

Financial Factors Affecting Major Subject Choice

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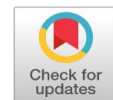
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Abstract: Choice of major subject describes an important process of individual behavior in the presence of many alternatives. Purpose of this work was to identify and understand the financial factors and sources that students apply when they decide on the choice of major at the time of admission to BS degrees in Post Graduate colleges of KPK. Various factors such as (i) Family Income, (ii) Type of Family Income, (iii) Affordability, (iv) Loan Taken, (v) Scholarship, (vi) Management of Educational Expenses (vii) Special Arrangements for Educational Expenses (viii) Cost Specifically Fee, (ix) Out of Pocket Expenses; and (x) Traveling Expenses are the variables used for addressing the relationship between factors and major choice. Through a structured questionnaire, 1978 respondents shared their views about the financial factors influencing their major subject choice decision. Through applying the Descriptive Analysis and Logit Model, odd ratios of family income, affordability, and traveling expenses positively affect the student's choice of major subject in the field of Natural and Physical Sciences. While the type of family income, scholarship, management of educational expenses, cost (fee), and out-of-pocket expenses significantly but negatively impact the student's decision. It indicates that students will likely choose the subjects from Humanities and Social Sciences. It is suggested that students should be given financial freedom and power to assess the existing opportunities better and explore the new horizon to become better skilled human capital.

Keywords: Choice of major, Financial, income, Descriptive analysis, Logit model, Odds ratio.

Received: 21 December 2021 / Accepted: 05 March 2022 / Published: 25 May 2022



INTRODUCTION

In a person's life, career choice is among the most important decisions, which one has to make normally at early age, having the potential to impact one's life concerning lifestyle and well-ing (Hsiao & Nova, 2016). When students apply for college or university, their first task is choosing a major subject that can be life-changing and stressful for many students (Smith, 2011). Major selection is a subject or field selected by a student representing their primary interest and choice, which determines their future efforts and careers, and it is a process rather than a particular event (Hsiao & Nova, 2016). Individuals typically decide when they want to achieve any goal from many alternatives available after thoroughly comparing them based on specific factors. So, an individual needs to collect all available information and analyze it when attempting to make any decision (Gati & Tal, 2008). As Stater (2011) stat, education attainment is usually directly affected by the availability of financial resources. Financially sound people will have a better understanding of grooming, preferences, and choices, and this aspect can be evident in their educational choices. They will utilize their resources efficiently and effectively as per market trends and opt for relevant and related fields with their resources, personality, interest, needs, requirements, expectations, and desires. If the correct decision about a subject and career choice is taken early in life, young students can have more fulfillment and satisfaction in future life and ultimately contribute to the development of the economy and country (Kweyama, 2016). Due to the increased cost of attaining education, 65% of students tend to change their major, as reported by Beggs, John, and Steven (2008). During economic downturns, the increasing cost of tuition lay more focus on making educational choices more rigorously (Gorsline, Andrea Holl, & Jeffrey, 2006). The ease of management of educational expenses of peoples are greatly influenced by their comfort level regarding

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investment decision making as in depressed economic situations; there was reluctance in their behavior and fluency when the economic situation was hopeful (Xiao, Wang, & Yang, 2009).

Ngesi (2003) reported that students from deprived socioeconomic backgrounds tend to decide wrongly about their careers mainly because of financial constraints. Many previous studies highlighted that students face financial problems, such as Poyrazli and Lopez (2007) and (Sherry, Peter, & Chui, 2010). Less availability or loss of scholarships and hike in fees and other costs adds to the miseries of most students (Smith & Nigar, 2011). Students mostly face financial issues during the early years of their academic journey, as Mclachlan and Jessica (2009) reported. Subject and major field choices also vary concerning family income and affordability etc. (Smyth & Hannan, 2006).

Problem Statement

Decisions regarding the field of study will have a lifetime impact on the students' job career paths and earnings potential. Possibly Major subject decision is one crucial, challenging, more effort-requiring, and the rigorous decision that can potentially impact an individual's future life (John, 2000). Many previous studies describe that all around the world, every student usually confronts this dilemma while making this choice decision in their life (Issa & Kin, 2008; Watson et al., 2010). This process is a lengthy and vibrant procedure involving many equally influential aspects and factors mostly ignored at different levels (Langen & Dekkers, 2005). Like many other aspects, financial prospects tend to influence the career selection of individuals despite meeting the household expenditures as it gives them satisfaction (Sax, 1994).

Objectives

To investigate the impact of financial factors on the major subject choices and career decisions of students enrolled in BS degrees in Post Graduate Colleges of KPK.

LITERATURE REVIEW

Financial expenses related to subject choice and continuing are more concern by students rather than interest in selecting major subjects (Tejas et al., 2012). Likewise, Leppel et al. (2001) find that students predominantly consider financial determinants of subject choice. Financial success considered by the student has an important impact on the choice of a specific subject as a major. Students choosing business as a major subject consider the family financial strength an important factor. Tuition fees and other costs related to study are initial factors that may be considered when making the major subject choice. Parents' income, directly and indirectly, impacts the cost of studying, which greatly influences this choice process (Ackaert & Jean, 2000). A fee increase leads to a decline in student enrollment (Geven, 2015), mostly for students belonging to middle-class families. When the cost of getting education increases, then educational expenses increase, which puts a burden on the family's resources that may cause them to tradeoff between their day-to-day choices, which usually leads to changes in students' choices. The provision of scholarships and financial assistance significantly impacts.

On the contrary, Gyamfi et al. (2016) also found a considerable impact of other factors than the fee on educational selection. Stater (2011) emphasized that students with high academic costs choose more professional major subjects and students with relatively low academic costs choose humanities and science majors. The effects of aid and tuition fee change according to the background and performance of students. Ahmed and Sheikh (2014) find that one of the key determinants of major choice is cost and accessibility. Caner and Okten (2010) hypothesized that parental income or family income is the major factor influencing the individual decision about riskier career choices such as business rather than less risky choices like education and health.

Choice of major subjects is also affected by accommodation expenses and financial problems (Walker & Zhu 2011). Several studies show that most students experience financial problems or at least feel financial anxiety (Sherry, Peter, & Chui, 2010; Farooq et al., 2010; Jam et al., 2010; Waheed & Jam, 2010). Financial problems arise from low scholarship opportunities and increases in tuition fees, raveling, and other expenses (Smith & Nigar, 2011). Mclachlan and Jessica (2009) reported that financial concerns are most prominent during the initial years of study. Likewise, the fee mechanism leads to a change in students' & parents' expectations, which ultimately make a subsequent change in the search-buy behavior of students in course selection (Durkin et al., 2012). Financial factors such as accommodation costs and financial problems are the main determinants in the decision-making of

English students for a course (Foskett et al., 2006; Waheed, Kaur, & Kumar, 2016; Waheed, Kaur, & Qazi, 2016).

Similarly, Rothstein and Cecilia (2011) explored the outcome and effects of college student debt expectations on the choice of major. In a simple life-cycle model, young people make optimum educational investment decisions if they can easily finance these investments by borrowing against future earnings. Students and recent graduates prefer less debt than other people, and it causes graduates to choose significantly high salary jobs and decreases the likelihood that students will choose low-paid jobs that are in the public interest. In short, debt has a small impact on major choice, but it is positively correlated with major in social sciences and humanities.

Various major related factors like infrastructure and finance are ranked higher by female respondents than male students (Alonderiene & Klimavičiene, 2013). Similarly, Financial condition is one of the important factors to impact major choices (Kazi & Akhlaq, 2017). Similarly, Tejas et al. (2012) confirmed that monetary expenditures required for any field matter more than the student's interest. Lee and Chatfield (2011) found family support, cost, and facilities as relevant factors affecting the choice of subject. The impact of financial aid or packages that include scholarships and grants was examined thoroughly by Kim (2004). In Portugal, the demand for higher education is negatively affected by tuition fees (Vieira & Vieira, 2012).

The current study is comprehensive and wide-ranging work that incorporates various determining finance-related factors, characteristics, and contexts; and their role and impact on major choices. No other previous works have used such a comprehensive approach; they only consider a few aspects. No such work has been done so far, specifically addressing the financial aspect of major subject choice decisions. Lee (2009) highlighted that an individual's style of decision making is missing from previous literature, and serious efforts to observe the individual style of decision making about career are needed. This present study is an attempt to fill the gap, as this study might create a good understanding of factors affecting the choice of major subject and career paths among Khyber Pakhtunkhwa (KPK) students who have never been done before. As this area is still neglected in the Pakistani context, it will serve as policy guidelines for stack holders concerned.

DATA AND METHODOLOGY

A logistic regression model was used to find the relation between a binary outcome variable and explanatory variables. This method models the logit-transformed probability as a linear relationship with the explanatory variables. The logit model will estimate K-1 equations where K is the reference or base category, and the logit model results can be interpreted in terms of odds or odds ratio. The model was estimated using the data collected through a questionnaire by 1978 respondents enrolled in BS degree in Post Graduate colleges of KPK. The sample was calculated using the formula for male and female students separately from every Discipline (that lies under the two major subject categories). Respondents are chosen from each college based on the Stratified Random sampling technique according to the sample size calculated for each college. In the stratified sampling technique, the population is further divided into small sub-groups or strata, and samples are drawn randomly from those strata. The key advantage provided by this sampling technique is that sample contains all key characteristics of the population with more precision and lower sampling errors. The used methodology and following Model are developed based on the works of Stater (2011), Shumba and Naong (2012), and Carruthers and Ozek (2016).

Choice of Major = $\alpha_0 + \alpha_1$ Family Income + α_2 Type of family income + α_3 Other expenditures + α_4 Special arrangements + α_5 Loans + α_6 Scholarships + α_7 Cost (Fee) + α_8 Traveling expenditures + α_9 Managing Education Expenses + α_{10} Affordability + μ

Reliability Analysis

Cronbach's Alpha statistics was applied to check the internal consistency of the questionnaire to determine its reliability. The overall measure of the reliability is 0.81, which confirms that questionnaires have high internal consistency and sufficient reliability, as proposed by Leech et al. (2011) that Cronbach's alpha coefficient should be above 0.7 to infer the reliability of tested items.

Variable Construction

The model has been formed from information available in the questionnaire and about which data was collected. Each variable is included in the model as per available guidance and coherence among the variable and model categories.

Table 1: Financial Factor Model

Major Field	Major Field of study of respondent	1 = Natural and Physical Sciences 0 = Humanities and Social Sciences
Fam Income	Family income of the respondent	1 = Income below than average 0 = Income above average
Type of Family Income Source	Type of family income Source of respondent	1 = Permanent Source 0 = Other (Temporary Source)
Affordability	The subject was chosen due to its affordability	1 = Affordable education and easy accessibility 0 = Others
Loan	Subject selection due to loan availing	1 = Loan taken for financing 0 = Not taken a loan
Scholarship	A subject choice made due to the availability of scholarships	1 = Subject choice due to scholarship 0 = Subject choice not affected by scholarships
Manage Education Expense	The subject selected for managing the educational expenses easily	1 = Easily managing the educational expenses 0 = Not easily managing the educational expenses
Special Arrange	Subject Choices are affected by the fact that some special arrangements need to be made to meet educational expenses related to many fields	1 = Doing special arrangements for financing educational expenses 0 = Not doing special arrangements for financing educational expenses
Cost (Fee)	Subject Choice due to the fee structure	1 = Fee above average 0 = Fee below average
Other Expense	Subject selection concerning other educational expenses	1 = Other expenses less than average 0 = Other expenses more than average
Traveling Expense	Choice of Subject related to traveling expenses	1 = Traveling expenses less than average 0 = Traveling expenses more than average

Frequency Analysis

Family monthly income: Monthly family income composition is publicized in the next graph as only 319 respondents belong to families with income less than 20000, whereas 1113 respondents belong to families ranging from 21000 to 60000. Whereas 455 respondents have a family income ranging from 61000 to 100000, approximately more than half of respondents belong to the lower-middle-income category.

Family income source: Type of family income shows that 54% of respondents have a temporary or seasonal source of income, while 46% have a permanent source of income. It reveals that most people do not have a permanent income source, which leads them to many troubles in their daily routine of life.

Family income source: The majority of the families have salaries (770) as their source of family income; after that, most families have business earnings as their source of earning (466), and some families rely on daily wage earnings (268), and then fourth major source of family income is agriculture-related earnings (252).

Loan for study: Every student belongs to different family background some belong to the rich and some belong to middle class and some to poor families, because everyone has different financial situation and statuses. Poor and middle-class families often have to make arrangements in shape of borrowing etc for consumption smoothing and managing various extra expenses (such as payment of fees etc). Few students (597 families) are facing the trouble in managing the educational expenditures of their children.

Scholarships: To avail any financial scholarship during the studies in the ultimate dream of every student, as they strive hard to achieve the land marks that help them earn that opportunity. In our sample, 421 such students took admissions in different colleges of KPK due to availability of scholarships or possibility of availing scholarships in the future.

Easily manage educational expenses: The majority of students' families can easily manage the educational expenditures who have taken the admissions in the BS degree. Whereas some families were facing difficulties and issues in easily managing the educational expenses.

Sold asset or special arrangement for financing: Every individual has different financial state and they gone through various situations and circumstances in their life. To meet their contingency needs specifically related to academics, they have to make special arrangements like selling any asset, animals, land holding, or other things. In our sample 796 student's families took such special initiatives over the period to meet the urgent requirements.

Other expenses monthly: Along with fee payment, students incur other expenses during their academic activities such as out of pocket expenses on books, notes, refreshment etc. The range varies from individual to individual, as 39% spend between 500 to 1000/month, 24% spend 1600-2000/month, 21% spend 1100 to 1500/month, 13% spend less than 500 and only 3% spend more than 2000/month on such expenditures.

Traveling expenses: Along with fee and other day to day academic expenditures, students also face traveling expenses from home to college, on daily basis (day scholars) and weekly or monthly basis (boarders). The trend shows that 642 students use 1100 to 1500/month, and 632 students uses 1600-2000/Month whereas, 482 students spend between 500-1000/month, 126 uses 2100 to 2500/month, and only 92 students spend more than 2500/month on account of traveling expenses.

Financial factors model: Choosing a major subject or discipline is a very complex decision and its starts when numerous factors and influences impact high schools end and final decision. Financial factors also play a crucial role in this decision of students, as they will consider the financial condition of their family and decide accordingly. If the financial condition is not stable they will opt for less expensive and undesirable fields rather than following their interests and aspirations. Some students even have to quit their educational journey because of parent's financial condition. Financial situations affect educational decisions and students will consider less attractive institutions, fields or subjects whenever there is a conflict between their needs. Financial factors also serve as constraints sometime. To look how student's decision will be affected by financial factors this work is undertaking and results of logit model are explained below.

The odds value of; Family income, type of Family income source, Affordability, Scholarship opportunities, Management of Educational Expenses, Direct Cost of Education (fee), And traveling expenses, are significant. Probability of Log of chi square likelihood ratio is significant showing overall fit of financial factor model.

Family income is the main source of financing in a family set up, which is combination of income shares of all family members. In every family, few members actively participate in the market and receive specific rewards against their services after a certain age. If more people from family can participate in the job/ business market, then family income will be higher. Children will have better health and education facilities and families are in better position to facilitate them. If family resource position is better, students' choices and preferences will also be standardized. They can take expensive and better decisions which will lead them to successful life ahead. Family income level will certainly impact the student's choices of major field. If a family is in better financial position, then students of KPK will more likely chose major subject from Natural and Physical Sciences fields. Because their family can afford their current costly educational expenses and afterwards in that field. Blanden and Gregg (2004) concludes that improvement in family financial condition will affect the student's academic choices as it helps in taking short term decision.

Type of family income sources means whether aggregate family income has temporary or permanent nature of income sources. Students belong to families having more consistent income sources are freer and in better position to take decisions related with their academic careers and have unlimited choices as compared to students who belong to families having temporary income sources. But in reality, impact of family income sources is not much different in our today's society mainly because of demonstration effect. Every individual tries to follow and copy others life style, choice and preferences. A huge sense of competition is prevailing in our civil society and families. If Families have to sacrifice some needs in order to achieve or attain something, they will do it without thinking too much. In our scenario students of KPK belonging to both sources of family income can decide more freely about their major choices because most of the students are not impacted much by family income sources. One possible reason is less expensive fee structure, yearly payment of fee, availability of scholarships and more importantly family's and parent's serious concerns about education. As Mayer and Leone (1997) also find that variation in family income source will not affect student's choices and decision that much.

Third significant financial factor is Affordability which shows that students who don't have affordability and accessibility issues, will more likely to opt major subject from Natural and Physical Sciences, mainly because of lucrative opportunities associated with them in life ahead. Affordability and accessibility issues are faced by such students who belong to poor families (because they have to manage so many other things in their life because of low purchasing power and resources) or far flung areas where facilities and opportunities are less. As Bowen et al, (2009) also highlighted that due to affordability issues, many students belonging to low income families face worse tradeoffs, as they have to let off some opportunities and sometimes they are forced to choose less attractive and undesired opportunities and less preferred decisions.

Opportunities for Scholarships is one of key concern for taking any academic decision from student's point of view. Scholarships are basically financial incentives or grants that are granted to some students after fulfilling certain criteria and thresholds. They are timely remedy for financial miseries faced by students in their academic careers. They can be financed by private and public resources as well. To attain scholarships, student has to work hard, face many challenges and thresholds. Availability of scholarships at any stage of academic life does not guarantee its continuity for prolonged time period. As Carruthers and Ozek (2016) noted that financial situation varies very quickly and most scholarships are for limited time duration or criteria bound so students face financial issues in later stages of their academic careers after receiving scholarships. Similar scenario is shown by our sample data students' choices does not alter with the availability of scholarships because many students consider them as short term and constraint-based solution to their financial troubles, so they do not usually depend on them completely. Scholarships are normally considered as transitory advantage.

Management of educational expenses is one of great concern for parents and students as well. Ability to meet the educational expenses is related with the income and resources at the disposal of the family. The comfort level with the management of educational expenses will allow students and parents to give more attention towards other matters. Their decisions and choices will be more related with abilities, preferences and choices, as they have no fear of financial issues. They will be forward looking and enthusiastic. As our society consist of middle-class families in majority, so financial issues are always inevitable. They have to tradeoff among their needs and their life decisions. As far as educational expenses of students of BS in KPK are concerned, they don't give much consideration to the family's ability to manage the educational expenses at the time of decision making regarding the choice of Major field.

Every activity requires some financial backup and cost and then gives reward. As there is no free lunch in real world. Every activity has some cost and benefit associated with it. Education is not separated from it as well, individuals have to bear some costs, invest their finances and then it will provide them benefits in the future. Normally the biggest expense which is related with educational field is fee structure, every step in education require some investment in shape of fee. According to Yazici and Yazici (2010) cost incurred on education is one major determining factor of major subject choice. Odds value of cost of education (fee) for our sample shows that student's major subject choice is not being affected by current fee structures of BS degrees. Mainly because of the low fee structure of BS degree in Government colleges of KPK, families don't bother fee structures too much because they can manage it somehow due to its low structure.

By other expenses, we mean monthly out of pocket expenses which are bear by students and their families during the course of their academic life, such as purchasing of books and other study material, food expenses etc. These expenses depend on individual habits, stage and nature of study, institutional requirements, area and environment of students and many more like these. Our respondent students from Post Graduate colleges of KPK also think that these out of pocket expenses do not play any substantial role in the determination of their major field from Natural and Physical Sciences. There can be possible reasons such as digitalization of books and study materials, better financial positions of parents, less burden of expenses on students, more resource utilization on study due to more prioritization of families, cheaper fee structures (can divert more resources to other expenses) etc. College degrees are cheaper as compared to other higher educational institutes, and require less finances to fulfill fee credentials. So, most students can easily afford such supporting expenses which are faced by students in their day to day routine.

Third major component of expenses incurred by students during their academic life is Traveling expenses, which incurred during the student's movement from home to institutions. For many students this component is quite substantial and for other it is less, because of the distance they have to travel daily in order to attend their

college. In our case odds value for traveling expenses is exactly equal to one which means this have no real say in the final choice of major field of student from Natural and Physical Sciences, which is contrasting result against the study of (Smith & Nigar, 2011).

Table 2: Results of Logit Model for Financial Factors

Major field	Odds Ratio	S.Err
Family Income	2.106***	(0.575)
Type of Family Income	0.967*	(0.129)
Affordability	1.927**	(0.085)
Loan	1.335	(0.455)
Scholarship	0.972*	(0.107)
Manage Educational Expenses	0.907**	(0.307)
Special Arrangement	0.824	(0.153)
Cost (Fee)	0.925**	(0.090)
Other Expenses	0.932*	(0.087)
Traveling Expenses	1.006***	(0.113)
_cons	0.894	(0.342)
Log Likelihood	-1358.09	
p value of LR Chi Square	0.000	
N	1978	

Standard Errors in Parenthesis.

*, **, *** shows the level of significance at 10, 5 and 1 percent of level of significance

CONCLUSION

Traditionally, Pakistan lacks analytical approach in educational research to provide the support for policy making aiming at improving and reforming educational system. Many students choose the major due to some influencing factors but most of times they don't know much about the chosen field. This work is aimed to find out the impact of various financial factors on educational choices. The current study is comprehensive and wide-ranging work which incorporates various determining factors and characteristics and contexts; and their role and impact on major choice. No other previous works have used such an extensive approach as they only consider few aspects. To conduct this study, a structured questionnaire was used to find the determinants of major choice from 1978 students enrolled in BS degree in Post Graduate Colleges of KPK in either Natural and Physical Sciences or Humanities and Social Sciences disciplines. Number of male and female respondents are chosen from each college on the basis of Stratified Random sampling technique. Logit model was used because dependent variable is dichotomous; which assumes that a student has to choose among two main options of major fields, then their decision will be a revelation of their preferences.

Every individual is different from each other and have different financial state. They gone through various situations and circumstances in their life. Sometimes they were well off and some time they face some troubles economically and financially. To meet their needs arises over the time, specifically about meeting the academic needs of their children they have to make special arrangements (like selling any asset, animals, land holding or any other thing). In our sample 796 student's families took such special initiatives over the period of time in order to meet the urgent requirements concerning the academic needs of their child. Along with, students incur some other expenses during their academic activities such as out of pocket expenses on books, notes, refreshment etc. The range varies from individual to individual, as large number of students spend between 500 to 1000/month. Moreover, students also face traveling expenses from home to college, on daily basis (day scholars) and on weekly or monthly basis (boarders). The trend shows that large number of students spent between 1100 to 1500/month on traveling.

Financial factors also play a very crucial and important role in this decision of students. The odds value of; Family income, type of Family income source, Affordability, Scholarship opportunities, Management of Educational Expenses, Direct Cost of Education (fee), Other expenses, are traveling expenses are significant.

Probability of Log of chi square likelihood ratio is significant showing overall fit of financial factor model.

Based on the results of the study, several implications and strategies can be pointed out. Students should be provided with more financial support and scholarships, especially in the far flung areas of KPK where educational attainment is much difficult and expensive. Majority of families have temporary family income source, which are affecting the children educational decision and their academic choices. Government should initiate such social and economic support programs so that process of economic growth and development can expedite, so many individuals will have higher income opportunities due to betterment of economic environment. Results of this work will serve as the guide for policy makers, students, advisors, institutes, businessmen and government.

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