GCU Economic Journal, Volume XLIV (1&2), 2011, pp. 1-12

Influencing College Students for Selecting a University for Business education in Gujranwala

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Abstract: Career decisions are evocative for every student. The grits ensured by students from their school life to college are affluently accomplished with wisdom at universities. This study endow with new directions to universities of Gujranwala to understand the behaviour of college students while making decisions for business education in Gujranwala University. The objective of this study is to explore the important factors which influence the college students for selection of University in Gujranwala for business education. Different scaling techniques have been employed for investigative purpose. Data is collected from the college level second year students from the Gujranwala District. The important factors are financial factor that is tuition fee, scholarship, financial aid and additional expenses. This study helps universities to promote their institutions and have knowledge about the motivation of students to study further in their respective institutions.

Keywords: Financial Intuitions, Qualitative study, Education, Employment, Social Values.

JEL Classification: C25, I21, J23, A13**,** G23

1. Introduction

Schools are the places where student enter to learn and leave to serve with certain goals and ambition. It plays the vital role in the educational life of students. College converts the student data into information which, on a later stage is used in polishing their career decisions. Gratitude attachment of ambitions makes it possible for the students to take certain steps towards their future. At this point they are somehow independent in their thinking but with parental influence to a certain level of decisions. To achieve their ambitions, a search for the best institution is being made by the students to realize their career dreams. Today we have seen many institutions offering many educational programs for the students. The decisions for selecting the

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best one is quite difficult when we have to select only one from too many. So, the students have to make choices from their preferences of dynamics.

The need arises to know about decisions affecting dynamics of the students in their career. The research is conducted to analyze the study dynamics from the information collected from college level students. These students selected because most of the students going to end their education at university and the gap between university and college life is considered important to select for the best institution. This research study is divided into four different dynamics; educational, financial, social and associated these dynamics have certain different backend elements which collectively forced these dynamics to impact on decisions. The important task is to collect the data from the students from different colleges to make it useful information by applying statistical tools.

2. Literature Review

A recent study shows that associated factors like image of university has greater influence on students for the selection of educational institution. They valued the image of educational institution in the market (Sevier, 1986; Lay & Maguire, 1981; Keling, 2006 Murphy, 1981) says that student give importance to the image of educational institution when they select any university. The study in Malaysia shows the positive relationship between image of university and college choice. Students are habitually selecting the educational institutions which provide employment opportunities after graduation from those institutions, because name of the institution plays a vital role for employment opportunity in the market (Sevier, 1998 and Paulsen, 1990). They are interested in the outcome after graduating and opportunities for job they are influenced by those institution graduates which they provide in the market (Sevier, 1997).

Absher & Crawford (1996) stated educational factors that is learning environment such as classrooms, seminars, inter and intra competition, laboratories, quality of teachers and libraries impact on students for selecting any university for study.

It was studied by Joseph & Joseph (2000) that cost-related problems appear to have more significance as years go by. Houston (1979) on the other hand

reviewed these problems remained at the bottom of the scale. Some potential students may look at expensive schools, but cost is a very important factor for students who are good in studies but cannot afford expensive schools. They take into consideration tuition fee, hostel fee if they are from other cities and transportation cost when calculating the total cost for university for higher education. Yusof,et al. (2008) found that scholarship offered by university is an important factor because the students who received scholarship are mostly attracted toward that institution for higher education. Accessibility of the required programs is also a very important factor for the students for selecting any educational institution for their studies (Yusof et al.2008).

2: Research Methodology

There has not been any similar study conducted in Gujranwala related to the subject of factors influencing students for the selection of university for business education in Gujranwala. As the current research problem has not been studied in the Gujranwala context, an exploratory approach to the research is rational and justifiable.

To attain the set objective that is the analysis of factors that may have an influence on the student about the university selection, data is gained by questionnaires which are filled by second year college student of B.Com. Student of Punjab College, Shibalee College, Leadership College, served as the sample of study.

At first, sample size of 200 students was taken for the study. As there are chances of dropping the sample or there might be the chances that the questionnaires are not returned, so we decided to achieve the target of 300 sample size. The questionnaire helped as a tool for data collection and it was created on the basis of importance was applied. These variables were thus studied on the relevant ideas, as described in the previous study.

Data was analyzed using descriptive analysis. Results were coded initially and likert scale is used for questionnaire type which contains five options from not important to more important. Our questionnaire contains 20 questions which were based on the selection of university for students who wish to study business education. The instrument shows the different

factors including the factor on which we conducted the research so that to make the relations all the factors with that variable to know about the true picture appeared from the accurate and comprehension data. It is a source which provides us the guidance to explore the facts and views of second year B.com students by bringing in a single platform of the study. The instrument we made is not so difficult that it creates the problem for the students to understand it or not contains such kind of information which makes the respondents hesitate in providing us the information. We assure completely to the respondents through instrument that their information would not provoke.

2.1 Data Collection

We select two cities for the data collection. These cities include Sialkot and Gujranwala. In these cities, we distributed the questionnaires but some of the people did not return the questionnaires. 204 questionnaires are returned and we placed 200 questionnaires in SPSS. The questionnaires which had the missing values were discarded to avoid uncertainties in the research. Data collection is not as easy as we think because most of the respondents just want to get rid or they did not provide with the accurate information for the sake of saving time. So we did not include such questionnaires a part of our research.

2.2 Data Analysis

Table 1: Descriptive Statistics

Variables	Mean
Associated	2.204
Educational	4.404
Financial	4.696
Social	2.5
Decision	3.912

Collection of data is the first step in the research. While conducting research, we made sure that the data is useful. Data is collected but what the data is representing us we don't know until we have applied certain techniques to explore the results contained by the data. So, certain analyses on the data were made to evaluate results. To accomplish the purpose to know about the result of the data, SPSS was used in which data obtained from the questionnaires was entered.

With mean value of variable we know that the associated factor are less important for the student mean that the image of university, university ranking, employment and work shop are not more important for them when they decided to choice any institution before taking admission.

The educational factor is important for them that are a computer lab in institutions creates the positive impact on the institution. Labs having fully equipped will enhance the reputation of the institution. They rate it important when they asked about computer labs in institutions. They think that computers lab is today requirement. Education now days are totally electronics based. When student asked about their institution computer labs they rate it good. Students rate their computer labs good, well equipped and better in space. When student are asked about their institution library they replied it will good rating. Student said that their institution has proper set library along with good reading and erudition material. Program offered by the institution is important for the student to select the institution.. Better education always matters for the student; they will reach to that institution where they can meet their consideration. When asked about their current institution program offered student response is different and they scale it average. They replied that they found same institution which was their choice. Students have different opinion about it because they create difference in other factors. They replied that due to high competition in the market each institution is offering same program so they aggregate the institution on some other terms and factors, Teachers' quality is important for them while selecting any institution. They said they are not fully informed about institution teachers' quality but they try to know it from their current students or fellow studying in that particular institution. They visit the institution to observe the environment if it. Moreover student gives high ranking to the teachers' quality of the institution. Student responded about their institution teachers' quality as good. They are satisfied with the

teachers' quality of their institutions. Education quality of the institution is important for them while selecting any institution. They rate it important because education quality is the major component when they are selecting any institution. Student responded they leave other factors behind while observing the education quality of that institution. When students are asked about their institution education quality they rate it good. They said their institution education quality is good from other institutions.

Most students said cost as the most important factor. Students recognized financial factors as tuition fee, cost of study, cost of living and other related expenses. Those students noted that financial funding from their guardian is limited their choice of university, as their financial guarantors may funding or make them to study in certain study programs. One respondent stated that by selecting a university in the city where the living cost was comparatively low-cost, it made it more reasonable for his/her family. One respondent respond that even though the cost of study was not a major attention for his parent, he still chosen to study the university who offer scholarship rather than the expensive and no scholarship which suit him, with the purpose that he can support to save the family's money. Scholarships are very important for selecting any institution for enrollment. They will give importance to those institutions which award them scholarships. Mostly students have more attention towards those institutions which gave them scholarships.

Table 2: Model and Test Hypothesis

Variables	Coefficient	Stand error	Sig	Hypothesis
Constant	2.3	0.353	0	
Associating (X_1)	0.112	0.094	0.234	Reject
Educational (X_2)	0.059	0.094	0.529	Reject
Financial (X_3)	0.155	0.066	0.02	Accept
Social (X_4)	0.068	0.084	0.416	Reject

Regression is applied to know about the future value. As our research is on the university selection so the regression is applied on the data which we have collected through questionnaire for the factors which is more importance and influence student for selection any university for business education. The hypotheses are tested on the regression bases. The following regression equation is used for the research:

$$Y = a + b_1X_1 + b_2X_2 - b_3X_3 + b_4X_4 \qquad (1)$$

The above Table shows the result of the regression analysis which we have performed on the data which we collected for the study of factor influence for university selection. The "y" in the equation represents the dependent variable "decision making". In the equation the value of constant "a" is 2.3. This value is fixed value. It shows that when there is no change in the independent variables (IVs=0), than it means that the decision is still there and that is 2.3. Its significance value is less than 0.05 which means that this can be infer on the population also.

In the above Table the value of "b_1" for the first variable, that is associated factors. The value of "b_1" is 0.112 which means that with the 1 unit change in associated factors, the university selection increased by 0.112. The sign along with "b_1" value reflects the direction of the change. As it has positive sign so it means that the change is positive. The sig. value is as above than 0.05, so the hypothesis is rejected. The hypothesis for this variable is that the associated factors have positive impact on the university selection for business education. As this is not in the favor of our hypothesis and H1 is rejected so it means associated factors as not influence in student for selecting the University for Business Education. This result also shows that it cannot be inferred on the population.

The second variable educational factor "b_2" value is 0.059 with the positive sign. It means that with the increases in the one unit of educational factor, the choice for university selection is increased by 0.059. The educational factor in our study includes that the quality of teacher, quality of teachers, programmed offered. The result shows that the when the educational factor of any university is not good , this will gave push to the low chance for selecting university or low admission in that university and this increases is 0.059 with the increase in one unit of educational factor. The significance

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value is above than 0.05, so on this basis we reject our hypothesis H2 and states that the educational factor has not positive impact on the student for university selection for business education.

The third independent variable is financial factor. The per unit change in the university choice because of financial factor is 0.155. The positive sign with the "b_3" value indicates that the relationship with the university choice is directly proportioned. The collected data explore that the finical factor like cost of fee, scholarship is the main reason for the people on which base they select the institution for business education in Gujranwala. The significance value is below than 0.05 which means that we accept the hypothesis H3. The hypothesis is that the financial factor has positive relationship with the university selection for business education if cost is decrease and more scholarship offered than the people more attracted toward that educational institution. On the basis of significance result, it also reflects that this result can be inferred on population.

The fourth variable is social factor which means the student influence by the parent influence, friend and sibling motivation, marketing campaign and location of institution that is near to their home. The "b_4" value of social factor is 0.068. As the sign is positive it reflects the positive change in the variables. The significance value is above than 0.05, so on this basis we reject the hypothesis H4. The rejection of the hypothesis means that the social has not the positive impact on the university selection for business education in Gujranwala.

3. Discussions and Results

Most difficult thing for any person is to make decisions and it became worst when you have to make choice among the best one. The same situations are faced by students now days. The various universities have now opened their campuses in Gujranwala for business education and capture the attention of the students to prove itself as the best.

So we conduct the research to know about the leading factor which impact on student for selecting university in Gujranwala for business education. To accomplish our research objectives with include four principle factors which involve in university selection which are Associating Factor,

educational factor, Social factor and Financial Factor . We make four hypotheses to test the positive influence of these variables on the university selection. The first hypothesis is H1 which shows that Associating factor have positive influence on students for university selection is rejected. This hypothesis is rejected on the basis of data that come from the students. By looking at the literature we came to know that now all universities in Gujranwala have outstanding carrier development programs, universities supporting their students in building the transition from student to employee and helping them in finding jobs after graduation (Webb, 1993). So associated factors have not positive influence on students on students it is not important for the students when they select any university for business education in Gujranwala.

The second hypothesis H2 is about to know that the educational factors have positive influence on students for university selection. The collected data provide us the output that H2 is rejected after analysis on the data. The hypothesis is rejected the quality of education and teacher quality of all universities in Gujranwala is up to mark, program offered in universities is according to the student demand and according to the market trend which market demand after graduation as an employee. As learning environment of all universities in Gujranwala is same, so they did not keep in mind to give most preference to educational factor.

The third hypothesis H3 in which we check that the financial factor has positive influence on students for university selection in Gujranwala. It is accepted because the culture of Gujranwala is bound they did not give permission to their children's mostly to study out of the country or out of city. So one of the main and most important factor that influenced on Gujranwala students for university selection in Gujranwala was total costs. Students considered the cost and affordability from their guardian. They made a balanced decision by considering their financial factor before making a selection, which is suitable with financial factors (Becker, 1988) who said that students are balanced and make suspicious cost-benefit decisions by maximizing their need and minimizing their risks in order to gain the best selection for them. Therefore this result supports earlier research which accepts that a student makes their decisions by matching the financial supports and costs. The outcome also supports previous results in developing countries such as in Turkey, Malaysia, Thailand and South

Africa (Jackson, 1988, Litten, 1982, Manski & Wise, 1983). This result of the hypothesis can also be applicable on the population.

4. Conclusions

The findings of our study revealed that the associated factor, educational and social factors are not influence students positively and it is not important for them but financial factor has most important and positive impact on students. Literature said that financial assistance offered by university as one of the very important factor which influences students. The university which offered financial assistance, affordable fees and awards affect the student more and they prefer to go to that institution.

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GCU Economic Journal, Volume XLIV (1&2), 2011, pp. 13-27

Impact of Environment on Health; A Panel Data Analysis

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Abstract: This study empirically examined the impact of environment on human health by investigating the relationship of life expectancy with other factors like Gross Domestic Product (GDP), Forests areas and CO_2 emissions. Data of ten highly developed nations has been used to explore this relationship of health and environment. Results have shown that environment and health are closely related to each other. Environmental degradation and deterioration cause disastrous repercussions on health and result in declined life expectancy. The study recommends that implementation of environmental regulations and precautionary measures in manufacturing processes of economies can be very helpful in mitigating the environmental disorders to improve public health.

Keywords: Environment, Forestry, Public Health, Quality of life
JEL Classification: K23, Q23, I18, I31

1. Introduction

Surroundings of a living thing are known as its Environment or habitat. Environment can be comprises of both living and nonliving things. Natural environment comprises of all the natural things on earth including vegetation, air, water, mountains and rocks .We can elaborate it in more simple words as environment is everything that is part of surroundings. It can affect our life by a number of ways, like water, air and all types of plant and animals. On the other hand, health is the physical conditions of a living body. In day to day life we regard health as the physical conditions of a living body having zero level of diseases. A clear and healthy environment is a Pre Requisite for good living conditions. Everyone demands high living standards with good environmental quality for himself and his coming generations. In modern world it is clear that, to attain these utilities human has enhanced his production processes. These production techniques are carried out through usage of fossil fuels which harmed the environment in form of pollution. Existence of these pollutants in atmosphere has been given birth to many health disorders by causing a variety of diseases.
Environment and health, both are interrelated to each other. In contemporary world debate on the environmental quality and its effects to

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human health is very common. Environmental changes and increasing levels of globalization resulted in mega emissions of carbon and other pollutants in environment. These pollutants along with lead emissions have taken birth to many ailments of human life, like cancer. These ailments have disturbed and affected the productivity of nations substantially. With decrease in productivity level, these environmental perils also incur ample costs in remedy of these ailments. There is substantial realization about the relationship between environment and its implications on human health. Environment and health are the cause and effect of each other. If cause of anything is good, certainly the effect will be somewhat same. A good and comfortable way of human life is completely dependent upon the excellent levels of its health. World health organization defines health as "A state of complete physical, mental and social wellbeing and not merely the absence of diseases and infirmity" (WHO, 1948). Through this comprehensive definition what is understood is that, health is the name of complete freedom from every type of illness. When we study different types of human illness we come to know that, roughly every sickness has a direct and indirect relation with some type of biological process. These biological phenomena are all dependent upon the environment so, we can extract that environment has a relation with health of human being. To explore and discuss this important relation of health and environment many pure and social scientists have conducted various researches and found that environment and health have direct relationship between each other. In simple words, if the environment will be clean and pure the health level also will be good and vice versa. Only cause and effect of environment on health is not important, also the degree with which environment effects human health is worth taking, but this calculation has many complexities to handle with e.g. one unit climate change impacts how many units on health? To check the impact of environmental processes on human health this study has been conducted. It includes the environmental assessment of highly developed world. This is a panel data analysis based on the data of different variables from developed countries.

As environment and health are interrelated, working on environmental quality is of primary concern. To make the world realized about the dangers of these environmental disorders many global campaigns are launched by different organizations. Globally, these Agencies are working to protect the environment in particular. These organizations are working on the theme of

providing the world with a healthy and safe environment free of diseases. List of these environmental organizations is as follows:

- Earth system governance project (ESGP)
- Global environmental facility (GEF)
- Intergovernmental panel on climate change (IPCC)
- International union for conservation of nature (IUCN)
- United nations environment program (UNEP)
- World nature organization

These forums organize different international conferences and invite the leaders of world nations. These conferences unite international community to hold hand in hand in protecting their habitat. Recently, UNEP has organized a global conference about climate change in France. The main agenda of this gathering was to minimize the carbon emissions in environment. In health sector too, many global platforms are working which are following:

- World health organization (WHO)
- United nations children's emergency fund (UNICEF)
- World Bank
- United nations population fund (UNFPA)

2. Literature Review

Awan (2013) examined relationship between environment and sustainable economic development in theoretical approach. The Environmentalists everywhere throughout the world have stressed the requirement for keeping up ecological quality through practical utilization of assets. All human exercises planned and executed for the financial development of a nation and the social needs would have specifically or in a roundabout way effect on environment. The ecological issues are extremely convoluted in light of the fact that it has trade-offs between financial development and environment. Higher financial development implies higher use of assets without considering its sweeping results on the future eras. Private market provides little or no incentive for controlling pollution. Developed countries which are consuming over 70 percent of the earth's resources can directly

contribute environmental improvement through their own efforts by using modern techniques. Developing countries must involve private sector as well as public sector to curb environmental issues.

Renny (2012) discussed the role of health in economic growth and development. Health is a priority intention in addition to a middle driver to monetary improvement and countrywide income increment. Good health has a positive, sizable, and measurably huge impact on total yield. Labor's efficiency is being improved by expanding not only their physical limits, for example, quality and perseverance, additionally expanding their mental capacities, for example, subjective working and thinking capacity.

Everett *et al.,* (2010) worked on economic growth and environment in case of United Kingdom. The UK and the worldwide economy face critical ecological difficulties, from turning away perilous environmental change to ending biodiversity misfortune and ensuring our biological communities. There has been verbal confrontation about whether it is conceivable to accomplish economic development while likewise handling these difficulties. The natural environment plays an important role in supporting economic activities as providing direct and indirect resources and raw materials etc. Therefore, Natural resources are, vital for securing economic growth and development, not just today but also for upcoming eras. Some accustomed assets accept analytical thresholds, which have to be respected, and there is increasing evidence that we may be abutting or beyond a ambit of the thresholds, not atomic regarding greenhouse gas emissions. Government action is appropriate to ensure that assembly and consumption choices reflect the accurate amount of their ecology impacts. As continued as prices paid by individuals and businesses do not reflect these accurate costs, and whilst incentives to use environmental assets cost-effectively abide weak, accustomed basic will not be allocated or consumed in an acceptable manner.

Heins *et al.,* (2000) worked on Global climate change and health and argued that industrialized nations produce most of the world’s greenhouse gas emissions. A change in world climate would have wide-ranging, mostly adverse, consequences for human health. Developing countries, in order to protect their own development prospects, therefore, need substantial incentives to cut emissions, including the transfer of nonpolluting

renewable energy and energy-efficient technologies. Reducing fossil fuel disturbance will also have substantial direct health benefits, such as preventing many thousands of air-pollution–induced deaths annually worldwide from both indoor and outdoor sources. Some degree of global warming now seems certain. Therefore, adaptations to climate change will be required, such as housing designs that enhance cooling in summer.

3. Theoretical Framework

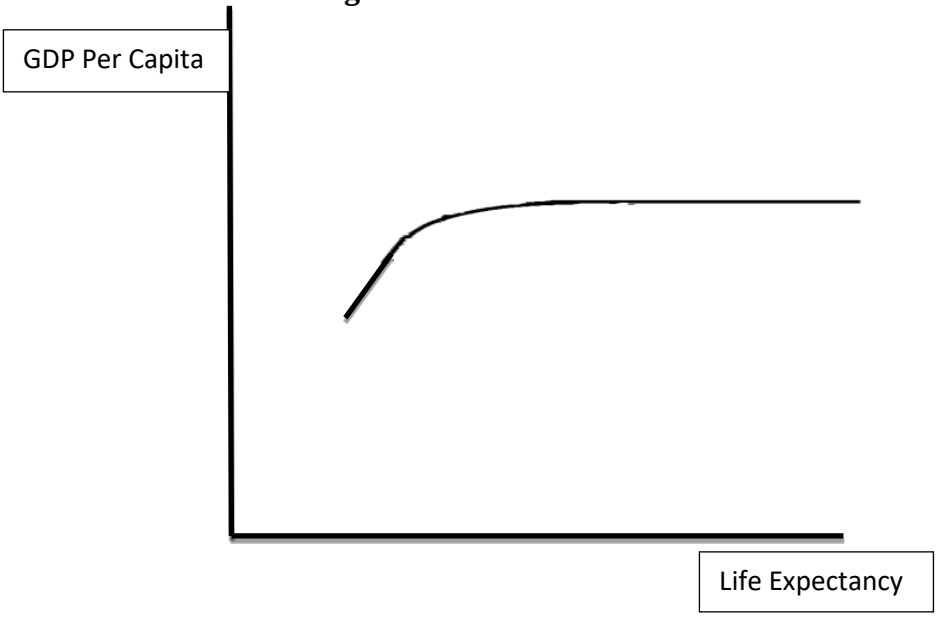
Ecosystem's health and health of human being are interrelated. Both of these are interdependent for long term survival. In contemporary world of competition and industrialization human activities in production of goods and services have affected the health of environment in negative way. To remain competitive; firms and corporations of different countries have produced a mega amount of goods and to avoid the costs of production they don't keep in mind the environmental health. By zero or very low levels of expenditure in protecting environment, these firms impose their costs of pollutant abatement to general public and environment in form of negative externality. These negative externalities have negatively affected the environment in general and human being in particular in form of many epidemics and devastating diseases. Human production methods have given birth to large amounts of carbon emissions, Global warming, depletion of ozone layer and a long list of other pollutants in environment. All of these environmental hazards not only harm human health physically but also in socially and inform of poor working conditions.

There is existence of causality between environment and health. Human activities of production are not the sole responsible for health hazards , many health maintaining activities are also harmful for environment, for example hospitals takes care about health but they use different types of non-renewable natural resources like fuel and electricity which are harmful for environment too.

The main determinant of health is described by life expectancy in the model. Life expectancy is defined as "the average number of years that a person can expect to live in "full health" excluding the years lived in less than full health due to disease and/or injury" (WHO). Main determinant that impacts on life expectancy; and their relation with it is briefly explained.

GDP Per Capita is directly related with the health and in turn to life expectancy. Higher levels of personal or per capita income makes it possible for human being in sustaining good life standards and access to better education, health services, food and other basic necessities which results in adding more years of life. This link of life expectancy and income per capita can be best understood through "Preston Curve" which inhibits that wealthier nations have greater years of life as compare to poor one.

Figure 1: Preston Curve



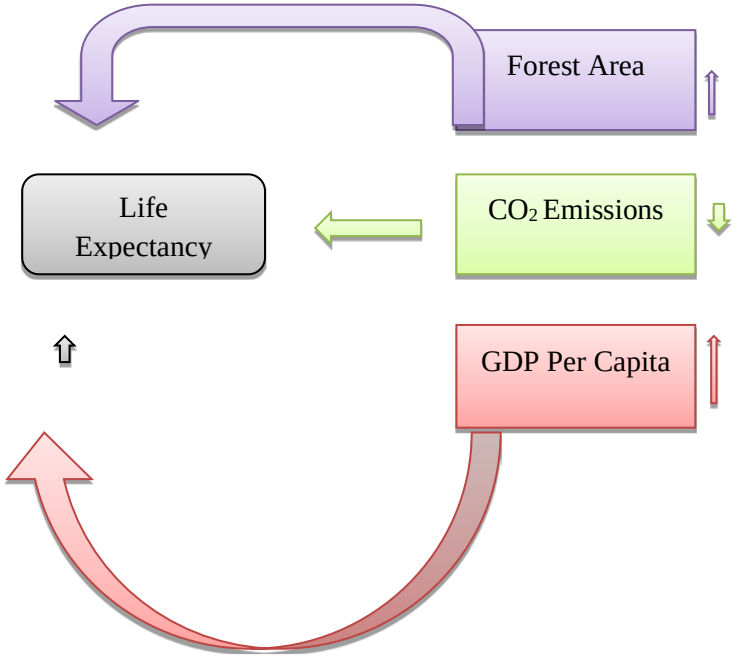
Source: Biciunaite (2014)

Forest area and life expectancy are directly proportional to each other. Forest area provides a vast variety of life sustaining things. Forests not only provide fresh air for respiration but also other life supporting items like fruits and herbs which are used in medical processes and in making medicines. Forests also protect land from soil erosion and enhance land fertility. Air quality, climatic changes and infectious diseases which can affect health directly are directly controlled by forests (Karjalainen *et al.*, 2010).

A normal amount of carbon dioxide is not harmful for environment and human life. When it crossed normal amounts it harms the environment in

general and human life in particular. A greater amount of carbon emissions results lungs disorders and other cordial and skin disorders in humans. According to WHO air pollution claims 4.3 million global deaths every year. Air pollution is mainly caused by CO_2 emissions. Through these little facts we can argue that carbon emissions are dangerous for human health.

Figure 2: Flow Chart

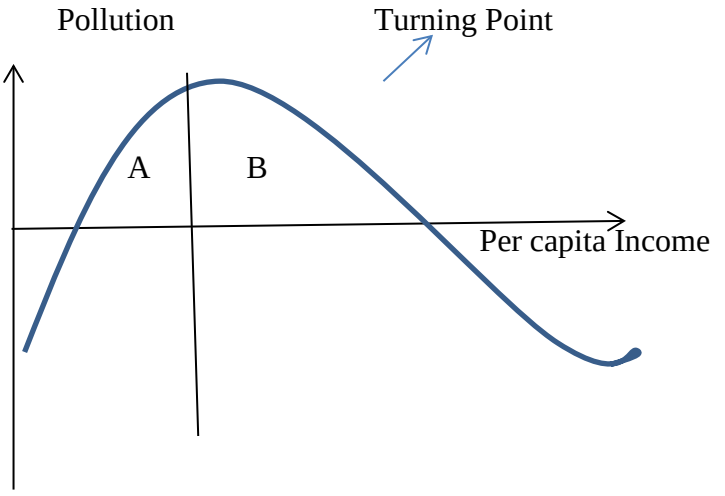


Source: Author's own formulation of framework

Environmental disorders and its protection are closely related to production activities of population. There has been clear relation between the both. To study this relationship Simon Kuznets proposed an environmental curve which was later became prominent as Kuznets Environmental Curve. What is Kuznets environmental curve and how it explains the relation of environment and economics is given as follows:

While discussing about the relation of income and deterioration of environment, Simon Kuznets provided a solution to American Economic Association (AEA) in 1954. He claimed that initially with the increase of per capita income due to industrialization of economy the level of environmental degradation enhanced. With time as the country achieves prosperity and development this environmental deterioration starts declining. This relation can be explained graphically as follows:

Figure 3: Environment KUZNETS Curve



Source: Aslanidis and Iranzo (2009).

Above figure is the representation of Kuznets curve. In left side of the central line environmental degradation is enhancing with increase in the per capita income. Peak of diagram is labeled as turning point, as after this point the whole scenario becomes changed and pollution starts showing declining trend. After the turning point per capita income remains increasing but shows inverse relation with pollution. First part which is represented by capital A is the representative of developing nations or start of development. On the other hand capital letter B shows the trend of developed and stable nations.

A producer and firm always try their hard to maximize their profits and to minimize their private costs. They use those raw inputs and production

techniques which are less costly for them without concerning about their negative effects on environmental quality. In this way these firms and producers make the use of fossil fuels possible. At the end, production process results in mega amounts of carbon emissions with other chemical wastes which are hazardous to environment and health. These chemical wastes are the social costs which are not paid by producer but faced by society and in economics terms known as negative externality. Negative externalities of production worsen the environmental quality, which in turn harm health of living species.

Initial stages of development, countries show enhancement of pollution and after stability, show declining trend of pollution. This question can be answered by regarding environmental health as the luxury good. In start of development, economies are more conscious about the large amount of goods and services and they don't care about the environmental quality. After achieving prosperity their demand for safe and good environment increase and they regard safe environment as luxury good.

4. Data and Methodology

Model functional form, description of key variables, econometric tools and their analysis has been given in this section.

4.1 Data Sources

Panel data has been used to analyze the impact of environment on health. Secondary data has been extracted from world development indicators (WDI) for the period of 23 years from 1991 to 2015. Ten developed countries of world are included in research in order to analyze the specific impact of environment.

4.2 Model Specification

Following model has been used to investigate the relationship of environment and health:

Life Expectancy= f (Gross domestic product per capita, Forest are, CO_2 emissions)

$$L.E_{it} = \alpha_{\circ}+\alpha_1 CO_2E_{it}+\alpha_2 GDPPC_{it}+\alpha_3 F.A_{it}+\mu_{it} \quad (1)$$

Where,
LE = Life Expectancy measuring the age which a person enjoys on average without any ailments
F.A= Forest Area out of total land area of a particular country.
CO_2E = CO_2 Emissions
GDPPC = Gross Domestic Product Per Capita
μ= Error Term
$\alpha_{\circ}$ = Constant Term
α_1, α_2, α_3 = Slope Coefficients of CO_2 Emissions, GDP Per Capita and Forest Area
Subscript "t" is representing time period. Life Expectancy is a dependent variable whereas; CO_2 Emissions, GDP Per Capita and Forest Area are the independent variables. Econometric tools and techniques are being used to check the above model.

4.3 Econometric Techniques

To check the relationship of health with environmental factors panel data has been used which covered ten highly developed countries of world from year 1991 till 2015. Pooled OLS regression has been used to check the unknown effect of independent variable on dependent variable. Regression analysis provides us the effect of independent variables (GDPPC, F.A, and CO_2E) on dependent variable L.E.

To address the problem of Heteroskedasticity, Breusch pagan test of heteroskedasticity is being applied. Another disease which can harm the credibility of data and hypothesis is the problem of multicollinearity. To check whether econometric model has problem of multicollinearity, variance inflation factor has been used.
Ramsey reset test has been applied to check whether in specified model we have omitted variables or not. This test has been applied using STATA.

5. Results and Interpretations

This section entails the outcomes from the regression analysis along with their interpretations.

CO_2 emissions are negatively associated with life expectancy. With more emissions of carbon, health of human being as well as other creatures becomes weak which results in decreased years of healthful life. Results of regression have also shown the same result which describe as; with 1 unit CO_2 emission life expectancy decreased by -8.084965 units.

Gross domestic product per capita is positively associated with life expectancy. With more income one can enjoys the balanced diet and can spend more on health expenditure which adds up his healthy years of life. Results of regression analysis have shown that; with 1 unit change in GDPPC life expectancy changed positively by 4.35e-07 units.

Table 1: Life expectancy is taken as dependent variable

Variable	Co-efficient	t-statistic	Probability
CO_2 Emissions	-8.084965***	-15.24	0.00
Forest Area	.0277995***	4.90	0.00
GDP Per Capita	4.35e-07 ***	4.52	0.00
R^2	0.6074		
Diagnostics	Breusch-Pagan Test: No Heteroskedasticity VIF < 10 : No Multicolienarity Ramsey Reset Test : No omitted variables (Null hypothesis not rejected at 1% level of significance		

*** 1% level of significance

Forest areas are the natural forms of vegetation. Forests are beneficial for human health in many ways. On one side forests provide human being with pure and clear climate and air for respiration, and on other end forests provide human with good food and raw material for medical treatment. The same results have been shown by the regression results which tell that with 1 unit increase in forest area life expectancy increased by .0277995. All the results are significant. R^2 have shown that 61% variation in dependent variable is described by independent variables.

6. Conclusions and Policy Recommendations

Life expectancy is a measure of healthy life without any ailment or sickness. Life expectancy reveals about the average years of life in a geographical region that a person lives on average. Environment is the surroundings of a specific thing from which it extracts many living requirements. To maintain good and healthy life, human beings like everything, needs many items from their environment, so it refers that human beings also depend on natural environment. If the environment would be clean and pure all life sustaining items also be fresh and clean like air, water etc. consumption of clean and fresh environmental things would ultimately results in good health and add more years of healthy life. The main focus of this study was to analyze this relationship of human health and environmental factors empirically.

As GDP per capita is the average income of a specific person in a particular geographical region. GDP per capita displays the actual living standards of inhabitants. If per capita income is higher, citizen would have better excess to higher expenditure in health and food. Better food and health services would provide them with good and more years of life. Results of study reveal that GDP per capita and health have positive relation. On the other hand, we concluded that CO_2 emissions are negatively associated to health as carbon emissions are the reason of many cardiac and other diseases. The third environmental factor that prevailing study analyzes is the Forest Area of a country. The study results show that forest area is an indicator of good and healthy life. In end, we concluded that the environment contains a very important role in maintaining good and healthy life. Environmental pollutant harms the health whereas clean environment helps in improving and sustaining it.
Following recommendations can be worthwhile to maintain a good environment and health;

- Greater care required in coping and minimizing the impacts of industrial negative externalities.
- Industrial and manufacturing units must be installed far from populated areas.

- Governmental environmental policies and their implementation are indispensable.

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GCU Economic Journal, Volume XLIV (1&2), 2011, pp. 29-49

Jobless Growth- An Empirical Analysis of Economies with High Unemployment Rate

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Abstract: The purpose of this study is to determine whether the world economies witnessed jobless growth in the recent years and if so, then in what ways it has affected different sectors within these economies. The existence of this phenomenon has been claimed by many authorities, including United Nations Development Program and World Economic Forum. Jobless growth is considered to be an increase in real GDP, with a simultaneous rise in unemployment rate. The significance behind investigating this problem is why it occurred in recent years across the world and what made it emerge as one of the top global economic trends of world economic forum in 2015. Moreover, whether this problem could last in future or is it a short term phenomenon which could be overcome by effective government policies. To approach this issue, appropriate theory, historical background and secondary data have been used in order to examine the reasons behind emergence of this problem in recent years and its scope in the future. This study concludes that many of those world economies which have faced this problem over the last decade might have faced it mostly in the first five years than the latter. However, in some of the countries the problem was dominant in the later five years, while in others it persisted throughout the ten years.

Keywords: Job, growth, Unemployment, Agriculture, Industry, services**.**
JEL Classification: J64, O13, L70, L80, R11

1. Introduction

The term jobless growth recently gained prominence during 2015 when this phenomenon was ranked higher in the world economic forum than that of the former year's trends. The term "jobless growth" is however, an old term, used first by the New York Times article in 1994. United Nations Human Development report of 1994 also stated that many parts of the world faced jobless growth during 1990s. It is a situation which causes many people to become jobless and it makes extremely difficult for them to get employed even after long durations of searching for work yet this unemployment does not stop the country's economy from exiting a recessionary phase. What

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makes these workers to remain unemployed for certainly no specific reason is something of particular interest to look upon and when this persistently high unemployment becomes less relevant to an economy's growth rate are the few pressing questions which will be studied in this research.

Sustained economic growth is one of the milestones which every country yearns to achieve and is of special importance to the developing countries. One of the ways to achieve this type of economic growth is through reducing poverty. Poverty can be overcome through numerous ways, but the suitable of all the solutions is through job creation. Providing people with jobs will enable them to earn for their living and making them economically productive.

Economic history shows that when the Great recession ended it left sustained unemployment. The overall economic activity did get a boost afterwards, but the labor market did not exhibit any good sign of recovery since then, not at least to a great extent. This situation was similar to the one reported by International Labor Organization (ILO) which stated that world experienced severe employment crisis in 1990s since the end of Great Depression of 1930s. The end of great recession also led to a slowdown in job market which caused a loss of income generation among 300 metropolitan cities, known as major hubs for the high productivity, increased economic growth rates and large parts of population.

Jobless growth however, does not always imply that an increase in output is necessarily associated with a complete lack of job creation, rather a low employment generation. The term 'jobless growth' can also be interpreted as a comparison of employment growth with the labor force growth and comparison of total employment/unemployment with the overall economic growth. The reasons behind jobless growth include a mismatch in labor market including restructuring of organization and industrial reallocation, little efforts put in by the unemployed workers to find jobs which might be due to unemployment benefits and technological progress, the latter has introduced greater efficiency and time saving techniques in labor market and has affected the retirement decisions, skill acquisition and the inter industry wage compositions.

In the US in 1990, 50-100,000 robots caused unemployment among 100,000 workers according to Upjohn institute of employment research. Technological innovation changes in the demand composition of labor, by raising the demand for some type of labor and decreasing the demand for other type of labor. China is another example in which over the past twenty years technology has taken over manual work to a great extent.

This research will primarily focus on the above issues in the context of world economies that have been affected by this phenomenon and since how long they have been affected? Whether this problem is a short run one or it has the ability to last for a long period of time?

The objective of this research is to examine the impact of jobless growth on the overall well-being of the economies and to assess whether this impact is short run or not.

2. Literature Review

A significant and organized amount of literature that directly deals with the study of the impact of jobless growth on the world economies has been taken from the point of view of different authors.

Padalino (1997) studied the intensity of employment in economic growth of the G-7 countries. The study examined the technological change which has affected and weakened the positive relationship between economic growth and employment. Correlation between growth and employment has been found and the key empirical outcome contrasted. Using descriptive analysis real GDP, evolution of employment, working hours in the G-7 countries for industrial and total sectors have been used for the time period 1960-94. Jobless growth hypothesis contrasted with the view that economic growth is an outcome of employment growth.

Bhalotra (1998) worked on the puzzle of jobless growth in Indian economy during 1980s which did pursue deregulation in industrial sector and in trade and this resulted in employment fall. This paper offers an explanation to behavior of employment in terms of increased total factor productivity and actual hours worked. Robust methods have been used which showed that a

neglect in hours worked leading towards a considerable bias in estimates of the wage elasticity. Productivity growth and hours appeared to have been linked to each other with the reform process, with an increase in the hours worked showing recovery in lost time.

Xiaochuan (2004) examined the jobless growth and dynamics of disequilibrium in labor market. Models of labor market disequilibrium process have been discussed, the dynamic path of the wage rate and the adoptive and optimal economizing roles of the economic agents have been stated. Supply of labor has been derived from household's utility maximizing behavior together with few institutional factors, sticky wages which have been modified by labor market demand and supply. The drive for gains from productivity along with sticky wage rates is the main reason concluded by this study behind jobless growth.

Khemrai *et al.*, (2006) have researched on the case of U.S economy exiting recession during 1990s using Okun's coefficient which shows a decline and is therefore being consistent with the jobless growth. The finding draws a contrast with other countries which show an increase in the time varying Okun coefficient.

Onaran (2008) estimated labor demand equation which was based on panel data of the manufacturing sector in the Central and East European economies. The findings showed that employment does not respond to wages in half of the cases. The output elasticity of labor demand is positive and low and in many situations output is not linked to the employment. However, there has been integration among European economic sphere due to FDI and international trade has not prevented job losses in the industrial sector. There are more situations of positive effects and insignificant effects of trade and FDI mostly in this study.

Hanusch (2012) examined the economic growth in East Asia and whether it was jobless or not? He used data from eight East Asian countries for the time period 1997-2011 to estimate the coefficient of Okun's law. The coefficient represents the relationship between growth and employment and suggests that the growth was not jobless in this study. However, there has an important implication drawn out from this research and that was the

significant variation across nations and effect of growth on employment is supposed to magnify under more hiring and firing flexibility of rules. Even when labor markets are regulated tightly, economic growth does impact employment in composition and evidence shows that agricultural employment does move counter-cyclically compared to the industrial employment. This suggests that agriculture does serve as a shock absorber for laid off labor in industrial sector which isolates the non-agricultural type of employment and confirms a strong relationship between employment generation and growth.

Porcescu *et al.*, (2014) researched the case of Moldovan economy, a former Soviet Union's country since 1990's. The research was conducted using a stylized depiction of brain drain demonstration effect which compared the domestic job market with that of abroad and concluded that Moldova relies on migration and foreign remittances as its main engine of economic growth. Moldovan economy can be characterized as remittance-led jobless growth since 2000. It has been recommended under the study that the country should achieve sustainable economic growth in the long run and to invest more in job-oriented education and training.

Schmitt-Grohé and Uribe (2015) analyzed the simultaneous occurrence of liquidity trap and jobless growth recoveries and special features include downward normal wage rigidity, a Taylor-kind interest rate feedback rule, the zero lower bound on nominal interest rates and a confidence shock. The model shows that low inflation and high unemployment become chronic in the absence of policy and in the presence of capital accumulation the model predicts an investment slump. The paper shows a new fisherian effect in which increase in nominal interest rate targets extended period of time which can foster inflationary expectations and give boost to employment.

Islam (2015) researched jobless growth as a challenge faced by developing economies by using cross-country data set. The study concluded that high economic growth rate is mandatory for poverty reduction, but this relationship is not invariant. Moreover, economic growth is not a sufficient condition to reduce poverty, rather intensity of employment in economic growth plays a vital role as well in explaining variation in rate of poverty decline.

Kashyap (2016) found that the main determinants of productivity are technology and human capital capability. The study used input output Tables for years 1993-94 and 2006-07 for output and employment. The data sets have been extracted from the databases of National sample survey organization (NSSO) and Annual Survey of Industries (ASI). The impact of new policy regime is assessed and disaggregate sector-wise employment elasticity has been calculated. Results showed that human capital and growth dynamics have been analyzed widely at cumulative level, but at disaggregate level, all the sectors do not act similarly. When analyzed at disaggregate level, employment growth resulted in much steadier growth compared to that of output and productivity growth levels, indicating that there has been jobless growth in Indian economy.

3. Descriptive Analysis

In Table 1, five year averages have been calculated to draw a comparison between employments in the three sectors in eleven selected countries. From the above Table the comparison of each country's performance in the first five years has been done with that of the second five years. Beginning this comparison from the Indian economy, India's first five years average shows there has been a majority of people employed in the agricultural sector of the country compared to the other two sectors. Whereby, the sector which shows the lowest contribution towards growth is the industrial sector which on average contributes only 22.4 percent of the total labor force. This can be due to the theoretical reasons investigated in the chapter 3 which claimed that Indian economy faces the issue of employability in the industrial sector as it is difficult to convert the agricultural labor into the industrial one. In the second five years, there has been increase in the employment contribution from industrial sector and services sector. Some of the labors from the agricultural sector seem to have been adjusted into the other two sectors.

Table 1: Comparison of the sectoral employment generation: employment in the agricultural sector, the industrial sector, and the service sector

Country	Time	Employment in agriculture (% of total employment)	Employment in industry (% of total employment)	Employment in services (% of total employment)
India	2006-10	51.10	22.40	26.60
	2011-15	48.40	23.15	30.10
South Africa	2006-10	5.52	25.28	61.80
	2011-15	4.80	23.70	71.40
Morocco	2006-10	41.48	21.38	37.10
	2011-15	39.45	21.60	38.80
Philippines	2006-10	34.90	15.00	50.10
	2011-15	31.65	12.32	42.34
Turkey	2006-10	22.14	26.95	50.19
	2011-15	21.55	27.27	51.17
United States	2006-10	1.50	19.22	79.28
	2011-15	1.50	19.22	79.28
China	2006-10	3.30	44.18	48.94
	2011-15	2.50	46.90	47.00
Sweden	2006-10	9.57	21.08	76.66
	2011-15	1.77	19.45	39.33
Moldova	2006-10	31.32	18.92	50.46
	2011-15	27.60	18.53	53.83
Tunisia	2006-10	17.93	32.38	48.78
	2011-15	48.59	38.50	40.56
Nigeria	2006-10	48.59	8.50	42.90
	2011-15	7.53	8.50	42.90

South Africa is another country which has witnessed a decline in the employment in both agriculture and industrial sector which support the South African economy along with the services sector. The services sector alone has seen an increase in employment from the first five years to the next five years on average and this shows that this sector alone could not have lead towards an increase in overall employment level in the country. Hence, joblessness has been an issue over the decade in South Africa, which might be because of labor acts and labor reforms, making it very difficult for the employers to hire workers in this country.

Morocco is another country which has been affected by social, labor and macroeconomic reforms which it has implemented since the past 20 years in order to improve the GDP and households' welfare in the country, but little did these reforms actually did for the labor market improvement in the country. As per the five year averages, Employment has slightly increased in the industrial and services sector with a decrease in agricultural sector's employment in the past ten years.

In Philippines, the phenomenon of jobless growth has overshadowed the economy over the past two years, therefore the averages taken for the last decade could be of little help to assess the case of this country, however, it is to be noted here that the claim made by Asian Development Bank (ADB) about Philippines' economy that the jobless growth exists because of the lack of employment in the country's industrial sector can be tested by using these five year averages. From the averages, the country has experienced a significant decline in the employment in industrial sector and the claim of ADB has been essentially correct and the main reason behind Philippines jobless growth is the failure of industrial sector to generate inclusive growth in the country and therefore needs boosting.

In Turkey, industrial and services sectors have shown an increase in the employment. However, it is to be noted that whether these increases have actually led to an increase in GDP growth or the overall unemployment in the country or not can be compared and argued in the next section of this chapter which deals with the comparison of countries' GDP growth with their unemployment rates. Turkish economy as per studies has been said to have faced jobless growth because of its dependence on the imported goods such as textiles, food, wood, tobacco etc. and therefore, this has led to joblessness in the Turkish agricultural sector, which is the main reason behind jobless growth in Turkey. This is confirmed by the Table above, whereby, the five years average of the agriculture's employment has decreased in Turkey in the second five years. Hence, the country has faced jobless growth in the second half of the last ten years.

In United States, the discrepancy existed between jobs and growth even before the economic recession. It was furthered by the corporate profits and the country could not generate enough jobs to correspond growth in the

country. These theoretical justifications have been confirmed by the five year averages taken in the above Table through the sectoral employment contribution.

China is rising as a strong economy, but apart from a slight increase on average in the industrial employment over the decade, the country has faced a decline in the other two sectors' employment over the last ten years. This can be due to the country's bias towards industrialization as per the studies and theory, but this sector has done very little to give boost to employment in China because of high productive growth in this sector and it hinders demand for more workers.

Swedish economy has experienced a decrease in the employment of all three sectors as per the five year averages. These sectors' decline in employment can be attributed to reduced employment in public sector and the lack of expansion in the service sector to cater to the unemployed labor from industrial and public sectors.
Moldova, a former Soviet Union member, has witnessed a decrease in both agriculture and industrial sector in the last decade except for the service sector which has shown an increase in employment over the ten years on average. This shows that there has been joblessness in the country which can be due to the migrant labor, as the country is labor scarce overall and needs to widen its resource base in order to tackle the issue of jobless growth.

Tunisia has on average shown an increase in agricultural employment and a decrease in both service and industrial sectors' employment over the previous ten years. This is because of the inability of trade liberalization which has failed to bring inclusive growth in Tunisia.
Nigeria needs to invest in entrepreneurial ability and infrastructure along with modernizing industrial sector and improving education.

Table 2: Comparison of GDP growth and Unemployment rate

Country	Years	GDP growth (annual%)	Unemployment, total (% of total labor force)

India	2006-10	8.10	3.90
	2011-15	6.74	3.58
South Africa	2006-10	3.13	23.20
	2011-15	1.85	24.80
Morocco	2006-10	5.01	9.46
	2011-15	3.95	9.33
Philippines	2006-10	4.95	7.50
	2011-15	5.58	7.05
Turkey	2006-10	3.31	11.48
	2011-15	2.03	7.70
China	2006-10	11.27	4.17
	2011-15	7.81	4.53
Sweden	2006-10	1.68	7.34
	2011-15	1.95	8.00
Moldova	2006-10	3.47	6.06
	2011-15	3.88	4.14
Tunisia	2006-10	4.54	12.72
	2011-15	1.35	14.73
Nigeria	2006-10	7.21	7.6
	2011-15	4.70	7.53

GDP growth rate and unemployment rate for eleven countries have been assessed by using five year averages. GDP growth has been the highest for China for the last decade and especially the last five years on average, corresponding to that the Chinese unemployment rate has increased over the decade and especially in the last five years on average. This means there has been jobless growth and its persistence in China over the ten years' time period. Similarly, the lowest GDP growth has been achieved by Tunisia on average and corresponding to that the unemployment rate has increased as well. Hence, in this case Tunisia has seen both joblessness and lack of growth especially in the second five years on average. The reason behind Tunisia's overall joblessness is because of the less share of employment from service and agricultural sectors. Trade liberalization has generated jobs in the industrial sector of Tunisia, but it has not lead to an overall increase in the inclusive growth as well as the employment level overall. Rather there has been both unemployment and lesser growth in the country due to Trade liberalization and as seen from the previous Table in previous

section only the industrial sector containing exporting manufacturing industries has flourished to some extent.

The other nations have faced higher unemployment rates compared to the high GDP growth rates. Okun's law which postulates that a 1% decrease in unemployment will lead to a 3% increase in output level has not been proven in these nations cases to much extent. As the countries on average have faced higher unemployment rates and increase in GDP growth at the same time.

4. Empirical Analysis

The relationship between GDP growth and unemployment rate in the 11 world economies which have experienced the problem of jobless growth is being investigated in this study using the following regression function.
The annual data set for this examination is based on the time period 2006-2015. The dataset for the selected variables has been taken from the world development indicators.

The phenomenon has been experienced in the countries which have been discussed in the previous chapter and the time period has been selected as a last decade, because jobless growth has gained global prominence and persistence over the past ten years.

4.1 Model of the Study

GDP = f(Unemp, Empagri, Empindus, Empser) (1)

The regression equation becomes

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 \quad (2)$$

$$Y = -0.9491 - 0.1448X1 + 0.0701X2 + 0.2108X3 + 0.0003X4 \quad (3)$$

Where

Y = GDP growth (annual %) (GDP)
X1 = Unemployment, total (% of total labor force) (Unemp)
X2 = Employment in agriculture (% of total employment) (Empagri)
X3 = Employment in industry (% of total employment) (Empindus)

X4 = Employment in services (% of total employment) (Empser)

4.2 Methodology

Under this, two tests have been applied in order to analyze the stationarity of variables: Levin-Lin Chu (LLC) (1992) and IPS t-bar (1997). In order to determine the presence of co integration among variables, numerous tests have been used in this study such as Pedroni co-integration test (1999) and Kao (1999) test have been applied. Panel co integration has a null hypothesis of no co integration and has seven statistics. Pedroni (1999) has proposed many tests for the null hypothesis of co integration in a panel data model which does allow a considerable existence of heterogeneity. This test has been carried out to assess whether the co integrating relationship exists. If a set of variables have been found to have one or more co-integrating vectors, then vector error correction model (VECM) is used which adjusts to both short run changes in variables and deviations from equilibrium. This study has used FMOLS technique in order to find out the long run relationship between variables after proving that there is a co-integration among them. It is the most appropriate technique to provide optimal results of co integration regression.

5. Results and Discussions

Table 3: Unit Root Test

Variable	Situation	Common Unit Root Test	Individual Unit Root Test
		LLC-ADF	IPS-ADF
gdpg	Individual intercept	-0.5229 6.7427	-1.1284 0.8788
uemp	Individual intercept	-0.9208 -0.3100	-1.0732 0.1416
empagri	Individual intercept	-1.0914 0.1100	-0.5637 0.2865
empindus	Individual intercept	-1.4968 0.4488	-1.2464 0.1063
empser	Individual intercept	-2.2099 0.0136**	0.5231 0.6995

**shows 5% level of significance.

Table 4: Panel Unit Root Test at First Difference

Variable	Situation	Common Unit Root Test	Individual Unit Root Test
		LLC-ADF	IPS-ADF
gdpg	Individual intercept	-13.8520 0.0000***	-2.9043 0.0181**
uemp	Individual intercept	-7.5752 0.0000***	-2.5924 0.0048***
empagri	Individual intercept	-5.0801 0.0000***	45.6198 0.0009***
empindus	Individual intercept	-3.9603 0.0000***	-2.9643 0.0015***
empser	Individual intercept	-1.7132 0.0433**	-0.5167 0.3027

***, **shows 1% and 5% level of significance.

The above tests show that unit root null hypothesis has been rejected and there has been an existence of stationarity among variables which further allowed us to carry out co-integration tests in order to check co-integration among variables.

Table 5: Pedroni Co-integration test

Panel Cointegration Statistics (Within-Dimension)	GDPG, UEMP, EMPAGRI, EMPIND, EMPSER	Group Mean Panel Cointegration Statistics (Between-Dimension)	GDPG, UEMP, EMPAGRI, EMPIND, EMPSER
Panel v-statistics	1.3079 0.9046	Group ρ-statistics	2.8761 0.9980
Panel ρ-statistics	1.2079 0.8865	Group pp-statistics	-10.9302 0.0000***
Panel PP-statistics	-7.3550 0.0000***	Group ADF-statistics	-7.8841 0.0000***
Panel ADF-statistics	-5.2840 0.0000***		

***shows 1% level of significance.

Table 6: Kao Test

Kao's Residual Panel Co integration Test		
Null Hypothesis	t-statistic	probability
No Cointegration	-30.9696	0.0000***

***shows 1% level of significance.

Both the above tests run for co integration shows that there exists co-integration among variables and which allows running FMOLS for checking the long run relationship.

The representation of Vector Error Correction Model (VECM)

$$\Delta gdpgi,t = \propto 0 + \propto 1ecm + \propto 2unempi,t + \propto 3empagrii,t + \propto 4empindi,t + 5empseri,t + ei,t \quad (5)$$
$$= -39.0249 - 0.417ecm - 0.2742uempi,t - 0.3172empagrii,t - 0.3274empindi,t - 0.3304empseri,t + ei,t$$

The rate of adjustment in disequilibrium will be 41% per annum toward GDP and it will take $\frac{1}{0.4170} = 2.398 \approx 2\ years$ to correct the disequilibrium in the economy.

Table 7: Dependent Variable, GDP growth rate (annual%)

Panel Group	Whole Panel
INTERCEPT	-0.9494 0.5018
UEMP	-0.1448** 0.0104
EMPAGRI	0.0750*** 0.0004
EMPIND	0.2107*** 0.0000
EMPSER	0.0003 0.5087

***, **, * are 1%, 5% and 10% level of significance respectively.

The results in the above Table which have been calculated using FMOLS tell about the long run relationship's existence, which in this case does not apply as the variables are negative and insignificant. This means, if jobless growth exists in the eleven nations, even then the claim that rising unemployment levels correspond to rising GDP levels, does not stay for longer time period and this has been confirmed by the above VECM results which showed that there has been an existence of jobless growth in the world economies for the short run time period and to correct the disequilibrium in the economies will take about 2 years approximately which means that this issue can be actually resolved by the governments if

they make unemployment a priority and focus less towards technological progress and more on the means of production which could actually give rise to employment generation along with economic growth in the country.

This is again confirmed by the five year average analysis made in the beginning of methodology chapter, that the eleven nations which have been claimed by theoretical analysis and evidences to have faced jobless growth in the recent decade have either faced it in the first five years on average or the later five years, but not persistently throughout the ten years. This further justifies that the impact of jobless growth on the world economies can be severe, yet it can also be a minute or a short lived one if controlled by effective government policies, as it has been seen in many of the countries case profiles and as per those nations which are said to have been going through jobless recovery would also require governments attention towards the matter, which in the case of Indian economy can recently be seen, where the Indian government is trying to resolve the matter and to generate employment by taking into account sectoral contribution towards employment levels in the country. Whether, India succeeds in overcoming jobless growth or not and whether it lives for a short period of time in this country will all depend on how effectively and tactfully Indian government addresses the issue.

The results in all the above Tables have led to conclude that the impact of jobless growth on the world economies in the recent ten years have more of been short-term in nature than that of the long run. Of course, it did cause a lot of distress in these nations which might have led it to become one of the emerging economic trends globally by 2015 among world economists, yet its feasibility, as had been predicted by the world economic forum, depended more on how the governments take stands in resolving the matter whether they do it through improving education or fostering innovation, it all depends on how they address the problem and it does actually get resolved in a span of few years (2 years approx. as per VECM results) if given enough attention.

6. Conclusions and Recommendations

As observed and mentioned in the introduction there has been an occurrence and prominence of jobless growth in many parts of the world in the recent years and even during the 1990s as noted by the UNDP Human Development Report of 1994. In this phenomenon, there is a simultaneous increase in unemployment and real GDP. Recently, it has been revived and listed by the world economic forum in 2015 as the second major issue confronting world economies. The eleven countries discussed and selected in this study have been observed to have faced this phenomenon over a decade. This research has assessed different sectors in these eleven economies in order to determine whether these countries have experienced jobless growth and if so, what sectors are responsible for the existence of this phenomenon.

Region wise, nations which have been analyzed and their data indicated that jobless growth appeared in the second five years more than the first five years chosen. This indicates, that the phenomenon has been more of short lived, than that of a long term. It does persist for some years, but given the correct policies adopted by the governments, the problem can be overcome or at least reduced. Some of the countries including India, China, U.S, Tunisia, South Africa, Moldova and Turkey have experienced more jobless growth in the first five years that is from 2006-2010 as per the five year average. On the other hand, economies like Philippines, Sweden and Nigeria have experienced this phenomenon in the second five years on average that is from 2011-15.

Morocco has been the only country as per the five year average, which has experienced jobless growth throughout the ten year time period and this phenomenon has persisted here longer than in the others.

The empirical findings also supported the claim that the jobless growth does not persisted in the countries over the last decade especially for a long time, the confirmation of short run existence of this phenomenon through VECM has led to the estimation through the FMOLS technique in order to find the long run relationship between unemployment and GDP growth, however, the latter did not support the relationship as positive, rather confirmed that this phenomenon persisted over a long term time period, as the variables

have been negative and insignificant after the findings. Now, this tells more about the impact of jobless growth on the world economies, as the impact could be phenomenal, it could only last for some time and cause greater devastation in a country's labor market than to persist and cause a permanent damage. The world, in recent years did witness it as a growing problem which was of great concern, but given the solutions which are enlisted in the recommendations, some of the countries did overcome the problem already to a great extent before it has been listed as a global threat.

Based on the results, the study suggest the following recommendations:

- Effects of jobless growth are harmful both for nations and international economies, yet this phenomenon should be given serious attention at the state level in order to resolve the problem.
- The empirical results did show the absence of jobless growth in the recent years, but in a few countries it did persist throughout the decade and in future it can arise again, therefore, countries should try to foster education and innovation in order to increase the productivity of labor and to make the workers to generate greater yield.
- Governments are highly recommended to invest more in developing all the sectors equally and not just show bias towards the growth of a particular sector (China – industrialization). Instead those sectors should be focused and invested in which have greater potential to contribute towards employment creation.
- As per the world economic forum, jobless growth was one of the top threats to the global economies in 2015 however, the persistence of this issue remained uncertain since then. The economies should try to correct the labor market structures within their countries and to end the mismatch between jobs in order to avoid this problem in future.
- The surplus labor which has gets unemployed due to technological progress should be put to employment in infrastructural development, in order to bring improvements in it in developed as well as in emerging economies.
- The exogenous factors do harm the internal structures of the international economies; yet, their impact can be reduced, if the internal problems combining with them are being controlled.

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