDs, 'there are several other need-based scholarships available at the university level, BEEF is the only scholarship which creates an environment of competition among students which boost high performance excellence, high achievement'. Contrary, the officials in our KIIs at the university level mostly supported the argument that the stipend amount of BEEF scholarship program was not a financial support but rather it was a financial incentives to high talented students for their hard work. Also they suggested for a redesign of the BEEF scholarship program—like HEC Ehsaas program—which is currently not covering a wider range of students in Balochistan who could not otherwise continue their education without such government financial supports.

Efficiency

Under this criterion, we checked whether the scholarship programs are delivering the results cost-effectively. Based on—in-depth interviews with concerned officials in five public sector universities in Balochistan including focal person of financial aid office, chairperson/deans, members of the ISAC ; FGDs of scholarship recipients, and in-depth interviews with officials at BEEF, our findings reveals that the transfer of the scholarship amounts from both HEC or BEEF to students' accounts never happened on time. For example, looking at process of HEC Ehsaas scholarship programs (see Table A 11), it took almost a year (two semesters) from the date of advertisement for accepting application till the final award of scholarships. Since the HEC Ehsaas program is a fully funded scholarship program for the students' entire undergrad degree program and its intervention, by designed, should be happened at the beginning of their study programs (in the first semester), otherwise after a year a poor students may be dropped out from the university enrolment due to the pressure from the university for their fee submission. We found a huge dropout rates from enrolment to first and then first to second semester in our results dataset which we assumed that happened due to their financial

burden of semester admission, tuition, and other living expenses. This was seconded by almost all of the chairperson we interviewed.

We investigated this further to understand and identify possible causes or reasons of such delays and we found a number of reasons that could be managed properly to make the process of award efficiently. The main reasons behind such delays in general include a mismatch between admission sessions at the university level and acceptance of applications by the funding and monitoring bodies (HEC or BEEF); complicated selection procedures; administrative failures, lack of coordination between duty bearers etc. Though the roles and responsibilities of the concerned officials or partners in the process of program implementation are clear in the documentations, old bureaucratic style of universities' administration, under-resourced financial aid offices at the university level, no proper training for financial aid officials to deal with such scholarship programs, non-cooperation of staffs at banks, lack of funds for monitoring the program at the university level are some of the key hurdles, we found in this study, which were making the process more rigid. Except the officials of the FAO in one university that we visited, officials of FAOs in other four universities showed a great concern about the structure of FAOs which need more human resources and operational costs for processing a huge number of applicants. We also observed the issue of synchronization amongst stakeholder during this process—for example the HEC has enforced to universities in Pakistan for opening their students' accounts in the National Bank of Pakistan, but by interviewing some officials of a NBP's branch which deals with these students, we observed that nothing either from universities or from the HEC was communicated to the concerned officials. From our FGDs, we found instances in which students expressed their feeling on access denial to the bank for opening their accounts. Though the HEC has decided to go for one-window operation and bind students and universities to open the recipients' account in NBP, it was observed from the FGDs and interviews with focal person of FAO that opening students at national bank is very challenging for students specially for those who belong to remote areas of Balochistan. For example, a recipient of HEC Ehsaas scholarship who belongs to Awaran District enrolled in a university located in Quetta city faces a lot of difficulties to open an account in a branch of NBP in Quetta city and also he/she possibly could not travel to Awaran for the purpose of opening an account just for the scholarship program during the semester. Due to their scheduled call for this scholarship program, he/she could miss the opportunity to avail the scholarship program due to having no bank accounts.

Another major efficiency issue in BEEF scholarship program we found is its late disbursement of stipend cheques to students. For example students of all public sector universities in Balochistan who were enrolled in session 2016-19, received their cheques in 2020 when they were already passed out from the university a year earlier and the purpose of utilizing the scholarship amount on their educational became irrelevant due to the BEEF poor policy design.

The process of overall scholarship program starting documents submission to the award of scholarship amount, it is too much cumbersome for all scholarship right holders and official duty bearers. In KIIs we found that even though the HEC has designed several parameters and set criteria for targeting the needy students, inter alia, producing fake documents or providing false information for getting the awards were commonly observed by concerned officials during the process of submission documents and interviews the ISAC.

Sustainability

In this criterion we investigated whether the net benefits of the scholarship programs would continue after the completion of the program. Though we could not observe the long term benefits of the scholarship program with the given data under investigation, we examined the short to medium term benefits of the program in term of financial, economic, social and environmental sustainability. In our KIIs officials at the university level particularly deans and chairperson showed their concerns about the sustainability of these scholarship programs. We observed from their discussion a feeling of uncertainty of HEC Ehsaas programs for its discontinuation just like the Prime Minister Fee Reimbursement Program (PMFRP). The main concern they raised about its financial sustainability because the fund was not invested in an endowment fund and HEC is providing scholarships out of the total amount. One of the senior faculty member (also a member of ISAC) raised this concern telling that '*during the PMFRP, the University of Balochistan has successfully attracted about 3000 applicants which has been reduced to about 200 after the discontinuation of PMFRP, and the HEC Ehsaas program is designed to support needy students and it is most likely that most of the needy students are accessing to higher education due to Ehsaas Program and the biggest worry is that its discontinuation may cause a huge drastic change in enrolment of undergrad students.*' Since the program has initiated by the incumbent government, Ehsaas scholarship program is not a self-sustainable model. It was designed to accommodate about 200,000 undergraduate students for four years; 50,000 annually. On the other hand, though there exists some issues with its objectives, the financial model of BEEF program is more likely a self-sustainable one (see Table A12 for further detail). The program does not only provide student scholarships from its proceeding of the endowment fund but it also covers its' operational and other costs.

Effectiveness and Impact

From the qualitative data (mainly from FGDs and KIIs), we have collected in five public sector universities of Balochistan, our findings reveal that these scholarship programs were seemingly provided assistance to students for attaining their higher education. The recipients of scholarship spent most of these stipend amounts on such materials that helped them to attain higher level of education. Since, HEC Ehsaas program was designed in such a way which included those students who government needed support it was more likely that the scholarship recipient students without such intervention could not continue their education. However, BEEF scholarships were not designed to include needy students mainly, the scholarships were seemingly awarded to students who belonged to well off families due to their better early academic background. However, due to its merit-based nature, the scholarship was likely created a competitive environment in a class. From the excerpt of a FGDs, we observed that the recipients of BEEF scholarship would change each time since only top 10 or 15 students got scholarships in each undergrad program of the universities.

In general, on the impact of the scholarships several questions were asked and students responded in a very positive way that these scholarships were very helpful for them to continue their higher education in universities. They have also praised the Government for providing such opportunities. Some interesting findings on impact of scholarships that we observed and came to know that number of students investing their stipend amount as well as on their siblings educations. We also found that

the scholarship amount were being spent on education related purchasing for example, books, gadgets, online courses etc. We also found that some of student's even invested their stipend money in buying capital for instance a student told us in a FGDs that he bought a "Rickshaw" with the stipend amount on loan installment and he works in part time and earns a good amount for his family.

Similarly, we have found that there was great and very positive responses of students about the impact of scholarships on their academic performance. A number of students endorsed that since they were on scholarships they have been improving their grades or CGPAs which is a good omen for their development.

CONCLUSION AND RECOMMENDATIONS

Access to higher education is inadequate mainly for underprivileged areas of Pakistan. The government of Pakistan and provincial governments have initiated several scholarship programs for students who are enrolled in public sector universities which are located in underprivileged regions of Pakistan. There are three major types of operating scholarship programs are common in all public sector universities of Balochistan, Pakistan: HEC Ehsaas program, HEC Need Based program and BEEF scholarship program. The nature of former two are need based and the latter one is merit based. Using a comprehensive organizational records and a survey based dataset of the University of Turbat in Pakistan—which is serving one of the least developed and underprivileged region of Pakistan (including district of Turbat, Punjgoor, Gwadar, and Awaran), this study aims to examine the short-to medium term impact of the government sponsored scholarships on undergrad students' academic performance and other success outcomes. Using a quasi-experimental design and DiD estimation technique, the study's findings reveal that the short to medium term impact of a need based scholarship program (i.e. HEC Ehsaas Program), is effective to male students only for increasing their academic performance. In other words, the data of this study finds that the need based scholarship under HEC Ehsaas program likely contributed to improve male students' academic performance, particularly in terms of students' semester wise marks (in percent), GPA and CGPA. From the documents review at financial aid office at UoT, FGDs with students, KIIs with key informants including officials at the universities of Balochistan, we observed that HEC Ehsaas program is clearly better designed to help the students from the poor families in these regions while BEEF scholarship is mainly a merit based scholarship programs providing incentives to those who are already performing better academically. Our data further indicates that the scholarship possibly lessened the burden of university related expenses of male students that were previously met either by their parents or by themselves. And consequently these students seemingly got more time to focus and engage in academic activities at the university.

Not only that, on every measures of the overall students' success i.e. students' retention rate; engagement in campus related activities such as talking with course instructors about course related issues and discussing career plan and ambitions, using campus labs and centers for learning purpose; satisfaction about the university and degree programs; acquisition of knowledge, skills, competence information and education that are required for a career pursuit; and career success related indicators, the Ehsaas scholarship program seemingly a better targeted scholarship programs for male students in this region. These three scholarship programs under investigation have very comprehensive and well defined set of objectives. The findings of this paper suggest that the scholarship programs, particularly need based scholarship programs have seemingly designed properly and contributed toward achieving programs objectives.

HEC need based scholarship programs and particularly Ehsaas program seemingly supported the poor families for meeting their sons' university level expenses and also burden of male students who spent time working for financing their education. The government of Pakistan via HEC should continue the Ehsaas programs especially in the underprivileged regions in Pakistan with a special attention is given to a more robust and sustainable financial model like BEEF scholarship program. The recent lesson we have learnt from the discontinuation of the Prime Minister Fee Reimbursement

Program (PMFRP) in universities of Balochistan which drastically reduced the applicants for master programs in many universities of Balochistan. The biggest worry in the public sector universities is that Ehsaas program which is one of the best option to provide financial aids to undergrad students in the province. It is also increasing the enrolments in universities by supporting them their education expenses. And if it will discontinue after the incumbent government just like the PMFRP, it could be a disaster for the universities in Balochistan Province.

Due to data limitations, we are unable to estimate the long term impact of these scholarships beyond the university level students' academic performance and other success outcomes such as their career success, job attainment rates, career satisfaction, and occupational status. The results of this study should be interpret with the caveat in mind that the findings are limited to the University of Turbat only or may be generalizable to universities with similar characteristics such its location, it is least diversified in terms of ethnic, language, or even family income. Due to its location which is far away from the center of Pakistan and that may be one of the leading cause to attract a huge number of female students (about 45% of total enrollment). Since, HEC Ehsaas scholarship program is a national level program which has been operating in 135 universities and 87 campuses of degree awarding institute, it may be possible to conduct an experiment design to trace out the causal impact of scholarship on students' academic success. Though BEEF is a merit based scholarship program, it seemingly less effective to improve student academic performance of undergrad students in a university setting that may be due to its policy design. In our data, we observed that the students of sessions 2016-19 who got BEEF scholarships awards about a year after their graduation from the university. Since BEEF has board objectives and several scholarship programs at all level, it would be interesting to study the impact of all programs on students' success outcomes which may help policy makers to compare that which program is a better targeted to students for achieving its objectives and further designing the programs particularly at the university level.

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APPENDICES

Table A 1: Details of BEEF Scholarships

	Scholarship Policy 2015-16	Scholarship Policy 2016-17	Scholarship Policy 2017-18	Scholarship Policy 2019-20
Total Amount (in Million)	Rs.118.12	Rs. 211.49	Rs. 291.096	n.a.
No. of Scholars	4,792	6,972	7,182	n.a.
For Graduation (4 Year) Programs Only				
Total Amount (in Million)	n.a.	Rs. 92.98	126.480	n.a.
Annual Stipend	n.a.	Rs. 48,000	Rs.60,000	Rs. 60,000
Percentage to Total	n.a.	43.96 %	43.45%	n.a.
No. of Scholars	n.a.	1,937	2,108	n.a.
The general eligibility criteria	*a). local/domical of Balochistan, b) at least 60% marks/3CGPA, c) 10-15 topper from each program, and d) 75% of class attendance*			

Sources: (Government of Balochistan, 2016a, 2016b, 2017, 2018)

Table A 2: Comparison between BEEF and HEC Ehsaas Undergrad programs

Components	BEEF Scholarship Program	HEC Ehsaas Program
Eligibility Criteria	Student academic performance based, measured by CGPA	Need based, measured by different indicators including family income is less than Rs.45,000
Duration	Each year based on previous academic performance	Continue throughout the undergraduate program subject to student's satisfactory academic progress
Funding	Balochistan Government	Federal Government
Monitoring body	Balochistan Education Endowment Fund (BEEF), Quetta	Higher Education Commission (HEC), Pakistan
Funding Detail	Total Endowment Fund Rs. 8 Billion. Award scholarships from the proceedings of investment	Total Budget Rs.24 Billion over four years. Total scholarships = 200,000 (50,000 each year)
Scholarship Coverage	Stipend Rs. 60,000	100% tuition Fee Stipend 4000 per month
Bifurcation based on Gender/ Level	Gender Free merit at Institutional Level. All degree programs	50% Quota for Female 48% Quota for Male 2% Quota for differently abled Undergrad programs (4-5years)
Likely Outcome	Motivate students or create a competitive environment	Attract needy students to higher education
Evaluation Process	It is simple to evaluate performance of students based on student CGPA	It is difficult to evaluate students need which is somehow subjective and require lots of procedures, documents, and efforts
Impact	Recipients of the scholarships seemingly continue their education without the scholarship award. It is observed that high performing students most likely belong to families with better socio-economic background. Their early education were better, they have better accessibility to current resources (internet, books, etc.)	A huge number of scholarships recipients seemingly could not continue their education without the scholarship award. Due to extreme poverty and low HDI of the province, the design of the program is suitable for under-served students in the province to access higher education in public sector universities of Balochistan.

Payment Procedures	BEEF provides cheques or other means of payments to students' stipend amounts directly to them.	Initially HEC accepted account number from any bank in Pakistan. Now, it is strictly bound students to open their accounts in the NBP, which were observed from interviews and FGD, the biggest hurdle for the smooth operation of the program and caused delay payment. Opening accounts in NBP either inaccessible to students or difficult for them since officials at NBP do not entertain students politely.
Sustainable Model	The scholarship program is operating based on a self-sustainable financial model which not only provides students scholarship but also covers its operating cost. BEEF is operating as a company which invested the Endowment Fund and uses its proceeding only.	Since the program is initiated by the incumbent government with an annual budget of Rs.6 billion which is projected to continue for four to five years. There is no guarantee whether the program will continue after the tenure of incumbent government.

Table A 3: Distribution of Scholarships at the University of Turbat: District and Program wise

	Total		Male		Female	
	No of Obs.	%	No of Obs.	%	No of Obs.	%
Overall	1740	55.86	1163	51.07	577	65.51
Districts						
Turbat	1232	60.55	802	55.49	430	70.00
Punjgoor	61	70.49	51	68.63	10	80.00
Gwadar	127	74.80	68	67.64	59	83.05
Awaran	25	92.00	23	91.30	2	100.00
Others	10	80.00	9	77.78	1	100.00
Programs						
BBA (4 Years)	194	50.52	169	49.11	25	60.00
BS Commerce (4 Years)	49	65.30	42	61.90	7	85.71
BS Economics(4 Years)	180	51.11	149	49.66	31	58.06
BS Political Science (4 Years)	90	41.11	65	41.54	25	40.00
BS Computer Science (4 Years)	152	53.28	134	52.99	18	55.56
BS Education (4 Years)	354	61.30	194	54.12	160	70.00
BS Balochi (4 Years)	91	58.24	59	59.32	32	56.25
BS English (4 Years)	131	49.62	77	46.75	54	53.70
BS Chemistry (4 Years)	120	61.67	62	48.39	58	75.86
BS Bio-Chemistry (4 Years)	77	72.73	32	62.50	45	80.00
BS Bio-Technology (4 Years)	49	73.47	17	76.47	32	71.88
BS Botany(4 Years)	69	68.12	27	59.26	42	73.81
LLB (5 Years)	159	52.83	115	50.43	44	59.09

Data Source: Authors' own calculation based on UoT's, results gazettes and scholarship awardees' lists.

Table A 4: Additional Descriptive Statistics

	Parent meet their university expenses		Students meet their university expense by themselves (Part time job, saving, etc.)		Took Detailed Class Notes during class (0 = never, 1= occasionally, 2=often, 3=very often)	
	(1)		(2)		(3)	
Group of Students	No of Obs.	% of students	No of Obs.	% of students	No of Obs.	Mean
Female	424	79.00	424	5.66	417	2.55
Male	518	59.65	518	9.26	505	2.25
Difference		*19.35****		*3.61****		*0.30****
Male Students						
Without Scholarship	312	70.19	312	11.21	302	2.20
With Scholarship	206	43.69	206	6.31	203	2.30
Difference		*26.50****		*4.91***		*0.10*
Female Students						
Without Scholarship	264	84.47	264	6.06	259	2.61
With Scholarship	160	70.00	160	5.00	158	2.45
Difference		*14.47****		*1.06*		*0.16***

Data Source: Authors' own calculation based on UoT's, results gazettes, SIS, scholarship awardees' lists and authors' own survey at UoT.

Table A 5: Robustness Check: Program-Semester Fixed Effect Estimates of the HEC Ehsaas Scholarship on Students' Academic Performance

Outcome Variable	(1)	(2)	(3)	(4)	(5)	(6)	(4)	(5)	(6)
	Grade Point Average			Cumulative Grade Point Average			Placebo Effect Semester Marks (%)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Scholarship Holders (SH)	0.131	0.021	0.407**	0.196**	0.080	0.354	4.14***	2.63*	4.59**
	(0.092)	(0.097)	(0.192)	(0.075)	(0.082)	(0.157)	(1.18)	(1.40)	(2.24)
Post Scholarship Semester (PSS)	0.340***	0.215*	0.823***	-0.011	-0.084	0.258	-0.93	-1.25	7.81**
	(0.122)	(0.125)	(0.249)	(0.127)	(0.134)	(0.182)	(1.44)	(1.64)	(3.15)
Scholarship Holders x Post Scholarship Semester	0.209**	0.313***	-0.356*	0.118	0.183**	-0.198	1.66	2.28	-2.93
	(0.101)	(0.110)	(0.201)	(0.080)	(0.088)	(0.158)	(1.85)	(2.13)	(3.35)
Observations	760	530	230	759	530	229	324	221	103
R – square	0.2364	0.2322	0.3853	0.2738	0.2902	0.4606	0.2577	0.3063	0.4759
District Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Semester Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Program Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Observations comprise of students enrolled in session: 2017-20 (5th to 8th) and session 2018-21 (3rd to 8th). Other control variable are parent' education (at least one graduated from school), intermediate marks (%) and matric marks (%). In the placebo effect analysis, 1st semester in session 2018-21 and 1st and 2nd in session 2017-20 were assumed pre scholarship semesters and 2nd in session 2018-21) and 3rd and 4th in session 2017-20 were supposed post scholarship semesters. Robust standard errors are in parenthesis.* p<0.1, ** p<0.05, *** p<0.01. Models estimated by OLS.

Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' surveys, and authors' own survey at UoT.

Table A 6: Students' Retention and Engagement

Group of Students	Expected Retention (if the CGPA of a student is greater than 2)		Students meet their university expense by themselves (part time job, saving, etc.)		Took Detailed Class Notes during class (0 = never, 1= occasionally, 2=often, 3=very often)	
	No of Obs.	% of students	No of Obs.	% of students	No of Obs.	Mean
Without Scholarship	3250	78.18	424	5.66	417	2.55
With Scholarship	4117	95.94	518	9.26	505	2.25
Difference		*17.76****		*3.61****		*0.30****
Male Students						
Without Scholarship	2399	75.99	312	11.21	302	2.20
With Scholarship	2506	95.37	206	6.31	203	2.30
Difference		*19.38****		*4.91***		*0.10*
Female Students						
Without Scholarship	851	84.37	264	6.06	259	2.61
With Scholarship	1568	96.75	160	5.00	158	2.45
Difference		*12.37****		*1.06*		*0.16***

Note:* p<0.1, ** p<0.05, *** p<0.01. Hypotheses were tested by t-test with unequal variance.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey at UoT

Table A 7: Students' Engagement and Satisfaction

	Students Like University of Turbat (0=they don't like it, 1=they are neutral about it, 2=they like it, 3= they are enthusiastic about it)		Students talked with Instructor about their course materials including grades make up classes etc. (0 = never, 1= occasionally, 2=often, 3=very often)		Students discussed their career plans and ambitions with a faculty member (0 = never, 1= occasionally, 2=often, 3=very often)		Student Asked for a friend for help with a personal problem (0 = never, 1= occasionally, 2=often, 3=very often)		Students used computer learning lab or center to improve study or academic skills such as reading, writing, etc. (0 = never, 1= occasionally, 2=often, 3=very often)	
	(1)		(2)		(3)		(4)		(5)	
Group of Students	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean
Without Scholarship	709	1.59	722	1.71	722	1.05	701	1.84	712	0.74
With Scholarship	1687	1.78	1707	2.08	1711	1.13	1687	1.94	1667	0.92
Difference		*0.196 ****		*0.37****		*0.08**		*0.10***		*0.18****
Male Students										
Without Scholarship	462	1.50	475	1.62	475	1.06	467	1.80	472	0.71
With Scholarship	978	1.76	990	2.08	987	1.28	974	1.92	962	0.97
Difference		*0.26 ****		*0.46****		*0.22****		*0.12***		*0.26****
Female Students										
Without Scholarship	247	1.75	247	1.88	247	1.03	234	1.90	240	0.81
With Scholarship	709	1.81	717	2.09	724	0.93	713	1.97	705	0.86
Difference		*0.062*		*0.21****		*-0.10*		*0.07*		*0.06*

Note:* p<0.1, ** p<0.05, *** p<0.01. Hypotheses were tested by t-test with unequal variance.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey at UoT

Table A 8: Attainment of Learning Objectives

	Acquiring knowledge and skills applicable to a specific job or type of work (1=very little, 2= some, 3=quite a bit and 3=very much)		Acquiring background and specialization for further education in a professional, scientific, or scholarly field (1=very little, 2= some, 3=quite a bit and 3=very much)		Gaining a broad general education about different field of knowledge (1=very little, 2= some, 3=quite a bit and 3=very much)		Gaining a range of information that may be relevant to a career (1=very little, 2= some, 3=quite a bit and 3=very much)	
	(1)		(2)		(3)		(4)	
Group of Students	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean
Without Scholarship	692	2.94	707	2.95	704	2.76	698	2.88
With Scholarship	1690	2.94	1700	2.98	1696	2.95	1700	3.10
Difference		*0.00*		*0.03*		*0.18****		*0.23****
Male Students								
Without Scholarship	460	2.80	475	2.79	472	2.71	456	2.80
With Scholarship	982	2.90	984	2.91	980	2.86	989	3.00
Difference		*0.10**		*0.13***		*0.15****		*0.19****
Female Students								
Without Scholarship	232	3.22	232	3.28	232	2.87	242	3.01
With Scholarship	708	3.01	716	3.08	716	3.07	711	3.24
Difference		*-0.21****		*-0.20****		*0.20****		*0.24****

Note:* p<0.1, ** p<0.05, *** p<0.01. Hypotheses were tested by t-test with unequal variance.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey at UoT

Table A 9: Acquisition of Skills and Competences

	Thinking analytically and logically (1=very little, 2= some, 3=quite a bit and 3=very much)		Learning on your own, pursuing ideas, and finding information you need (1=very little, 2= some, 3=quite a bit and 3=very much)		Presenting ideas and information effectively when speaking to others (1=very little, 2= some, 3=quite a bit and 3=very much)		Developing the ability to get along with different kind of people (1=very little, 2= some, 3=quite a bit and 3=very much)	
	(1)		(2)		(3)		(4)	
Group of Students	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean
Without Scholarship	709	2.85	719	3.08	708	2.93	681	3.06
With Scholarship	1676	3.03	1680	3.15	1685	3.05	1619	3.09
Difference		*0.17****		*0.06*		*0.12****		*0.03*
Male Students								
Without Scholarship	472	2.76	477	3.00	477	2.75	462	2.97
With Scholarship	989	2.99	980	3.12	982	2.98	944	3.06
Difference		*0.22****		*0.12***		*0.23****		*0.10***
Female Students								
Without Scholarship	237	3.02	242	3.27	231	3.30	219	3.24
With Scholarship	687	3.09	700	3.20	703	3.14	675	3.11
Difference		*0.07*		*0.07*		*-0.16***		*-0.13***

Note:* p<0.1, ** p<0.05, *** p<0.01. Hypotheses were tested by t-test with unequal variance.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey at UoT

Table A 10: Career Success

	The University of Turbat emphasized on students' academic, scholarly and intellectual qualities (scale: 1 to 7, with lowest to highest points)		The University of Turbat emphasized on students' information literacy skills using computers, other information resources (scale: 1 to 7, with lowest to highest points)		The University of Turbat emphasized on students' critical, evaluative, and analytical qualities (scale: 1 to 7, with lowest to highest points)		The University of Turbat emphasized on students' vocational and occupational competence (scale: 1 to 7, with lowest to highest	
	(1)		(2)		(3)		(4)	
Group of Students	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean	No of Obs.	Mean
Without Scholarship	712	3.50	688	3.37	699	3.41	707	3.42
With Scholarship	1684	3.73	1687	3.41	1654	3.73	1684	3.56
Difference		*0.23****		*0.04*		*0.32****		*0.14*
Male Students								
Without Scholarship	475	3.51	468	3.25	472	3.44	475	3.37
With Scholarship	964	3.75	978	3.58	951	3.84	962	3.54
Difference		*0.24***		*0.33****		*0.39****		*0.17*
Female Students								
Without Scholarship	237	3.50	220	3.62	227	3.34	232	3.53
With Scholarship	720	3.72	709	3.17	703	3.58	722	3.59
Difference		*0.22*		*0.45****		*0.24**		*0.05*

Note:* p<0.1, ** p<0.05, *** p<0.01. Hypotheses were tested by t-test with unequal variance.
Data Source: Authors' own calculation based on UoT's, results gazettes, awardee list and authors' survey at UoT.

Table A 11: The Process of HEC Ehsaas Scholarship Program

Stage	Date
Online HEC Ehsaas portal opened for applications	01-Oct-20
The deadline of online application submission	30-Oct-20
The deadline of online application submission was extended to	30-Nov-20
Collection of hard copies of application from the students	21-Jan-21
Pre-ISAC meeting held on	24-Feb-21
The actual ISAC meeting held on	13-Apr-21
Minutes of the meeting along the list of recommended and waiting students was shared with the HEC	13-Apr-21
Disbursement of fund by HEC to the University's account happened on	23-Jun-21
Fund disbursed to the scholarship recipient students	25-Aug-21

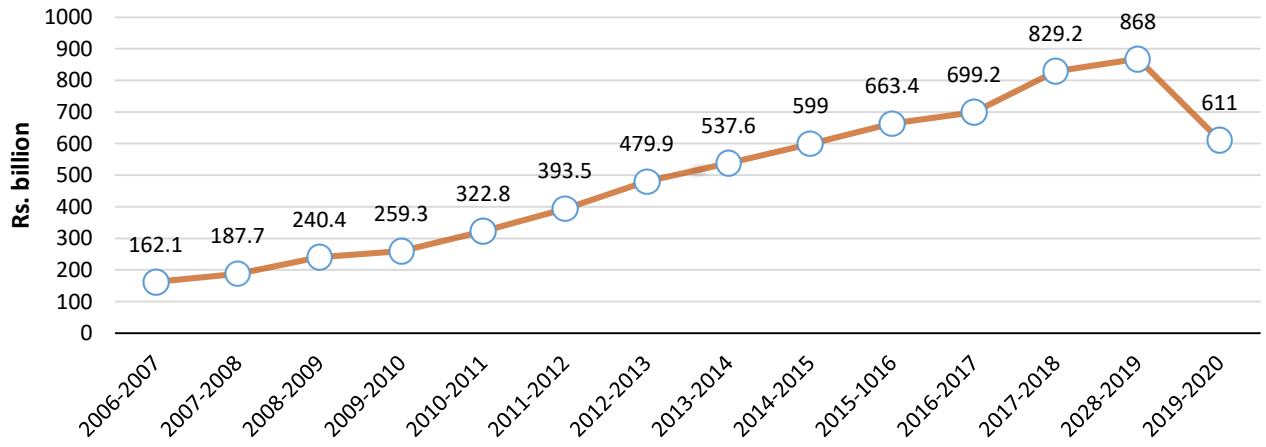
Data Source: Focal person at FAO UoT.

Table A 12: BEEF Financial position during 2015-16 to 2018-19

Year	2015-16	2016-17	2017-18	2018-19
Endowment Fund	Rs. 5 (B)	Rs. 6 (B)	Rs. 8 (B)	Rs. 8 (B)
Income From Endowment Fund	Rs. 346 (M)	Rs. 347 (M)	Rs. 373 (M)	Rs. 547 (M)
Income Generated from Re-investments	Rs. 11 (M)	Rs. 20 (M)	Rs. 41 (M)	Rs. 81.7 (M)
Program Cost	Rs. 131 (M)	Rs. 406 (M)	Rs.29.7 (M)	Rs. 420 (M)
Administrative Operational Expenses	Rs. 17 (M)	Rs. 27 (M)	Rs. 45 (M)	Rs. 13 (M)

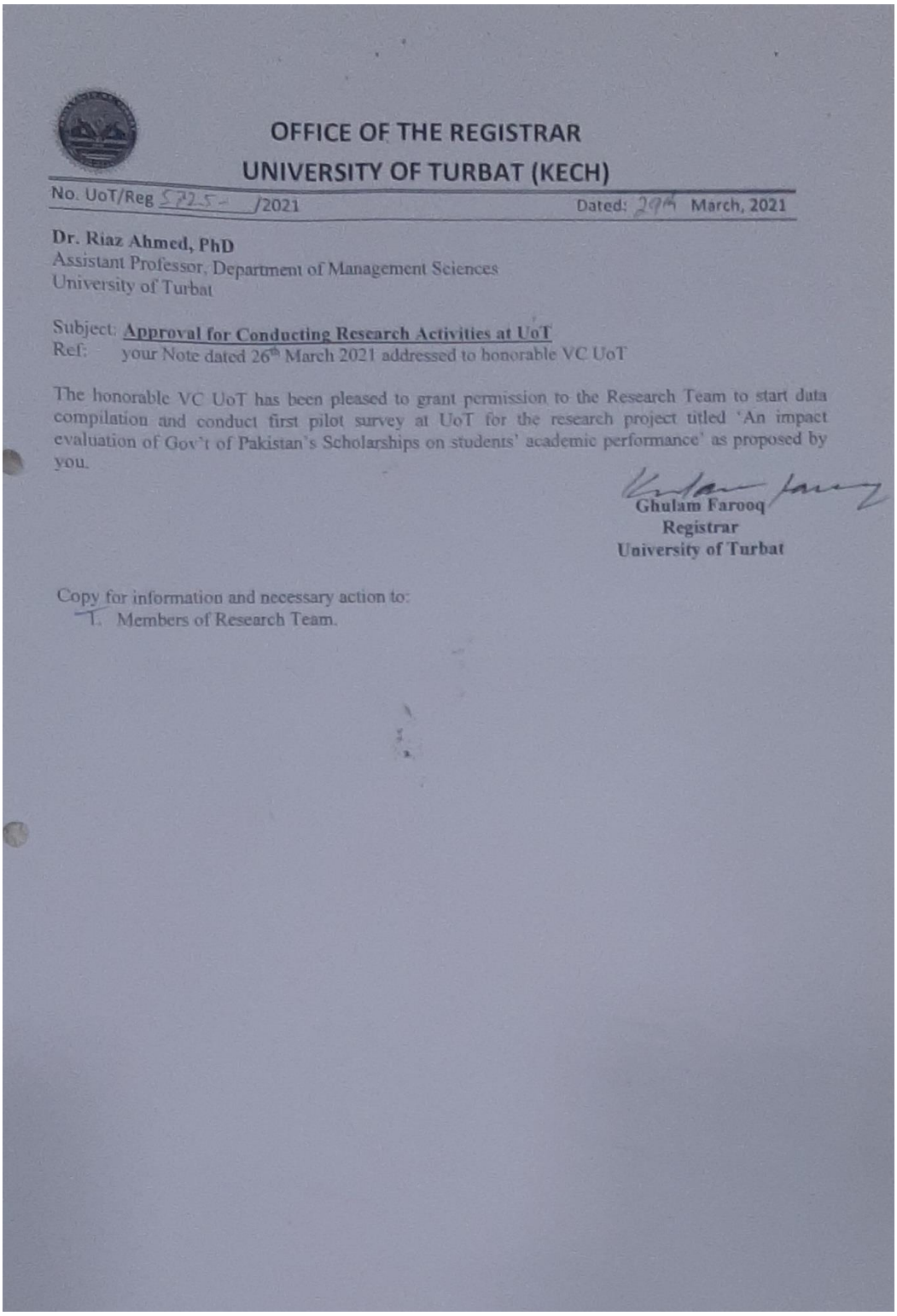
Note: B and M stand for Billion and Million respectively
Data Source: (Government of Balochistan, 2016a, 2016b, 2017, 2018)

Figure A 1: Expenditure on Education



Source: Economic survey of Pakistan (various issues)

Figure A 2: The Approval for Data Collection



OFFICE OF THE REGISTRAR
UNIVERSITY OF TURBAT (KECH)

No. UoT/Reg 5725 /2021 Dated: 29th March, 2021

Dr. Riaz Ahmed, PhD
Assistant Professor, Department of Management Sciences
University of Turbat

Subject: **Approval for Conducting Research Activities at UoT**
Ref: your Note dated 26th March 2021 addressed to honorable VC UoT

The honorable VC UoT has been pleased to grant permission to the Research Team to start data compilation and conduct first pilot survey at UoT for the research project titled 'An impact evaluation of Gov't of Pakistan's Scholarships on students' academic performance' as proposed by you.

Ghulam Farooq
Registrar
University of Turbat

Copy for information and necessary action to:
1. Members of Research Team.

Figure A 3: Answer Sheet for the Survey Questionnaire