Modeling Student Migration to Karnataka for Higher Education using Partial Least Square Structural Equation Model

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Abstract

With increasing student migration for higher education to Karnataka, it is important to understand the reasons which influence the migrants. Studies have indicated various push and pull factors for migration. This paper identifies career opportunities, value for education, brand equity, living conditions and others as pull factors of student migration using exploratory factor analysis. Further, the paper develops a structural equation model using partial least square technique based on the factors explored. The research is based on primary data collected from students who migrated to Karnataka for higher education. The PLS-SEM model shows that job opportunities and academic progression are the main factors influencing the decision to migrate to Karnataka.

Introduction

Migration involves voluntary movement from one geographic boundary to another for temporary or permanent settlement intended for pursuing better education, job opportunities, standard of living, marriage or involuntary movements due to natural disasters or wars resulting in seeking refuge. Specifically, the migration within the country is movement of people from one state to another (inter-state migration) for purposes of education or career opportunities. Various push and pull factors like low wages in non-agricultural sector, agricultural unemployment and lack of employment opportunities in the Indian subcontinent, predominantly based on monsoon rains for agriculture, are responsible for the interstate migration (Andini & Rao, 2017).

This paper focuses on interstate student migration for higher education from other Indian states to Karnataka. The south Indian state of Karnataka is one of the largest states in India, with an annual GDP of approximately Indian Rupees 121,655 billion (2016-17) as per Directorate of

Economics and Statistics, Government of Karnataka. The state is known for its striving Information technology, Bio technology, Education and Medical sectors.

As per the 2011 census, about 25 million people migrated to Karnataka, of which 0.7 million migrated for education as compared to 18,190 student migrants out of 1.862 million total migrants in 2001 census. Major economic urban growth magnets like Delhi, Mumbai (Maharashtra), Kolkata (West Bengal), Bangalore (Karnataka) attract most inter-state migrants from states like Bihar, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand and north eastern states which fare low on social and economic development indices.

The discouraging academic situation in one's home state no longer seems to be sufficient to keep youth from pursuing their degree elsewhere. In the past 10 years, 3.7 million students have moved from their native in order to pursue further education. Of the total 3.7 million migrants, 2.6 million were men and the remaining 1.1 million were women. Furthermore, 0.62 million (17%) youths moved to a different state whereas 1.68 million shifted to another district within the same state. Amongst all the states in the country, Karnataka received the largest numbers of migrants for education (0.18 million). On the other hand, Uttar Pradesh was the source to most number of migrants (0.11 million) (Chhapial, 2014).

The most important states from the perspective of migration for education are Delhi, Maharashtra, Karnataka, Uttar Pradesh, Bihar, Andhra Pradesh, Kerala, West Bengal and Rajasthan. Of these states, Delhi, Maharashtra, Karnataka are the main destinations (i.e. attracting migrants from other states) whereas Bihar, Uttar Pradesh, Kerala, Andhra Pradesh, West Bengal and Rajasthan are the main sources of migrants (Chandrasekhar & Sharma, 2014).

Major recruitment agencies like Randstad India and TeamLease Services account for 40% of their clients recruitment needs in south India, specifically the cities of Bangalore, Hyderabad and Chennai (Singh, 2018). The article talks about how demand for talent in South India is pulling the talents from North India.

According to the 2009 Right to Education Act of the Indian constitution, schooling is free and compulsory for all children from the age of 6 to 14 years. The stages in the Indian education system can be classified into five broad categories – primary, secondary, higher secondary, under graduation and post graduation. These classifications are based on the age group of the student

and the degree they are pursuing.

Higher Education Institutions in the India are categorized in three broad Categories. They are University (central open university, central university, deemed university, government institution under state legislature act, institution of national importance, deemed university- private, state private university, state open university, state public university, state private open university and deemed university- government aided), College (affiliated college, constituent college, pg and off. campus centre and recognized centre) and Stand-Alone Institutions (diploma level technical institutes, teacher training institutes, nursing, post graduate diploma from institutes directly under the control of various central ministries).

According to Karnataka State Higher Education Council (KSHEC) 2018 report, there are 864 Universities, 40,026 Colleges and 11,669 Stand Alone Institutions in India. KSHEC 2018 report also states that top eight states in terms of highest number of colleges in India are Uttar Pradesh, Maharashtra, Karnataka, Rajasthan, Andhra Pradesh, Telangana, Tamil Nadu and Madhya Pradesh. Bangalore district (in Karnataka state) tops in terms of number of colleges with 1025 colleges followed by Jaipur with 635 colleges. College density, i.e. the number of colleges per 100,000 eligible population (in the age-group 18-23 years) varies from seven in Bihar to 59 in Telangana as compared to All India average of 28.

Karnataka has 29 state universities, 16 private universities, 15 deemed to be universities, one central university and six Institutes of national importance. There are 2993 degree colleges of which 412 are government colleges, 328 are government aided colleges, 1803 are private colleges and the rest fall under other types of colleges (2018 KSHEC).

The above statistics are also corroborated with the All India Survey on Higher Education (AISHE) report 2016-17. Table-1 provides a list of districts in India with large number of colleges.

Table 1: Top five districts of India with highest number of colleges

District	Number of colleges
Bangalore	1025
Jaipur	635

Hyderabad	487
Pune	421
Rangareddy	395

Source : AISHE final report 2016-17

College density, i.e. the number of colleges per 100,000 eligible population (age-group 18-23 years) varies from seven in state of Bihar to 59 in Telangana as compared to all India average of 28. Karnataka is third in terms of top states with more colleges per 100,000 pupulation with 3753 Colleges and 53 Colleges per 100,000 population. The State-wise number of colleges and the density are shown in the table 2

Table 2 : States with most number of universities.

State/Union Territories	Uttar Pradesh	Tamilnadu	Rajastan	Karnataka
Central University	4	2	1	1
Institute of National Importance	6	7	4	2
State Public university	27	20	22	25
State Open University	1	1	1	1
State Private University	24	0	42	11
Deemed University-Government	2	0	0	4
Deemed University-Private	4	26	8	11
Grand total	72	58	78	55

The data from AISHE 2016-17 shows that states like Andra Pradesh, Assam, Bihar, Chattisgarh and Delhi have very few universities relative to the student population. This results in the movement of students to better universities in other states, especially to the souther states of India where the number of universities and colleges are more compared to the respective state's student population. Table 6 of the AISHE 2016-17 shows that Karnataka comes fourth in India in terms of state wise student enrolments to various programmes. Similarly table 21 of the report

also shows that Karnataka comes fourth in terms of number of teachers with about 0.13 million, behind south Indian states of Tamilnadu, Maharastra and Uttar Pradesh.

Considering that the migrant students require good accommodation facilities, AISHE 2016-17 interestingly points out to the fact that the state of Karnataka tops all other states in India with 5252 student hostels. Some of the other interesting facts about the higher education in Karnataka are that there is a substantial increase in the number of universities in the state from 43 in 2010-11 to 67 in 2017-18, and the number of colleges in Karnataka has increased from 3098 in 2010-11 to 3753 in 2016-17, the total student enrollment in 2010-11 was 1.79 million and has increased to 1.87 million in 2016-17.

Literature Review

There are several migration models in literature such as Ravenstein Law of migration (Ravenstein, 1889), Lee's push-pull Model (Lee, 1966), Gravity model, Alonso's General theory of movement (Vries, Nijkamp, & Rietveld, 2000), Intervening opportunity model, models linking environmental conditions (R. Black, Kniveton, & Schmidt-Verkerk, 2011; L Perch-Nielsen, B Bättig, & Imboden, 2008; Rao & Andini, 2018), which discuss the factors influencing the migration of people from one geographic location to another. Black et.al (2011), identified certain major factors driving migration which include economic factors, political factors, demographic factors, social and environmental factors.

The micro models of migration focus on the individual (or family) who is assumed to decide rationally regarding migration in order to maximise utility. This paper focuses on the individual characteristics' (students and their immediate family) effect on migration for higher education, and therefore a micro framework is used for investigation.

Literature supports various variables which influence students to migrate for purpose of higher education. A few of these factors include clear differences in income determinants between migrants and non-movers (Gries, Kraft, & Pieck, 2011), differentiation in education quality, education costs among states and quality of a state's institutions (Bayer, 1968; M. E. Christal 1982; Fenske, Scott, & Carmody, 1974; Lankford & Taylor, 1971). In the context of Brazil Gries, Kraft, and Pieck (2011) argue that there is a reversal in migration from the original north-east-to-south-east direction. They provide evidence that education, skills, labour market

segmentation and differences in income levels were key determinants for migration. In the first national longitudinal study covering the period from 1966 to 1969 on issues concerning American higher education Fenske, Scott, & Carmody (1974) found that interstate migration declined significantly as a result of quota systems protecting local college goers and rapid proliferation of community colleges.

Christal (1982) in his analysis from 1979-1960 data from the Higher Education General Information Survey show that with the exception of Georgia, Oklahoma, Missouri, and Liennessee , most of the southern states (affiliated with the Southern Association of Institutional Research, USA) has enrolment of students from out-of-state. He argues that the presence of large number of public sector institutions in south to be a key reason. In this context he also discusses how cost of living, tuition fees and financial aids provided by the local state government can increase the enrolment within the state. Demand for private universities tends to be at a higher level of price sensitivity than their public counterparts (Bezmen & Depken, 1998). Literature provides evidence that migrant undergraduate students attending private institutions are higher than those attending public institutions (Gossman, Nobbe, Patricelli, Schmid, & Steahr, 1968; Lankford & Taylor, 1971).

Gossman and his associates (1968) highlight a positive relationship between the lack of private institutions in origin states and the migration rate of students. According to Carbone (1973) Migrants are ready to pay higher tuition fee for institutions of higher repute.

According to Abbott and Schmid (1975), the quality factor is the an important determinant among undergraduates for interstate migration at major US universities. Controlling for the distance to the university and state population size , they show that university prestige has a modest influence in inter-state migration of students in the 1963 American universities survey covering 2,077 institutions. Another important factor of student migration is the availability of quality in private institutions and geographic proximity of the institution (Lankford & Taylor, 1971).

Geographic mobility is higher for students with academic talents, high education goals and high family income (Fenske et al., 1974; Ferris, 1973). Migration is higher in metros than non-metro areas (McLaughlin & Perman, 1991; Mills & Hazarika, 2001). Fenske et al (1974) highlight the importance of scholarship facility available to migrants at the selected place of study among the

American higher education institutions. Ferris (1973) also provided evidence in support the view that scholarship availability was a pull factor for graduate students. Some of the interstate migration barriers like admission and tuition policies such as restrictive admission requirements, quotas and higher non-resident tuition tend to restrain student interstate mobility (Carbone, 1973; Ferris, 1973). State educational policies influence students' interstate migration (M. Christal 1982).

According to Baharun, et al (2011), the learning environment is the most important determinant for migration, followed by political environment, concern for students, cost of education, facilities and location. These findings were from a study in which they analysed the choice criteria influencing international students' choice of Malaysian educational institutions. This study, however, is in the context of international migration for education. Indonesian students' selection criteria constitute of five main factors - cost, reputation, proximity, job prospects and parents (Kusumawati, Yanamandram, & Perera, 2010). Kusumawati et al. (2010) suggest that the reputation of the institution was the most significant parameter in influencing migration decisions.

As per as perception study on business students in the mid- Atlantic region of the USA and New Zealand Joseph and Ford (1999) find that degree program flexibility, academic reputation and prestige reflecting national and international recognition, physical aspects of the campus such as the quality of the infrastructure and services, career opportunities upon completion, location of the institution and the time required for the completion of the program are contributing factors for students' migration. Grades scored by the students are yet another factor influencing the migration (Braxton, 1990).

Teaching excellence is an important determinant of choice (Keskinen, Tiuraniemi, & Liimola, 2008; Soutar & Turner, 2002; Tan, 2003). Keskinen et.al,(2008) () provided evidence that 'teaching and research' were the important contributing factors among students to select a psychology department in Finland. Ciriaci and Muscio (2014) argue that research quality and employability upon graduation are positively related. In their research using on 47,342 Italian graduates from Italian National Statistical Institute (ISTAT) survey Ciriaci and Muscio (2014) provide empirical evidence that probability of employability of the students attending universities with better research performances are higher.

Academic quality, facilities, campus surroundings, and personal characteristics are the most important criteria for student selection of universities in Malaysia (Tan, 2003). In the selection of English-speaking colleges in Quebec, Canada, a reputation of the institution was one of the determinants (Isherwood, 1991). Teaching quality, staff qualification, medium of instruction, reputation and institutional image related to academic staff are another set of determinants (Li-Ping Tang, Shin-Hsiung Tang, & Shin-Yi Tang, 2004). The percentage of Ph.D. qualified full-time faculty at the institution is also considered important in their study by Baryla and Dotterweich (2001).

Some other determinants for student migration as seen in literature are qualifying admission score, per capita income (Rushton & Meltzer, 1981), availability of jobs and the influence of family members (Asif & Md. Sofi, 2013). In their case study in Monywa township, Myanmar, Thet (2014) identify better climate, transport system, culture and employment opportunities as factors influencing general migration.

A study by Gatfield et al. (1999) shows that recognition (quality of teachers and resources), campus life (added features), and guidance (access services) are the most salient promotional features used in marketing universities. In related research, Gray et al. (2003) identify a university's learning environment, reputation, graduate career prospects, destination and cultural integration as the main brand positioning dimensions for higher education institutions. Black (2008) specifically addresses the concept of brand promise and "the role of all faculty, staff, and administrators as 'institutional trust agents' in the delivery of the promise.

With respect to brand positioning, the prior research (Gatfield et al., 1999; Gray et al., 2003; Mazzarol, 1998) has identified academic instruction and learning environment, campus life, reputation, and career prospects for graduates as being the most salient dimensions in higher education. Not surprisingly, perceived quality (primarily as manifested by the courses offered) and reputation of an institution are among the strongest influences on student choice of institution (Chen & Hsiao, 2009; Mazzarol & Soutar, 2002; Wilkins & Huisman, 2011).

Need and objective of the study

In developing countries, migration is taking place on a large scale, both at inter-state and intra-state level. Factors which contribute towards the improvement of the livelihood and opportunities for migrated labourers have already been studied. However, there are very few studies relating to the student migration for the purpose of job opportunities and academic progression upon completion of their higher education. Studying the factors that determine the student migration has gained prominence because the internal migration is leading to 'internal brain drain', resulting in regional imbalances. Regional development is impinged upon the availability of adequate supply of human resources. The states that are unable to contain mass student migration to other states, or those which do not adopt policies to attract talent pool to contribute to the regional economic development will be improve the state gross domestic income. This could lead to several economic consequences leading to undesirable social consequences like low level of literacy, skewed gender ratio, poverty worsening public health and others. The long term impact of internal brain drain in country like India which has a federal setup can be tremendous, with few states becoming densely populated adding pressure to the local infrastructure and contributing to the economic growth of these states while others becoming poorer and underdeveloped in the long-term. Thus internal brain drain is also an important area of research and comparable to the consequences of external brain drain. This paper contributes to the literature of internal-brain drain.

The main objectives of the study is to explore the pull factors influencing students' migration to Karnataka with the help of a partial least square Structural equations model (PLS SEM). The model proposed in this paper explores the effects of pull factors on job opportunities, academic progression and entrepreneurship of students who migrate to Karnataka for higher education..

From the literature review above it is clear that most of the empirical evidence is from developed economies like the United States, New Zealand, Finland and other emerging economies like Malaysia, Myanmar, and Indonesia. There is a paucity of understanding the inter-state migration of students in emerging economies like India and this article contributes to this research gap. The novelty is also in the empirical approach adopted in this paper, use of the structural equations modeling, not used in any of the earlier studies on inter-state student migration.

The remaining sections of the paper is as follows: research methodology, results of data analysis, discussion of the findings and conclusion.

Methodology and analysis

Mixed research design is used in this paper**.** The study required both primary and secondary data. As part of qualitative research, a Focus Group Discussion (FGD) was conducted. This involved 25 students who migrated to Karnataka for pursuing higher education in different courses as shown in Table 3. The purpose of the FGD was to get a bird's view of the student opinion on why they migrated to Karnataka and to obtain information in developing the initial questionnaire framework for the survey. These students were invited randomly from reputed institutes in Bangalore for exploring the determinants influencing them to migrate to Karnataka for higher education. Formal requisitions to nominate at least 10 students to participate in the FGD were sent to 10 different institutions across Bangalore. From the total 87 nominations received 25 students were randomly picked using the lottery system. The FGD was conducted at the PES University campus and the discussion was moderated by the researchers. The summary of the FGD is tabulated in table 3 and shows that the responses mostly corroborate with the discussions in the literature section.

Table 3: Focused group discussion responses

Courses pursuing/Migrated from	North Indian state (8 students)	East Indian state (9 students)	West Indian state (3 students)	Other South Indian state (3 students)	Central Indian state (2 students)
Fashion Design (2 students)		Cost effective, No good institutions in native.			
Polytechnic (3 students)	No good institutions in native, Friends/ Seniors, Promotion and advertisements by Karnataka				
Mechanical Engineering (7 students)		Karnataka universities are famous for education		More companies in Bangalore so good jobs	
MFA (6 students)	Parental pressure		Getting seat in good college is difficult		

MBA(3 students)		Good job opportunity, Can start own business more easily, Lot of promotion and advertisements by Karnataka			
Mathematics& Physics (2 students)	Siblings studied in Karnataka				
Psychology (2 students)					Weather is good, Karnataka institutions have good systems in place

Source: FGD

The summarized table on focus group discussion provided qualitative research inputs on the broad reasons why the students have opted to migrate to Karnataka for higher education. Some of the notable inputs were good job opportunities, better educational institutes, to start own business, availability of better infrastructure and conducive climatic conditions. These inputs also corroborate with the extensive literature already discussed. Thus, based on the literature review and inputs from the focused group discussion the following hypotheses are proposed.

H1: Living conditions during education has a positive effect on value derived from education

H2: Conducive climatic conditions during education has a positive effect on academic progression

H3: Brand equity has a positive effect on value from education

H4: Quality and structure of education has a positive effect on value from education

H5: Quality and structure of education has a positive effect on academic progression

H6: Social networking has a positive effect on academic progression

H7: Social networking has a positive effect on job opportunities

H8: Career & placements activities has a positive effect on job opportunities

H9: Academic progression has a positive effect on job opportunities

H10: Academic progression has a positive effect on entrepreneurship opportunities

H11: Job opportunities has a positive effect on entrepreneurship opportunities

The paper adopts two-stage approach to conduct the multivariate analysis of the migration data and test for the proposed hypotheses. In the first stage, exploratory factor analysis is adopted followed by partial least square structural equations model (PLS-SEM). The analysis of primary data has been carried out with the help of statistical tools, SPSS 21.0 and Smart PLS.

The next process was conducting a large sample survey with both closed and open-ended questions and collected data on both categorical and continuous variables. Multiple option questions and a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly Agree) were used. The type of information collected through the survey included age, gender, previous study details and current study details etc. A pilot study was conducted at a large private university in Bengaluru with more than 40% of the admissions across disciplines are from different state on a sample size of 50 with the respondents chosen randomly from the 2016 student admissions list of the student from other states to test the questionnaire reliability and validity. As the 'population of interest' was very large, it was impossible to track all educational migrants in Karnataka due to the non-existence of a common database. A non-probability sampling technique was used for data collection. Depending on the nature of the sample, purposive sampling method was used. (Chapman, McNeill, & Mcneill, 2005). They can offer the contributions sought for (Churchill, 2005). Thus, the final data collection was through a survey conducted among students from Karnataka's top 20 higher education institutes/universities by admission. These institutions were from Bangalore, Manipal and Belgaum cities which are the predominant educational hubs in Karnataka. The survey respondents from all streams of higher education with the exception of medicine and related courses were included. The survey was a face to face interview using structured questionnaire, in which the surveyors visited several colleges in the educational hubs. A sample size of 364 (Rao's software) was planned. However, due to non-availability of few respondents, we were able to collect 360 responses.

Stage One – Exploratory Factor Analysis

The first objective of the study is to analyze the pull factors influencing respondents (students residing outside Karnataka) to migrate to Karnataka for higher education. The survey used a

questionnaire, which had fifty-four questions with a five-point Likert Scale ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). The output of factor analysis is extracted from the data using Promax rotation. The factors with factor loadings ≥ 0.60 were considered as significant under each dimension.

Six factors extracted in this analysis are Living (living conditions during education), Education (quality and structure of education), Career & Placements (career and placement activities), Climate (conducive climatic conditions), Social Networking and Brand Equity and explained 28.812 percent, 5.982 percent, 5.285 percent, 3.936 percent, 3.589 percent and 3.220 percent variances respectively. The model's cumulative variance was 51 percent. The explanatory analysis revealed 15 significant items as shown in Table 4.

Table 4 : Pattern Matrix

	Component					
	1	2	3	4	5	6
Accommodation is affordable	.953					
Accommodation is easily available	.794					
Adequate water is available for drinking and domestic purpose	.734					
Better availability of quality and hygienic food	.650					
Structure and construct of the course is of good standard		.765				
Qualified Academic advisors are available at the institution		.735				
Quality of Education is better		.674				
There are more options for earning money during studies		.600				
Career information and placements are good			.672			
Climatic condition is conducive				.731		
Climatic condition is good				.698		

Better Social networking							.687	
Strong alumni network								.783
Good Brand name of the host city								.757
Recognized for the selected course of study								.656

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization. (Rotation converged in 8 iterations.)

Table 5: Factor Reliability

Factors	Items	Loading	Reliability
Living (Living conditions during education)	Accommodation is affordable	**.953**	
	Accommodation is easily available	**.794**	
	Adequate water is available for drinking and domestic purpose	**.734**	
	Better availability of quality and hygienic food	**.650**	
Education (Quality & Structure of Education)	Structure and construct of the course is of good standard	**.765**	
	Qualified Academic advisors are available at the institution	**.735**	
	Quality of Education is better	**.674**	
	There are more options for earning money during studies	**.600**	
Career & Placements (activities)	Career information and placements are good at the institution	**.672**	**.808**
Climate (conducive climatic conditions)	Climatic condition is conducive	**.731**	
	Climatic condition is good	**.698**	
Social Networking	Better Social networking	**.687**	
Brand Equity	Strong alumni network at the institution in Karnataka	**.783**	
	Good Brand name of the host city of Karnataka	**.757**	
	The institute is recognized for the selected course of study in	**.656**	

Table 5 shows that Cronbach's alpha is 0.808. Cronbach alpha values are dependent on the number of items in the scale and a minimum level of 0.7 is preferred for good internal consistency (Nunally & Bernstein, 1994). This shows there is high internal consistency among all 15 items.

Stage two – PLS-SEM

This paper adopts PLS-SEM (PLS Path modeling) process shown in Hair, et.al (2017). Accordingly, the PLS Path diagram proposed includes ten reflective latent variables. The indicator loadings are tested in the measurement model and path coefficients are tested in the structural model for reliability, validity and significance.

The Latent variables (definitions in Table 6) in the structural model are Living (LI), Climate (CI), Brand Equity (BE), Education (ED), Social networking (SN), Career & Placements (CP), Value from Education(VE), Academic Progression (AP), Job Opportunities (JO) and Entrepreneurship opportunities (EO). The causal links between the latent variables are shown in the structural model (figure 1).
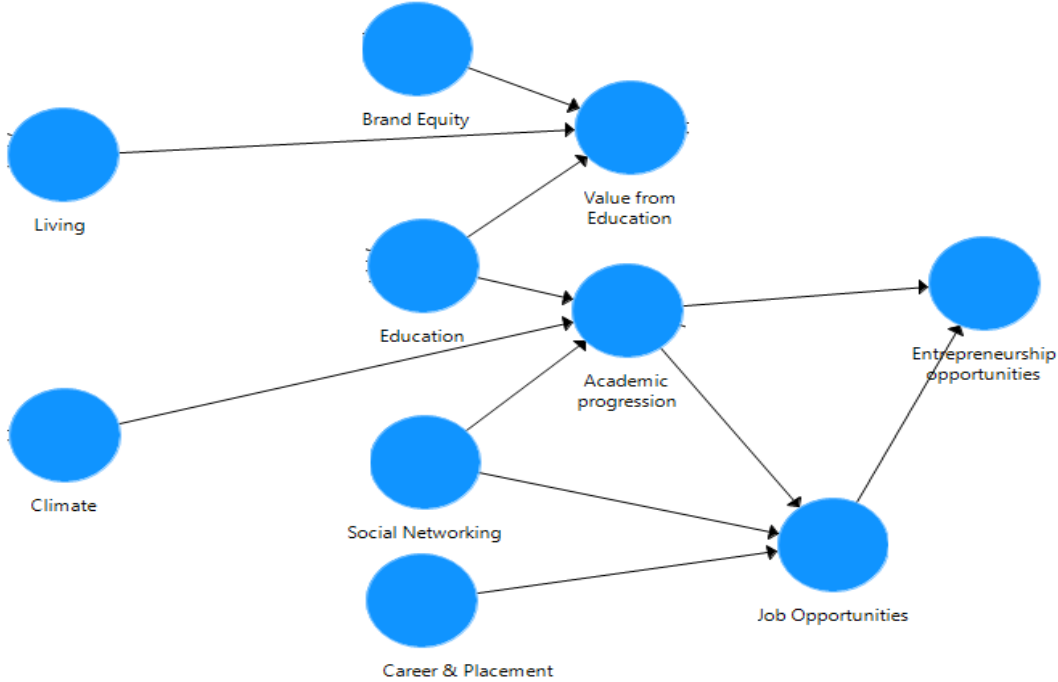
Table 6 : Definitions of latent variables

These definitions are based on the exploratory factor analysis constructs for the purpose of this study.

Variable	Definition
Academic progression	Academy progression in this research is nothing but the students staying back in the same city and/or institution for continuing their education.
Brand Equity	The brand equity in this paper is defined from the factors identified from factor analysis. Brand equity in this paper means the educational institute is recognized for the selected course of study, had a strong alumni network and has the advantage of good brand name of the host city.
Career & Placement	Career information and placements are good at the institution. This includes a separate placement cell focusing on providing career guidance, counselling and facilitating job placements.
Climate	This means that the student finds the weather conditions is conducive and good.
Education	Qualified Academic advisors are available, Quality of Education is better, Structure and construct of the course is of good standard, There are more options for earning money during studies
Entrepreneurship opportunities	The ability for students to start their own enterprise or business venture due to startup friendly infrastructures, government policies and business opportunities.
Job Opportunities	Availability of a suitable job that befit their qualification and which can provide an industry standard compensation.
Living	Accommodation is affordable, Accommodation is easily available, Adequate water is available for drinking and domestic purpose, Better availability of quality and hygienic food
Social Networking	Students find that there are more opportunities to develop their social and professional networks.
Value from	Value for education is defined as the increase in the personal status and

Education	prestige for student, as well as the ability to earn higher than the education expenses.

Living, Climate, Brand Equity, Education, Social networking, Career & Placements are the exogenous variables, whereas the latent variables Value from Education, Academic Progression, Job Opportunities and Entrepreneurship opportunities are endogenous.

Figure 1: Structural Path Model

To determine the minimum sample size '10 times rule' (Barclay, Higgins, & Thompson, 1995) is applied. In the model proposed, the largest number of paths directed at any latent variable is three, therefore as per the rule a minimum of 30 sample size is required. A total of 360 samples were collected, of which three were having suspicious pattern of responses and five had missing data, therefore eight records were deleted. The total sample size used for analysis was 352. PLS-SEM being a non-parametric statistical method does not require the data to be distributed normally, however as a general guideline it is better to test whether the data is not too non-normal (Hair, 2017). The data was tested for skewness and kurtosis and found to lie in the range of -1 to +1 indicating normality of data.

The PLS algorithm was run using the path weighting scheme, 300 iterations with stop criteria of 0.0000001 (following, Henseler, 2010). The model was tested for reliability and validity of the constructs. Bootstrapping, a process of drawing a large number of subsamples with replacement, was conducted with 5000 bootstrap samples with no sign changes. The path coefficients are provided in the figure 2 and the indicator variable code list is provide in table 7.

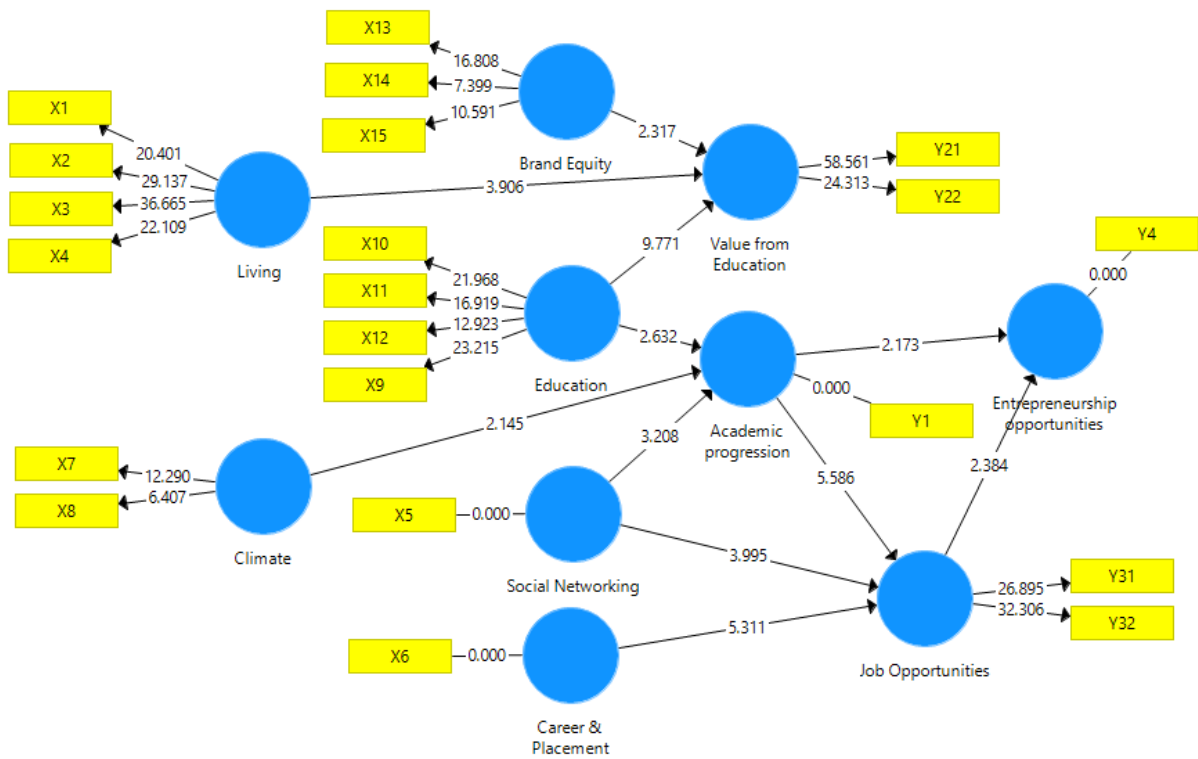Figure 2: Path coefficients from bootstrapping process

Table 7: Codes for the various indicators

Accommodation is affordable	X1
Accommodation is easily available	X2
Adequate water is available for drinking and domestic purpose	X3
Better availability of quality and hygienic food	X4
Better Social networking	X5

Career information and placements are good	X6
Climatic condition is conducive	X7
Climatic condition is good	X8
Qualified Academic advisors are available	X9
Quality of Education is better	X10
Structure and construct of the course is of good standard	X11
There are more options for earning money during studies	X12
Recognized for the selected course of study	X13
Strong alumni network	X14
Good Brand name of the host city	X15
Academic progression prospects are better	Y1
Studying here would enable me to increase my Status and prestige	Y21
Total Earnings after Education is higher than total education expenses	Y22
After studying here there is better career opportunity	Y31
Better Job prospects after completion of Education	Y32
Opportunity for Entrepreneurship is good	Y4

Table 8 shows the empirical t-statistic for various path coefficients. It is observed that AP -> EO, BE -> VE, CL -> AP, JO -> EO are significant at 5% level and AP -> JO, CP -> JO, ED -> AP, ED -> VE, LI -> VE, SN -> AP and SN-> JO are significant at 1%, thus all the hypotheses are supported and shows that there is positive effect between constructs as indicated in Table 8.

Table 8: Estimation of path coefficient significance

Hypotheses Paths	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Hypotheses support
H1 : LI -> VE	0.197	0.2	0.051	3.906	0	Yes
H2: CL -> AP	0.115	0.122	0.054	2.145	0.032	Yes
H3: BE -> VE	0.103	0.108	0.045	2.317	0.021	Yes
H4: ED -> VE	0.437	0.439	0.045	9.771	0	Yes
H5: ED -> AP	0.142	0.144	0.054	2.632	0.009	Yes
H6: SN -> AP	0.192	0.19	0.06	3.208	0.001	Yes
H7: SN-> JO	0.221	0.221	0.055	3.995	0	Yes
H8: CP -> JO	0.303	0.303	0.057	5.311	0	Yes
H9: AP -> JO	0.282	0.283	0.05	5.586	0	Yes
H10: AP -> EO	0.109	0.132	0.05	2.173	0.03	Yes
H11: JO -> EO	0.113	0.115	0.047	2.384	0.017	Yes

Table 9 indicates the R-squared values of the endogenous constructs of the proposed PLS-SEM model.   According to Cohen (1988), for endogenous latent constructs, R squared values of 0.26 and above are considered substantial, 0.13 are moderate and 0.02 are weak.

Table 9: R^2 and Adjusted R^2 values for Endogenous constructs

	R Square	R Square Adjusted
Academic progression	0.108	0.101
Entrepreneurship opportunities	0.035	0.029
Job Opportunities	0.338	0.332
Value from Education	0.324	0.319

The R^2 values of Job opportunities and Value for Education (endogenous constructs) are above 0.26 indicating that the combined effect of exogenous latent variables on these endogenous constructs are substantial. Latent Variable 'Academic progression' R squared value indicates near moderate effect while Entrepreneurship opportunities R squared value indicate weak effect from the exogenous latent variables. See appendix for size effects.

To summarize the analysis of the data, this paper has explored and identified factors that affect the students to migrate to Karnataka for higher education using focused group discussion and exploratory factor analysis. Further several hypotheses are proposed on the path relationship between different factors and a structural equations model is constructed and tested for the significance of the factor relationships. The empirical results support our overall hypothesis that Academic progression, Job opportunities, Value from education and Entrepreneurship opportunities are the major reasons that attract students to Karnataka for higher education.

The PLS-SEM model in this paper has associated the quality and structure of education, and job opportunities through the academic progression. During the initial construction when a direct path link was provided between quality and structure of education, and job opportunities in the PLS-SEM, it resulted in a non-converging model and therefore it was decided to drop this path. However, as one of the reviewer pointed out, we believe that there could be a direct influence of quality and structure of education on job opportunities, and this provides for research gap and an

opportunity for future researchers to explore specifically with respect to the student migration for higher education.

Discussion

Students migrate to Karnataka for higher education for better job and entrepreneurship opportunities and ability to progress further in academics. In this paper, an exploratory factor analysis was conducted to identify the latent variables from the responses collected through a questionnaire. Based on the factors of reliability, exogenous latent variables like living conditions, education, career and placement, climate, social networking and brand equity and endogenous latent factors like value for education, academic progression, entrepreneurship and job opportunities were used to construct a reflective PLS-SEM. PLS-SEM shows the path effects among various constructs to support the hypotheses.

The exogenous and endogenous variables identified under this study shows that the various factors which influence migration of the students are basically classified into pull factors of the geographic location like the living conditions and climatic conditions; those factors relating to the educational institution like the quality of education, the career and placement services, the opportunity to network and brand image of the institution and finally the factors which are important for one's own personal career development like the academic progression, entrepreneurship and job opportunities available after the education. On a sample size of 352 responses, a PLS-SEM algorithm was run and all the proposed hypotheses are supported.

Hypotheses 1, 3 and 4 shows that, the living conditions during the education, the brand equity of the institution, as well as the quality and structure of the education has a positive effect on the value derived from the education for a migrant student. The value comes from the class rooms, the institution and the whole eco-system of the city and the state in which student pursue the education. It is argued that the brand equity of the 'place of education' and institutions has a direct influence on the status and prestige of the student as well as his ability to earn a higher income after his education. It becomes important for universities to understand the brand's meaning on the overall perceptions of the students. Recognizing that brand equity has an awareness dimension, it is argued that awareness is largely driven by marketing activities including advertising and publicity.

The living conditions which includes the accommodation, affordability, quality of water and food which are part of the expenses that the student incur during the education has a direct influence on determining whether the return on investment during education will be higher or lower, based on the salary earned after the education. In this regard, the role of the government is also important because the brand of the city is a significant factor to attract migrant students for education and that the living conditions specific to the city are major influencing factors. The brand image of the city is based on the city's reputation for its infrastructure facilities, cost of living and the opportunities it can provide after education. Bangalore considered as the silicon valley of India and the startup capital of the country Karnataka, would provide an ideal platform for any student to pursue higher education.

A good structured course and qualified advisors in the institution (like professors, career counselors) will help the student to improve abilities and skill sets to get a better job with a higher salary. Experiential learning is another ingredient of a good education system. Higher education institutions in Karnataka have realized this and they have emerged as most sought-after institutions for higher education in India.

From the study, academic and career progression is identified as the other two important factors which are influencing the student's migration to Karnataka. This is possible in Karnataka because of hard and soft infrastructure, multi-cultural environment, peer support and advanced industry institution interface.

The hypotheses 2, 5 & 6, support the argument that the quality of the Education and social networking are important for academic progression. The indicator 'good and conducive climatic conditions' indicate to have a positive influence on the student staying back for academic progression. The quality of education received, availability of qualified advisors and the structure of the course, along with the social networking factors have a positive effect on the students' academic progression. Thus the results of these hypotheses provide additional evidence to corroborate the fact discussed earlier that the student migrate to a specific city or an educational institution if there is strong alumni network and well qualified academic professors/advisors and the quality and structure of the course is of high standard coupled with lower cost living.

PLS-SEM model constructed in this paper provide evidence to support that the students migrate for job opportunities. While academic progression, social networking and careers and placement

services have a direct influence on the 'job-opportunities', the quality of education has an indirect influence. This is shown under the hypotheses 7, 8 and 9.

Though there is support to hypotheses 10 and 11 relating to the student migration influenced by entrepreneurship opportunities, the adjusted R squared indicate weak effects with this regard. Perhaps this may be a significant result because most of the educational institutions in Karnataka are focused on providing technical education and are not focused on providing entrepreneurial education. Almost every business management courses are also mostly focused on providing the students with skills required to become a manager rather than to become an entrepreneur. This result, could also be reflective of the fact that the Government of Karnataka is not investing in entrepreneurship promotion activities and undertaking necessary policies to attract migrant students with an objective of becoming an entrepreneur. The study provides an indication that the students migrate to Karnataka mostly for academic progression and for job opportunities, rather than to set up their own ventures after higher education.

The institutions should have clear objective towards imparting entrepreneurship education. This can be done with strategy of admitting students based on the entrepreneurial orientation and grooming them to become entrepreneurs. The state government, industry bodies, premier education institutions and industrial houses have to work in tandem to develop entrepreneurs among students of higher education. Media and public opinion creators have to be influenced to put more pressure on government and different departments like MSMEs to work with higher education institutes in promoting entrepreneurship. Trade bodies like CII, FICCI and their counterparts in the State have huge capability to develop entrepreneurial eco system in the higher education system. Additional effort has to be made by each institution to work with these bodies for the purpose. In addition to giving technical support, institutions can connect venture capitalists and angel investors to the students, develop faculty for entrepreneurial orientation and promote entrepreneurship clubs and other workshops to imbibe entrepreneurship culture among students.

Entrepreneurship also includes social entrepreneurship. Students need be exposed to different social problems like cleanliness, poverty, welfare of the deprived sections, environmental issues and rural problems. This sensitization of students to find solution through viable business models

needs to be encouraged. Through this, institutions can do yeoman service both to the cause of entrepreneurship and to the social problems nagging the country.

From the analysis of the results it can thus be concluded that the various pull factors for student migration to Karnataka for Higher Education indicate the purpose of seeking better jobs or to continue their higher education. Even though Karnataka is a growing economic hub the paper established only a weak relationship between student migration to Karnataka for entrepreneurship. There is further scope for research to identify the factors behind this weak relationship.

Conclusion

This study would enable institutions to understand what makes Karnataka a destination in demand for higher education. The factors derived from this study can be nurtured to make institutions better and more institutions can join the elite group of institutions, so that Karnataka can retain and sustain the leadership position in the higher education in the country. With changing times the priorities and expectations of the students keeps changing. New Delhi and Maharashtra are competing with Karnataka to attract students from different parts of the country. In this background, institutions, government and educationists have to awaken to the need and the study would be a pointer towards this.

The student migration for higher education is motivated by factors which are beyond the bounds of gaining education. The prospect of better career and job prospects compel them to migrate to destinations which provide these opportunities. Brain drain leading to regional economic imbalances is the direct consequence of such migration. Thus, this paper provides insight to policy makers to identify factors which can maintain this balance.

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