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Determinants of Female Employment Status in Pakistan: A Case of Sahiwal District. A Primary Data Analysis

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ABSTRACT

The leading intention of this research work is to determine the various factors that determine female employment status (engagement of females in different employment activities). The data have been collected through field survey which consists of 402 females. We have used binominal and multinomial logistic regression model for the analysis. We have concluded that age, educational attainment, marital status and presence of children above 10 years have a positive impact on female employment. Presence of children below 10 years, assets, major disease and household size negatively and significantly related to female employment. Total working in family and no. of dependents positively affect female decision as an active earner while have a negative effect on self-employment and underemployment. The study suggests that huge investment should be made for the provision of educational facilities. To improve the health condition of workers health facilities should be provided to everyone.

Introduction

The human resources (Population) of a country are considered as a doubled faced phenomenon: one it is considered as an asset in the form of human capital and play an imperative role in the way of development of a country. On the other side, some economists have also said that high growth of population also becomes a problem for the developing countries including Pakistan. But it is necessary to analyze the qualitative aspect of population for better understanding of human capital. Female employment status as the name suggests that engagement of females in different employment activities are based on different circumstances. These females included in labor force refer to directly engage in paid employment. (Psacharopoulos and Tzannatos, july 1989). A qualitative aspect of female participation in economic activities is that females are less paid for the same job as men. This low value in labour supply simply means that the formal markets are absent rather than the individuals are absent looking for work, as agricultural economies with little wage employment mostly based on family product. (Killingsworth and Hackman, 1986)

Women paid work provide satisfaction to her that is done by the women outside the home, and can serve as a substitute to children, in the form of companionship, recreation,

inspiration, innovative activity and socio-economic rewards. These different activities compete with the rising number of kids for working female. (Blake 1965, Collver 1968, Kasarda 1971). A female being an earning member of the household, can develop her position and can get the better tendency to participate in the household decision making. It was also shown that, as the husband-wife participation increases in household decision making, it leads towards the lower fertility. (Chaudhury 1976, Eugene 1969, Mukherjee 1975, Ridley 1959, Weiler 1969). Each additional child in the family increases the opportunity cost of a working mother, as the income forgone while having stay at home to bringing up children. This indirect cost cast a negative impact on having an additional child. (Chaudhury 1983).

The growing participation of females in labor market in different employment status is certainly one of the prominent characteristic of the recent evolution of developing economies. However, the increase of female labor participation and employment opportunities are still significant policy objectives in most of the developing countries including Pakistan. Both the engagement of females in different employment status and contribution of females in different economic activities are influenced by supply and demand factors. Participation rate of woman in earning activities may be little because of two factors: firstly, that a woman has no desire to enter in the labour market. Secondly, that many jobs are not being obtainable or suitable for women. In the first case low involvement rates are explained by women's preferences and in the second case the participation rate are explained by employers' preferences.

Women play significant role in the development of any economy. A most visible trend of the 2nd half of the 20th century that there was an immense increase in females participation in earning activities in both, developed and developing economies. The structure of female labor force participation has attracted enormous attention in the world as well as in Pakistan over the past few decades.

The engagement of women in working activities in Pakistan is widespread and their contribution ranging from formal to the informal sector. Majority of their activities are performed in the informal sector. They are also performing a lot of invisible activities that are not being considered as economic activities. Woman having higher qualification would like to be a worker in formal sector with salaried work. Labor force participation of Pakistani female is 13.29 million out of total labor force of 57.24 million (Labor force survey (2010-2011) while the females constitute about half of the total population in Pakistan.

Pakistani women face considerable challenges in their usual lives. They are getting jobs outside their homes as well as they are forced to combine their familial responsibilities with their jobs. This research aimed at to find the various factors that determine the employment status of women in Pakistan. This research will also explain how females effect and affected by the socio- economic attitudes.

This study is organized into V sections. Introduction is presented in section I. section II describe the brief review of literature. In the III section we will discuss the data and methodology. Estimates of the present study are presented in IV section. Last section V ends with some concluding remarks.

Literature Review

The demographic and socio-economic determinants of female labor force participation have attracted considerable attention in recent years. The analysis of labor supply focused on the effect of increasing real wages on the amount of labor supplied by the workers to the labor market. The main concern of the policy makers is the efficient allocation of resources. Due to efficient allocation of resources the output will increase and process of development will start. Issue concerning the role of women's participation in labor market was introduced with significant contributions by Mincer (1962), Becker (1965), and Cain (1966).They developed the interests of many researchers towards this issue. Now many researchers analyzed the female labor supply decision by using different explanatory variables and by different econometric tools and techniques.

Economic theory provides a number of structural models of labor supply of women. It was generally assumed in these structural models that females can get utility from income, leisure time and by having children. All of them need time to spend on them. Leisure and children also cost money. However, a worker can earn income by only doing work for pay. The proper work environment can be provided to women by the accessibility to appropriate work and the opportunity to get such a job. The limitations faced by females are specified by the time and budget restrictions and also by discrimination in labor market. (Vlasblom and Schippers, 2004).

Mincer (1962) analyzed that woman choose the level of work time on the basis of permanent wage rate and income. He found that an increase in the level of income has a direct impact on Leisure time and negatively affect the time allocation between familial responsibilities and market activities. Wife's wage rate has a strong positive impact on female labor supply while the no. of children also cast a significant impact on female's lifetime labor supply. He also reported that high unemployment rate and general business cycle fluctuations discourage a female to participate in working activities. Backer (1965) investigated that females allocate the time capital between household responsibilities and market activities in order to maximize their utility function. This theory of allocation of time provides a basis for household production model. A woman's educational attainment has turned out to create benefits both at market and also at home. Market benefit consists of mainly increased in earning and market wage offered to a female. Non market (household) benefits consist of private and social benefits through increased efficiency in home based activities. Hafez and Ahmad (2002) identified that female in joint family, education level, and women with low monthly income are more likely to participate in working activities. Woman having less education, more no. of workers in a household, nuclear family, high monthly income and more financial assets, are less likely to participate in be in labor force. Caruana (2006) concluded that the higher the wage rate the higher the opportunity cost of non-market activities. So, wage rate is a significant determinant of woman's decision to choose non-market activities (housework & leisure) and income earning activities.

Faridi et al. (2009) showed that Educational attainment of female, the presence of educated husband, marital status, family setup and no. of children positively and significantly influence the decision the female to be in labor force. The presence of household assets, presence of children of early age group and spouse participation in earning activities reduce the chances that a woman take part in income earning activities. Ejaz (2007) explored that age, marital status, education, female belong to nuclear family, access to vehicle and female with fewer children were more likely to participate in working activities. Uraz et al. (2010) examined that the rural women are more likely to participate in labor force than urban women. Except primary level of education all educational level associated with a high probability of working of a female. As household wealth status and husband education level increase urban low skilled females decide not to work. Contreras and plaza (2010) investigated an inverse correlation with the presence of children below age 4 years with the female labor force participation. Education is positively related to FLFP. This study emphasis on potential role of educational and childcare policies as public policy instruments, that contributes toward greater female labor force participation. Chamlou et al. (2011) confirmed that each additional year spent on higher education increases the probability to participate in economic activities where the secondary and low level of education does not have any significant impact. Analysis showed that having younger children, disapproval of women working outside the home and being married were negatively associated with female labour force participation.

Avazalipour et al. (2012) investigated the role of woman in economic activities and employment as they are main issues in each economy after the industrial revolution. He was of the view that some activities of woman in formal sector (industry, services, and somewhat in agriculture sector) are measurable but the main activities in informal sector (house work, unpaid agriculture activities, training and education of the children, etc.) are not measurable. Researchers concluded that a woman play a major role in management of household expenditure than man. It was found that the academic education significantly and positively affect the job opportunities for female headed household. Afzal and Bibi (2012) have found that education, no. of dependents, family size, income of husband, positive attitude of husband towards woman's job, inflation rate and job satisfaction, positively affect the labor

force participation of married woman. Age, living with husband, relationship with spouse before marriage, satisfaction of housewives with their current life, restrictions from family regarding job and other earner in the family negatively affects the decision of labor force participation.

Females take part on an equal footing as bread winners in the family unit in which they are residing. Females are essential part of economic process in reality, both at home and market place, at informal and in formal sector and either belong to urban area or she belongs to a rural locality. Due to various contributing factors the need to provide the educational and health facilities to girls has been accelerated. (Jehan, 1998)

Data Sources and Methodology

This section deals with the data sources, profile of the study area and the methodology to be used by the researcher.

a) Profile of study area
In the present context, Not so many researchers conducted researches on the present topic that researcher choose to investigate the determinants of female employment status in Pakistan. District Sahiwal was chosen as a study area. According to Population Census Organization the total population of the district Sahiwal is about 1843194 persons in 1998 in which 51.73% are male and 48.27% are female. Population density is about 575 people per square km and 301990 (16.38%) in urban and 1541204 (83.62%) are living in rural areas. The annual growth rate of the population is 2.16%. The average household size was 6.9. Sahiwal District consists of 531 villages. Some studies on Sahiwal district, they just cover some specified aspects of the labor force, there studies are narrowly investigate the determinants of female employment status in the area of district Sahiwal.

b) Data sources
However, data was collected through field survey which consists of 402 female respondents. The sample consists of 220 economically active females and 182 non-working females. Economically active females are further categorized into 4 sub- sample with the relevance of their employment status. First sub-sample, salaried workers, consists of 87 female respondents. Second sub-sample, casual wage workers consist of 41 respondents. Third sub-sample, in which we include 63 women belonging to self-employed category of employment were interviewed. Last and the forth sub-sample, are of under employed workers in which information is recorded from 30 female. Collective information was recorded through a reasonably extensive questionnaire from the females and their household members. The questionnaires comprised on the questions on, age, education, occupation, no. of household members, marital status, no. of children, presence of assets, etc. This sample is used for the analysis of the determinants of female labor force participation in different employments status.

c) Methodology
The explained variable in this present study is binary or dichotomous. This variable may assume just two binary values. "1" if the worker is contributing in economic activities and "0" if she is not working. To analyse the binary response variable, we have used Logit model which appears in the from normal cumulative distribution function (Berndt, 1991; Gujarati, 1995; and Greene 1992). It assumes the following cumulative probability density function.

i) Binomial Logit model

$$L = \frac{1}{1 - p_i}$$

$$L = \frac{1}{1 + e^{-\beta_j x_i}}$$

Where,

"p" is the probability that a person work as an active participant in labor market. It has two binary values between (0, 1) because it is not directly observable. "1" if worker is participating and "0" otherwise. "e" is the exponential value.

ii) Multinominal Logit Mode

We can know that how a female decide to participate in different employment status by employing multinomial logit regression technique. To estimate this model researcher use the multinomial logit model and probability for this model is given below:

$$Prob\,(Y=1) = \frac{e^{\beta_1 x_i}}{1 + \sum_{k-1}^{j} e^{\beta_i^{|} x_i}}$$

$$Prob\,(Y=0) = \frac{1}{1 + \sum_{k-1}^{j} e^{\beta_i^{|} x_i}}$$

For j= 1, 2, 3 and 4

$$\beta_k = Coefficients$$
$$x_k = Independent\ Variables$$

d) Model specification

After the specification of the general model this section states the operational model. This model shows and explains the variables that are supported by the data. The operational is specified as below,

FLFPR= f ⌈AG1, AG2, AG4, AG5, EDP, EDM, EDS, EDI, EDB, EDH, MTS, CH1, CH2
　　　　　 AST, HHS, HHI, SPT, SED, TWR, NDP, FST, RSD, MDS, CRA, BNK ⌉

CWW= f ⌈AG1, AG2, AG4, AG5, EDP, EDM, EDS, EDI, EDB, EDH, MTS, CH1, CH2
　　　　　 AST, HHS, HHI, SPT, SED, TWR, NDP, FST, RSD, MDS, CRA, BNK ⌉

SRE= f ⌈AG1, AG2, AG4, AG5, EDP, EDM, EDS, EDI, EDB, EDH, MTS, CH1, CH2
　　　　　 AST, HHS, HHI, SPT, SED, TWR, NDP, FST, RSD, MDS, CRA, BNK ⌉

SLE= f ⌈AG1, AG2, AG4, AG5, EDP, EDM, EDS, EDI, EDB, EDH, MTS, CH1, CH2
　　　　　 AST, HHS, HHI, SPT, SED, TWR, NDP, FST, RSD, MDS, CRA, BNK ⌉

UDE= f ⌈AG1, AG2, AG4, AG5, EDP, EDM, EDS, EDI, EDB, EDH, MTS, CH1, CH2
　　　　　 AST, HHS, HHI, SPT, SED, TWR, NDP, FST, RSD, MDS, CRA, BNK ⌉

e) Variables description

Table no. 1: Variables description

Dependent Variable	expected effect
FLFP = 1 for female participation, 0 otherwise	
Explanatory Variables	
AG1= 1 if female is from age group (16-25), 0 otherwise	positive

AG2= 1 if female is from age group (26-35), 0 otherwise	positive
AG3 =1 if female is from age group (36-45), 0 otherwise	positive
AG4 =1 if female is from age group (46-55), 0 otherwise	positive
AG5=1 if female is from age group (56-65), 0 otherwise	negative
EDP=1 if female has up to primary level of education, 0 otherwise	positive
EDM =1 if female has up to middle level of education, 0 otherwise	positive
EDS=1 if female has up to metric level of education, 0 otherwise	positive
EDI= 1 if female has up to intermediate level of education	positive
EDB=1 if female has up to bachelors level of education, 0 otherwise	positive
EDM=1 if female has up to masters or more level of education,0 otherwise	positive
MTS=1 if female is married, 0 otherwise	positive
SED= 1 if female's spouse is educated, 0 otherwise	negative
CH1= no. of children below 10 years negative	
CH2= no. of children above 10 years	positive
AST= 1 if female has assets, 0 otherwise	negative
SPT= 1 if female's spouse is working, 0 otherwise	positive
HHS= size of the household	negative
FST=1 if female is living in joint family, 0 otherwise	positive
TWR = total working persons of a household	positive
NDP = no. of dependents in a household	positive
RSD= 1 if female is living in urban area, 0 otherwise	positive
CRA=1 if female has access to credit, 0 otherwise	negative
BNK= 1 if female is living in urban area, 0 otherwise	negative
RSD= 1 if female is living in urban area, 0 otherwise	positive

Results and discussion

a) Correlation analysis

Pair wise correlation coefficients of the data were presented in table 2. Pair wise correlation measure the degree of association among the repressors. It is stated that all the variables have some degree of association. It was also observed that no variable in correlation analysis is exactly related. The present analysis is free from the problem of multicollinearity.

b) Descriptive analysis

Descriptive analysis of the study is presented in table 3. Table 3 consists of 7 columns. Column 1 shows the explanatory variables. Mean of all the explanatory variables is described in column 2. Standard deviation of the regressors is described in column 3.Column 4 shows the skewness and the next column 5 explains the kurtosis of the explanatory variables. Jarque-bera and the probability is described in column 6 and 7 respectively.

Table no. 2: Correlation analysis

	AG1	AG2	AG3	AG4	AG5	EDP	EDM	EDS	EDI	EDB	EDH	MTS	CH1	CH2	HHS	TWR	NDP	SED	RSD	AST	MDS	SPT	FST	CRA	BNK
AG1	1.00																								
AG2	-0.46	1.00																							
AG3	-0.23	-0.33	1.00																						
AG4	-0.17	-0.24	-0.12	1.00																					
AG5	-0.11	-0.15	-0.07	-0.05	1.00																				
EDP	-0.10	0.01	0.01	0.14	-0.07	1.00																			
EDM	0.08	-0.05	-0.04	-0.02	0.09	-0.17	1.00																		
EDS	0.10	-0.05	-0.02	-0.02	-0.07	-0.16	-0.16	1.00																	
EDI	0.00	-0.03	0.03	-0.03	-0.08	-0.18	-0.18	-0.15	1.00																
EDB	0.01	0.05	-0.01	-0.04	-0.07	-0.16	-0.16	-0.16	-0.15	1.00															
EDH	-0.05	0.08	0.09	-0.08	0.00	-0.18	-0.18	-0.18	-0.19	-0.17	1.00														
MTS	-0.60	0.06	0.27	0.18	0.09	0.13	-0.07	-0.09	-0.02	0.04	-0.03	1.00													
CH1	-0.26	0.35	0.02	-0.16	-0.12	0.21	-0.03	-0.10	-0.06	0.02	-0.11	0.40	1.00												
CH2	-0.40	-0.36	0.35	0.40	0.25	0.11	0.00	-0.04	0.05	-0.07	-0.10	0.46	-0.14	1.00											
HHS	-0.04	-0.17	0.10	0.10	0.14	0.08	-0.08	-0.05	0.08	0.00	-0.07	0.07	0.19	0.43	1.00										
TWR	0.16	-0.14	-0.08	0.08	0.15	-0.12	0.10	-0.10	0.03	0.04	0.07	-0.17	-0.22	0.05	0.39	1.00									
NDP	-0.31	0.12	0.18	-0.12	0.05	0.09	-0.11	-0.08	0.02	0.09	-0.11	0.43	0.61	0.27	0.54	-0.10	1.00								
SED	-0.41	0.14	0.25	-0.04	-0.04	-0.06	-0.06	-0.06	-0.01	0.17	0.24	0.66	0.30	0.17	-0.07	-0.15	0.27	1.00							
RSD	-0.08	0.18	-0.07	-0.08	-0.02	0.04	-0.13	0.06	-0.03	-0.02	0.13	0.08	0.12	-0.11	-0.03	-0.06	0.05	0.15	1.00						
AST	0.20	0.08	-0.13	-0.09	0.01	0.00	-0.06	-0.06	-0.07	0.02	0.08	-0.36	0.00	-0.37	-0.15	-0.03	-0.24	-0.12	0.10	1.00					
MDS	0.14	-0.01	-0.06	-0.02	0.10	0.03	0.05	0.02	-0.07	-0.10	-0.09	-0.15	0.02	-0.15	0.00	-0.01	-0.06	-0.11	-0.01	0.18	1.00				
SPT	-0.47	0.06	0.22	0.11	0.07	0.08	-0.05	-0.08	-0.05	0.03	-0.06	0.75	0.35	0.35	-0.02	-0.11	0.34	0.56	0.04	-0.24	-0.14	1.00			
FST	0.17	-0.04	-0.10	-0.08	0.02	-0.11	-0.05	0.10	0.04	-0.03	0.14	-0.18	-0.01	-0.12	0.30	0.30	0.12	-0.11	-0.02	-0.02	0.01	-0.16	1.00		
CRA	0.06	-0.02	-0.05	0.05	0.03	-0.02	0.07	-0.06	0.07	-0.02	-0.05	-0.01	0.07	0.06	0.09	0.05	0.07	-0.03	0.00	-0.02	0.08	-0.03	0.00	1.00	
BNK	-0.06	0.02	0.06	0.03	-0.07	0.04	-0.13	0.05	0.05	-0.08	0.12	0.08	0.05	0.03	0.14	-0.01	0.09	0.13	0.60	-0.01	0.01	-0.01	-0.01	0.05	1.00

Table no. 3: Descriptive analyses of the data

	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	probability
EDP	0.1418	0.3493	2.0537	5.2178	364.9867	0.0000
EDM	0.1418	0.3493	2.0537	5.2178	364.9867	0.0000
EDS	0.1393	0.3467	2.0834	5.3404	382.5575	0.0000
EDI	0.1567	0.3640	1.8886	4.5668	280.0937	0.0000
EDB	0.1343	0.3414	2.1447	5.5996	421.3710	0.0000
EDH	0.1592	0.3663	1.8630	4.4706	268.7547	0.0000
AG1	0.2512	0.4343	1.1471	2.3157	95.9974	0.0000
AG2	0.3955	0.4896	0.4273	1.1826	67.5586	0.0000
AG3	0.2612	0.6464	8.8409	129.2008	272008.2000	0.0000
AG4	0.0821	0.2748	3.0449	10.2713	1506.7640	0.0000
AG5	0.0323	0.1771	5.2874	28.9565	13158.2200	0.0000
MTS	0.6891	0.4635	-0.8169	1.6673	74.4578	0.0000
CH1	0.7388	1.1707	1.6851	5.3099	279.6185	0.0000
CH2	1.3557	1.9147	1.3901	4.4725	165.7826	0.0000
HHS	5.5100	2.2043	0.8203	3.9610	60.5537	0.0000
TWR	2.2313	1.1227	1.8969	9.6357	978.6283	0.0000
NDP	1.7463	1.6427	0.6366	2.5293	30.8660	0.0000
SED	6.1567	5.9752	0.2288	1.5147	40.4596	0.0000
RSD	0.3706	0.4836	0.5356	1.2869	68.3789	0.0000
AST	0.6791	0.4674	-0.7673	1.5888	72.8071	0.0000
MDS	0.2985	0.4582	0.8806	1.7755	77.0743	0.0000
SPT	0.7239	0.5003	0.8095	14.6739	2326.5990	0.0000
FST	0.5572	0.4973	-0.2304	1.0531	67.0472	0.0000
CRA	0.9726	0.1633	-5.7943	34.5736	18947.3600	0.0000
BNK	0.5622	0.4967	-0.2507	1.0629	67.0662	0.0000

Source: Calculated by the author.

A) Estimate of Binominal logit Regression:

Binominal logit model predict the probability for woman to be in labour force or not. Considering female labour force participation we estimate a binominal logit model. Researcher has used two tailed test of significance or Z statistics for determining the acceptance or rejection of our null hypothesis.

Table no. 4: Binomial logistic regression analyses of the sample data

Independent Variable	Coefficients	z-Statistic
C	-2.524426	-1.450246
Educational attainment (non-formal education reference category)		
EDP	-0.397914	-0.450289
EDM	1.906605[**]	2.062054
EDS	2.737462[***]	2.833570

EDI	3.911647***	4.110180
EDB	4.289961***	4.305477
EDH	6.876929***	5.894307
Age groups [age 3 (36-45)] reference category		
AG1	1.318340	1.335006
AG2	0.612510	0.713440
AG4	1.194194	1.059791
AG5	-5.447751***	-3.290829
Other socio-economic variables		
MTS	4.504908***	4.270836
CH1	-0.391704	-1.287050
CH2	1.439821***	4.340549
HHS	-0.717353***	-3.661589
TWR	0.564953***	2.464560
NDP	0.508915**	1.889279
SED	-0.125096**	-1.855172
RSD	1.014916*	1.643630
AST	-3.368075***	-5.269018
MDS	-1.553605***	-3.393622
SPT	0.121737	0.220437
FST	3.424701***	5.249946
CRA	-0.692138	-0.508010
BNK	-1.662329***	-2.539529

Log likelihood	-83.18318	Probability (LR stat)	0.000000
LR statistic (24 df)	387.3266	McFadden R-squared	0.699533
Size of sample	402		

Source: estimation by author using E-views statistical software.
Note: Significant at 1% = ***, Significant at 5% = **, Significant at 10% = *

Female educational attainment is the most important factor that forces a female to participate in working activities. Investment in education is regarded as investment in human capital because it gives us a flow of returns in the afterward life (Backer, 1964). With increase in education people become more productive and skilled and become more equipped with knowledge. Educational attainment is positively and significantly related to economic outcome as being employed. Primary level of education is positively related to female employment decision but the results are not significant. The middle level of education also positively and significantly influences a female to participate in economic activities. Secondary level of education also cast a strong and positive impact on female labor force participation. The results are significant at 1 % level of significance. The coefficient of Intermediate level of education is positive and has a strong significant impact on female's decision to take part in earning activities.

Bachelors and higher level of education have a strong and significant impact on female labor force participation and results are significant at 1 %. Highly educated and the professionals have more attitude toward earning activities. Female's age is also an important determinant of female work participation. It is important to state that age plays a remarkable role in allocating a woman into working and non-working activities. We have introduced different categorical variables for age of female in order to see the impact of different age groups on FLFPR. As dummy variables we have selected five age groups (16-25, 26-35, 36-45, 46-55, and 56-65). Age group 36-45 has been selected as base category. As number of years of age increases, it motivates a female to be an active participant in labor market (Khandker, 1988). Females belonging to age groups (16-25), (26-35) and (46-55) years have more attitudes towards working activities. As age of female increases they become more skilled and professional. In the age group (46-55) females mostly have grown up their children and now they have more time for working activities. The coefficient of age group (56-65) is negative which shows that the females of this age group do not want to be employed. The reason may be that the female are not able to work efficiently due to bad health in this late age.

Marital status positively and significantly determines the decision of a female to participate in market activities. Married females have more responsibilities to fulfill and they also want to share the financial burden while the unmarried are not interested in learning activities. Females having more children of age less than 10 years are less likely to participate in economic activities because a female has to look after her child in this early age group. Results are significant at 1% level of significance. Presence of children of age above 10 years positively related to female employment because the children of this age group can better look after themselves. Results are significant at 1% level of significance. Presence of assets negatively and significantly related to female labor force participation. Presence of assets means that females are enjoying the basic needs as well as luxuries of life and they do not need to be an employee. Household size being a significant determinant, negatively related to the decision of a woman to take a part in earning activities. As size of the household increases females are less likely to be an active participant of the labor market. The reason is that with large no. of household females have to fulfill a large no. of responsibilities and they have no time for earning activities. Total working members of the household are positively and significantly related to earning activities because the presence of more workers in household motivates a woman to take a part in working activities. Presence of dependents pushes a female toward working activities because female have to fulfill the basic financial needs of the family. The coefficient of family setup is positive and shows that more of the females residing in joint family are doing jobs as compare to nuclear families. In joint families there are more members left in household to fulfill the other household responsibilities. The estimates of the residential areas shows that females living in urban areas are more likely to be employed as compare to females reside in rural areas. This is because in urban areas females have more opportunities and more facilities that they are enjoying and the whole atmosphere increases the chances to get a job for a female. Presence of major disease restricts a female to have a job. This variable is a hurdle in the way of getting job and to continue job efficiently. Females having working spouse are more likely to participate in earning activities. Spouse education negatively and significantly influence the woman's participation in active labor force. The reason may be that the educated spouse already has greater opportunities to work or have enough earnings to fulfill necessities of life. So, a female has no need to do a paid work. Access to credit negatively and insignificantly affects FLFPR. The presence of bank in residential area negatively related to female labor force participation.

a) Estimate of multinomial logit model

Binomial logit estimates of the determinants of female labor force participation, probability of being active female worker of age (15-65). This section deals with the analysis of determinants of different female's employment status as salaried worker, self-employed, under employed and casually employed. We have selected salaried work as a reference category. Table: 5 shows the multinational logit estimates of the determinants of casual wage worker. Table: 5 is organized into three columns. First column describes the nature of explanatory variable. Other two columns describe the estimated parameters and the corresponding Z- statistics respectively.

Table no. 5: A multinational logit estimate of determinants of female's employment status of being casual-employed-Economically active females.

Independent Variable	Coefficients	z-Statistic
C	1.437	0.46
Educational attainment (non-formal education reference category)		
EDP	23	0.00
EDM	3.743***	2.36
EDS	-1.478	-0.90
EDI	-1.226	-0.79
EDB	-3.715**	-1.84
EDH	-24	-0.01
Age groups [age 3 (36-45)] reference category		
AG1	3.986***	2.41
AG2	3.365	3.03
AG4	-2.217	-1.60

AG5	5.945	0.68
Other socio-economic variables		
MTS	-1.141	-0.49
CH1	-0.2928	-0.57
CH2	0.9859***	2.48
HHS	0.3095	0.78
TWR	-0.4640	-1.00
NDP	-0.3224	-0.82
SED	-0.17799	-1.80
RSD	-1.689	-1.68
AST	2.0002**	2.18
MDS	1.954	1.90
SPT	0.195	0.07
FST	-1.7052**	-1.76
CRA	-3.782**	-2.01
BNK	2.351***	2.31

Log-likelihood = -147.127   Goodness-of-Fit Tests: Method   Chi-Square   DF   P
DF = 72, P-Value = 0.000   Pearson   730.777   576
0.000   Test that all slopes are zero: G = 284.046,   Deviance   291.482
576   1.000

Source: Results are based on Author's calculations using Mini-tab statistical software.
Note: Significant at 1% = ***, Significant at 5% = **, Significant at 10% = *

The constant term in multinomial estimates shows the insignificant impact. Here it's mean that the excluded variables of the model are of no importance. Female as being casually employed worker is influenced by the level of education. Education turns out to be a significant factor in determining casual employment of a female.

The coefficient of primary level of education is positive with casual employment but the impact is not significant. Middle level of education is positively related to casual employment because less educated females are more likely to participate in working activities as being a casual wage earner. And the results are significant at 1% level of significance. As, education level increases to secondary and intermediate level, it also restricts a female to be a casual wage earner. The coefficient of bachelor's level of education is negative and shows an inverse relation with casual employment. And the results are significant at 5%. Higher level of education also reduces the probability of being casually employed. The reason is that females want to be salaried workers or want to have a job on permanent basis as they are highly qualified. Females with low level of education do not have enough opportunities to find a job on permanent and salaried basis. So less level of education allocate a female into casual employed category. Females having master degree do not want to be casually employed. Investment in human capital is very important factor for allocating a woman into casual employment. Females belonging to age group (16-25) and (26-35) are more likely to participate in earning activities as a casual wage earner. The reason may be that females do not yet complete their education or because of early marriages and presence of children in this low age group a female cannot give proper time to working activities so, they want to work on casual basis. Age groups (46-55) of a female worker also have a negative and insignificant impact on casual employment of a female worker. Age group (56-65) positively related to female casual employment.

Marital status of worker is negatively and insignificantly influences the casual employment status of a female. The reason is that married females want to have a job on permanent basis and do not want to be casually employed. Numbers of children below 10 years negatively and insignificantly related to casual wage worker. Presence of children above 10 years positively and significantly related to casual employment. As one of the number of children above 10 years increase the probability of being casual employed increases. The reason is that females having more children they need more finance to feed them and for bringing up them in a better way. And she prefers to work than to remain free at home. Household size positively related to casual employment. Females with greater number of household are more likely to be a casual employed because other household tasks can be made fulfilled by the other

household members. Family setup is negatively and significantly related to casual employment. Females that are living in joint families do not want to have a job on casual basis as compared to nuclear families. Number of dependents also negatively related to casual employment status. With more number of dependents females gives more time to household activities and prefer to stay at home.

Region of residence also negatively affect the female as being casual employed. Females living in rural areas are more likely to be casual employed. Our results shows that in the presence of assets a female do not want to have a full time work. Because she is already enjoying the facilities of life and have no more financial needs. Major diseases positively related to female employment status. Health of workers determines their employment. In this analysis major disease turns out to be a significant variable that determine casual employment. The reason may be that the female involved in major disease do not work efficiently o full time basis. Total working in a family negatively related to casual employment. As no. of worker at home increases a female is less likely to be a casual wage worker. Working spouse is positively related to female casual employment. And educated spouse negatively related to female casual employment. Access to credit negatively and significantly related to female casual employment. And presence of bank in residential area positively and significantly related to female employment as being a casual wage worker.

Table no. 6: Multinational logit estimate of determinants of female's employment status of being self-employed-Economically active females

Independent Variable	Coefficients	z-Statistic
C	-1.441	-0.60
Educational attainment (non-formal education reference category)		
EDP	22	0.00
EDM	2.235	1.24
EDS	2.520*	1.62
EDI	3.057**	2.00
EDB	1.097	0.72
EDH	-0.684	-0.43
Age groups [age 3 (36-45)] reference category		
AG1	3.360***	3.33
AG2	1.5745**	2.09
AG4	-1.3423	-1.56
AG5	-17	-0.00
Other socio-economic variables		
MTS	-1.091	-0.79
CH1	-0.2981	-0.90
CH2	0.3601	1.27
HHS	-0.0614	-0.27
TWR	-0.3242	-1.03
NDP	0.2547	1.13
SED	-0.00821	-0.14
RSD	-0.9109	-1.43
AST	0.6889	1.35
MDS	0.3805	0.58
SPT	0.142	0.09
FST	-1.4085***	-2.39
CRA	0.479	0.36
BNK	0.5532	0.87

Log-likelihood = -147.127 Goodness-of-Fit Tests: Method Chi-Square DF P
DF = 72, P-Value = 0.000   Pearson 730.777 576
0.000 Test that all slopes are zero: G = 284.046,   Deviance 291.482
576 1.000

Source: Results are based on Author's calculations using Mini-tab statistical software.
Note: Significant at 1% = ***, Significant at 5% = **, Significant at 10% = *

Educational attainment plays a significant role in determining female employment as being self-employed. Level of education positively and significantly related to self-employment. Probability of being self-employed increases as there is one unit increase in education. There is positive relationship between education and self-employment. Self-employment increases with increase in education, because more educated persons can run their own business more efficiency and actively. Relationship of self-employment with primary and middle level of education is positive. Because less educated females are more likely to participate in working activities at home like stitching and embroidery etc. Secondary, intermediate and bachelors' level of education also positively related to female employment as being self-employed. Our results clearly show that as education level increases it enhances the probability of being self-employed. Higher level of education negatively related to self-employment. The reason may be that highly educated females want to be salaried employed instead of self-employed. Age of female also turn out to be very significant determinant of self-employment. Females belonging to age group (16-25) and (26-35) are more likely to participate in earning activities as a self-employed because with less age they did not complete their education that they get a salaried job. The coefficients of age group (46-55) and (56-65) shows a negative and insignificant impact on self-employment of a female worker. Reason for this negative sign of slop coefficient is that, they are not so much productive and active in their latter age groups and are unable to run a business on self-basis. Marital status is negatively and insignificantly related with self-employment. Married women are less likely to participate in self-employment. Number of children below 10 years restricts a female to be self-employed because in presence of children it is difficult for a female to run her own business. Presence of children above 10 years allows a female to be self-employed. Household size is also a main determinant of female employment status, as self-employed. Household size negatively related to self-employment. Females with high number of household members are less likely to self-employed because a large numbers of home based activities and responsibilities are to be fulfilled by the females while living at home. Family setup is negatively and significantly related to self-employment status. Females that are living in joint families are less likely to be a self-employed as compared to nuclear families. In joints families' female has to fulfill all the responsibilities at home. Number of dependents also positively related to self-employment status. With more number of dependents females gives more time to household activities and prefer to perform a paid work at home. Region of residence negatively affect the females being self-employed, urban women are less likely to participate in active workforce as self-employed because they prefer to work at permanent basis. Major diseases positively related to female employment status. In this analysis major disease turns out to be an insignificant variable that determine self-employment because healthy females want to be salaried worker. Total working in a family negatively related to self-employment. As no. of worker at home increases a female do not need to be self-employed. Working spouse is positively related to female's self-employment and educated spouse negatively related to female self-employment. Access to credit and presence of bank in residential area positively and insignificantly related to female employment as a self-employed because as she can get credit easily she has more chances to start her own business.

Table no. 6: Multinational logit estimates of determinants of female's employment status of being under-employed-Economically active females

Independent Variable	Coefficients	z-Statistic
C	-4.836	-1.41
Educational attainment (non-formal education reference category)		
EDP	22	0.00
EDM	2.954[**]	1.83
EDS	0.589	0.39
EDI	-2.631	-1.45
EDB	-3.108[**]	-1.76
EDH	-5.499[**]	-2.21
Age groups [age 3 (36-45)] reference category		
AG1	4.431[***]	3.22
AG2	2.734[***]	2.59
AG4	-1.315	-0.99

AG5	5.266	0.60
Other socio-economic variables		
MTS	-2.814	-1.34
CH1	-0.9461**	-1.90
CH2	0.2960	0.87
HHS	0.8542***	2.49
TWR	-0.6532	-1.44
NDP	-0.0855	-0.24
SED	-0.09456	-1.05
RSD	-1.5289	-1.56
AST	0.1258	0.14
MDS	2.1726***	2.37
SPT	5.333**	2.03
FST	-1.9268**	-2.06
CRA	-1.512	-0.88
BNK	2.1521**	2.21

Log-likelihood = -147.127   Goodness-of-Fit Tests: Method   Chi-Square   DF   P
DF = 72, P-Value = 0.000   Pearson   730.777   576
0.000   Test that all slopes are zero: G = 284.046,   Deviance   291.482
576   1.000

Source: Results are based on Author's calculations using Mini-tab statistical software.
Note: Significant at 1% = ***, Significant at 5% = **, Significant at 10% = *

The results of estimates of the multinomial logit model of the under employment are described in table: 7. primary and middle level of education is positively related to under employment the reason may be that less educated females cannot utilize their potential efficiently. The reason behind this is that if worker is less educated they are not able to engage in highly profile job. They have less probability and opportunities to be a salaried employee. Secondary, intermediate, bachelors and higher level of education negatively related to female employment as underemployed. More educated females not work as an underemployed worker. Educations as a determinant of female underemployment negatively and significantly determine female underemployment. Attainment of an incremental year of education negatively related to respondents' underemployment and underemployment steadily falls by attaining an incremental year of education. As educational status of a female increase the probability of being an underemployed decreases significantly. With more education and professional skills woman want to be a full time worker. so as a woman attain higher level of education the probability of being an under employed worker falls. Age of the respondents negatively related to female underemployment as compared with salaried employment. Age (16-25), (26-35) and (56-65) positively related to female under employment. Women would be less likely to be underemployed belonging to age group (46-55) because a female is much efficient and productive and have more attitude toward paid work as salaried employed. As a woman grown up she become more experienced and more professional and she would not been an under employed person having more skills and professionalism. With increase in age she would be able to work more hours a day because married woman having more no. of infants she has not enough time to give to working activities and with increase in age as child grown up she will be able to be a full time job holder.

Marital status is negatively related with underemployment. Married woman are less likely to be engage in paid employment as an underemployed wage earner. Number of children below 10 years restricts a female to be under-employed. They inversely affect the female employment status as an underemployed employee. Large no. of children has need of more time for caring of them and for seeing other household accomplishments. Presence of children above 10 years insignificantly allows a female to be under-employed. Spouse participation also positively related to females under-employment. Spouse educations also negatively influence the female employment status as an underemployed worker. Females having highly educated and salaried spouse are less likely to be a part of underemployed work force. Presences of assets encourages a female to be a part of active workforce as an under employed, Just in the presence of assets a female do not work in her full potential.

Household size is positively related to female employment status as an underemployed participant of the workforce. Presence of more member in the household means that a female have to see other household activities and duties and due to this she cannot do her paid work efficiently. Joint family and urban residence also influence female labor force participation in comparison with rural residence and nuclear family setup. Presence of bank in residential area positively and significantly related to female employment as an under employed Access to credit negatively and significantly related to female under employment, with access to credit she can do her work efficiently.

Conclusions and policy recommendations

We have concluded that age, educational attainment has a positive impact on female employment as a paid worker. Each additional year of schooling increases the probability of being economically active participant of labor force. Education also increases the chances to be a self-employed and decrease underemployment. Marital status and presence of children above 10 years also positively influence female labour force participation. Presence of children below 10 years restricts FLFP. Presence of assets and household size negatively and significantly related to female employment while inverse is true for other employment status. As size of household increases people are less likely to participate in active workforce in all employment status except self-employment. Total working in family and no. of dependents positively affect female decision as an active earner while it has a negative effect on self-employment and underemployment. Presence of major decrease restricts a female to be an employed. Spouse participation in economic activities encourages female employment into any employment status. Joint family, urban residence positively related to female employment, while it has inverse relation with other employment status, as compared to nuclear family and rural residence. Females having educated spouse are less likely to be in active workforce because they do not need to do a job to share the financial burden.

We have also concluded that at least a female have education more than primary level to enter in the labor force. So, the huge investment should be made for the provision of educational facilities. For both males and females technical and vocational training institute should be established. Attainment of professional degrees should be made possible especially for rural areas. To adjust the sphere labor more labor intensive industries should be installed. To improve the health condition of workers hospital should be built at each union council level.

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Innovation, Job Creation and Economic Growth in the U.S.*

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ARTICLE INFO

ABSTRACT

Unemployment is caused by workers moving to new plants utilizing new technology. ("Creative destruction effect.") (Aghion and Howitt, 1998)

Considering the goodness of fit and estimation results, we can see that, in the past, the evidence is strongly in favor of the capitalization effect of growth on unemployment in the U.S. economy. However, the increase of the estimated random coefficient in the early 2000s shows also the offset effect of creative destruction. In addition, we can see the decreasing trends of those capitalization effects.

Finally, we share a common view with Blanchard (2006) that the relatively high unemployment rate in 2002~2003 comes from investors' skepticism about the economy (and productivity growth), which cannot lead to a high rate of investment (little "capitalization effect").

Introduction[1]

We can ask whether technological progress through R & D creates or destroys jobs in the U.S. On one hand, it is said that productivity growth stimulates demand and the creation of jobs because firms want to capitalize on more rapidly growing productivity. On the other hand, there is the view that technological progress destroys jobs. (Aghion and Howitt, 1998)
In Principles, Ricardo touched on the negative effect of innovation on unemployment. In this paper, we show how modern economic tools can be used to analyze under what conditions the encouragement of more innovation will reduce unemployment.

"…I have been of opinion that such an application of machinery to any branch of production as should have the effect of saving labor was a general good,………" (Ricardo, p. 269)

In this paper, we discuss the most recent three decades of data on the input for knowledge, R & D, and unemployment. In particular, we explore the hypothesis that technological change represented by R & D investment increased the unemployment rate. We argue that technological change would plausibly lead to a decrease in the unemployment rate in the U.S.

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1 The author thanks participants at the WEAI Conference.

Davis and Haltiwanger (1992) show those periods of high unemployment tend to be periods of high job turnover. Since industrial innovations raise the job destruction rate through skill obsolescence, there will be a positive relationship between growth and unemployment.

In general, unemployment is caused by workers moving to new plants utilizing new technology. This is called the "creative destruction effect." However, technical advances can take a form that can be utilized by existing plants. Then investors will be encouraged to create new jobs to benefit from future technical advances. This is called the "capitalization effect" (Aghion and Howitt, 1998).

Nishida M., A. Petrin and S. Polance (2013) estimate the decomposition of labor productivity in 25countries due to input reallocation. They conclude that weak gains from measured reallocation and strong gains from within-plant reallocation[2].

Schimer (2012) proposes that employment exit probability is irrelevant to macroeconomic labor market model. He uses time-series data to estimate job finding and separation rate. His argument may contradict to endogenous growth model, but we examine this issue in future research.

The past 30 years are implicative since we saw a productivity slowdown common to industrialized countries with continuing structural economic change. In the meantime, the U.S. and other developed countries are often said to have so-called "jobless growth." In spite of economic growth, the rate of employment does not rise accordingly. "Jobless growth" has been an important concern in the U.S. in recent years.

Table 1: The rates of economic growth (GROWTH) and unemployment (UNEMP) in the U.S. (%)(OECD)

ENTRY	2000	2001	2002	2003	2004	2005	2006
UNEMP	4.0	4.7	5.8	6.0	5.5	5.1	4.6
GROWTH	3.69	0.76	1.61	2.52	3.65	3.08	2.87

The question of whether faster technological progress speeds up the destruction of jobs in the US will be the main focus of the present paper. We review new models of intentional industrial innovation. We deal with innovation that enhances a plant unit's productivity (Aghion and Howitt, 1998).

Economic Growth Model and Data

2.1 Labor markets

Labor markets are characterized by high rates of turnover. In the U.S. manufacturing sector, more than 3% of workers leave their jobs in a typical month. In addition, there is high turnover of jobs themselves. In the U.S. manufacturing sector, at least 10% of existing jobs disappear each year.[3] These data suggest that a large portion of unemployment is the result of the dynamics of the economy. Constructing a friction model for the labor market requires moving a market with matching process. When workers and jobs are heterogeneous, the labor market has no characteristics of a Walrasian market. Workers and firms engage in a process of trying to match up specific needs. Since this process has some friction, it results in unemployment[4] (Romer, 2006).

Much literature has tried to characterize how equilibrium unemployment reacts to the rate of technological change. Two approaches are divided on that view (Hornstein et al., 2005).

The first approach (Aghion and Howitt, 1998) argues that new equipment enters the economy through the creation of new matches ("creative destruction effect").[5]

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2 They use variants of the Baily et al. (Brookings Papers Econ Act Microecon 1:187–267, 1992) (BHC) decompositions

3 Davis and Haltiwanger, 1992.

4 In addition, it may have implications for how employment respond to technological progress.

5 Generally, "creative destruction" is used to point the following fact. The successful monopoly innovator destroys the profits(rents) of the previous generation by reducing it obsolete.

The second approach (Mortensen and Pissarides, 1998) proposes the alternative view that the new technologies enter into firms through the process of upgrading plant units. For small values of the upgrading cost, unemployment falls with growth ("capitalization effect").

Hornstein, Krusell and Violante (2003) try to resolve the issue quantitatively. When they parameterize the model to match some features of the U.S. economy, they find that (in the vintage-matching model) the link between capital-embodied growth and unemployment does not strongly depend on the form through which new technology enters into capital goods. The intuition for this (equivalence) result is that upgrading can be more effective if it is costly for vacant firms to find and hire workers.

We will now turn to the analysis of how technological progress affects frictional unemployment in the matching model in later section.

2.2 The 1990s in the U.S.[6]

In the short term, an increase in the rate of technological progress can lead either to a decrease or an increase in the unemployment rate. The last decade in the U.S. provides an example of each type. (Blanchard, 2006)

During the latter half of the 1990s, the increase in productivity growth came with a large increase in output growth and a steady decrease in unemployment. Productivity growth was unusually high during the second half of the 1990s (1996-2000). The increase in growth rates is related to an increase in the use of information technology (IT).[7] The result of output growth in excess of productivity growth was a steady decrease in unemployment.[8]

During the late 1990s, output growth was high, and firms had optimism. For firms, the New Economy appeared to justify high rates of investment. If technological advances took a form that could be utilized by existing plants, investors would be encouraged to create new plants and vacancies ("capitalization effect").

In 2001, the U.S. economy went into a recession. However, output growth was positive in 2002 and 2003. Surprisingly, unemployment was still high. The recovery was the jobless growth (recovery). Labor productivity growth (averaging 3.7%, Blanchard 2006) and total factor productivity growth (over 2%, OECD) were high. Therefore, the plants seemed to have a short lifetime, and hence, the proportion of workers released was high ("direct creative destruction").[9]

Unemployment and Prtoductivity
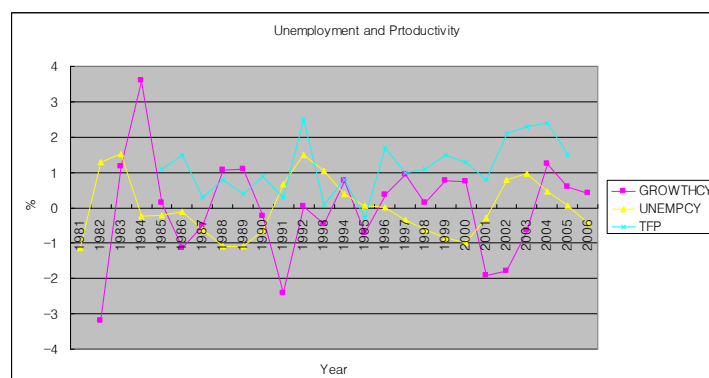
6 Blanchard, 2006.

7 By the late 1990s, this contribution of capital accumulation had risen to 0.8% points from 2.5% output growth. In addition, they say that the half of the rise in total factor productivity(TFP) growth is due to the information technology.(Bureau of Labor Statistics, 2000)

8 We can consider the following elementary identity.(Blanchard et al. 1996, Blanchard 2006)

Employment= (output) / (productivity).

9 Chang and Hejkal(2004) see "jobless growth" as increasing of lags for cyclical lagging of employment.

Figure 2.1: Cyclical Factors in GDP and Unemployment Rate in the U.S. (Source: OECD)[10]
We extracted the cyclical factors for growth and unemployment through this HP filter (Fig. 2.1). Overall, an increase in the GDP (GROWTHCY) is associated with a decrease in the unemployment rate (UNEMPCY). We can also find that during the late 1990s, (denoted * in Table 2.1 output growth was high. The increase in productivity growth came with a steady decrease in unemployment.

Later, in 2001, the U.S. economy went into recession, but output growth was positive in 2002 and 2003 (denoted P in Table 2.1). However, unemployment was high then.

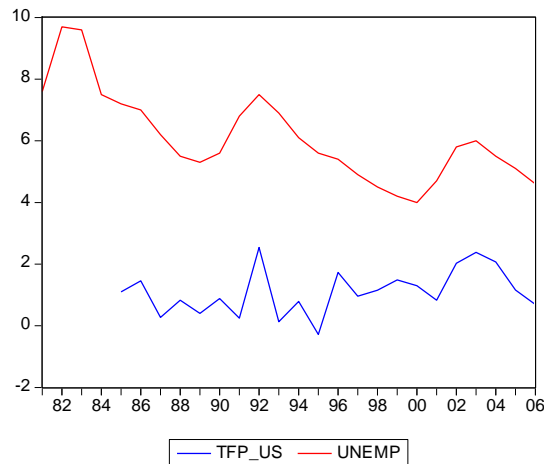**Figure 2.2:** The Growth Rates of TFP and Unemployment Rate in the U.S. (Source: OECD)[11]

Table 2.1: The Growth Rates of TFP, GDP and Unemployment Rate in the U.S. (Source: OECD)

	TFP growth (%)	Unemployment rate (%)	GDP growth
1996	1.73	5.4	3.75%
*1997	0.96	4.9	4.55%
*1998	1.15	4.5	4.22%
*1999	1.49	4.2	4.49%
2000	1.3	4	3.69%
2001	0.83	4.7	0.76%
2002	2.03	5.8	1.61%
2003	2.38	6	2.52%
P2004	2.07	5.5	3.65%
P2005	1.16	5.1	3.08%
2006	0.69	4.6	2.87%

2.3 Growth and unemployment: Schumpeterian Growth Model (Aghion and Howitt; 1994, 1998)[12]

The economy comprises (infinitely lived) workers.[13] Each worker is endowed with one unit of labor services and a stock of X units of human capital. All individuals maximize the linear preferences:

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10 TFP denotes the growth rate of productivity.

11 The upper curve denotes the change in the rate of unemployment.

12 We can also consider search and matching model (Pissarides 1985; Romer 2006), but omit in this study.

$U(c) = E_0 \int c_t e^{-rt} dt$

    r: the subjective rate of time preference (= interest rate)

    c_t: the current consumption flow at time t.

Each plant unit embodying a technology[14] consists of a worker and a variable amount of human capital x. A worker is well matched and the plant-specific.

The production function for output is given by

$Y = A_t F(x-a)$ (1)

a :(> 0) the minimum human capital input representing overhead costs.

$A_t = A_0 e^{gt}$ denotes the plant unit's productivity. A_t will eventually become unable to cover the unit's overhead cost (in human capital). At this point, the units force their workers into unemployment. We consider what will be the finite lifetime S of a production unit. As usual in endogenous growth model, A is assumed to be a function of R&D investment.(R&D-based model)

We can calculate the profit from the plant.

Max { $A_t F(x-a) - p x$ }

Because the price of human capital p grows at the steady-state rate g, the unit will produce less and less. In equilibrium, there is an inverse relationship between the growth rate and the duration of a plant S. We can explain unemployment and vacancies if we introduce some type of friction into the labor market. The key to unemployment and vacancies is the process of workers searching for jobs and businesses searching for workers.

During the process of search, some job seekers are unemployed, and some positions remain vacant. The rate of job finding depends on such things as the income available while unemployed and the level and shape of the distribution of wage offers.

We assume a time-consuming matching process with a finite rate of matching m(u+E, v).[15] The total matching rate m is an increasing function of v. Unemployment may be the result of matching workers and jobs in a changing and growing economy. Finally, the flows into unemployment also plays role in job matching process, so matching rate is also function of employment.

In steady-state, the equilibrium rate of unemployment is determined as follows. First, the flow of workers into unemployment is the rate of production units' obsolescence (= 1/S) × the number of units currently producing, (1-u). Second, the flow of workers out of unemployment is the rate at which they are matched with plants (job finding rate): p(v) = m(u+E, v).[16]

An adverse shock to a firm's production function could lead to a discharge.[17] The change in unemployment and vacancies involves the interplay between job finding and job separation.

In equilibrium, (1-u)1/S = p(v), or equivalently, using the above expression for lifetime of plants S,

u=1-p(v)S

---

13 We index them from 0 to 1.

14 A technology of vintage t.

15 The numbers of employed and unemployed workers are denoted E and u, and the numbers of vacant jobs are denoted v. 1(=u+E) is (normalized) whole labor force involved in the matching.

16 Since we can normalize the labor force to 1, we can represent it as m(1, v)/1.

17 The job separation rate would be higher in industries that are subject to frequent shocks to technology.

This unemployment equation implies a direct creative destruction effect of growth on unemployment.[18] Meanwhile, the capitalization effect works in the direction of increasing the level of vacancies u and decreasing unemployment. In the next section, we estimate this equation using a state space model to see which effect dominates the other in the U.S. economy. We focus on the determinants of natural rate of unemployment. It is determined by job-finding rate and job-separation rate.

Let (1/S) be the job separation rate and p(v) the job finding rate. The change in the number employed during a period, ΔL, is given by

$$\Delta L = p(v) \times 1 - (1/S)(1-u) \qquad (2)$$

Note that the first term, p(v), is the number of unemployed who find jobs during a period, and the second term, (1/S)(1-u), is the number of employed who lose jobs. This equation says that the change in employment equals job findings less job separations.[19]

There also is a negative effect, namely a capitalization effect, whereby an increase in growth raises the rate of returns of a plant, thereby encouraging more job creation.

If we introduce the possibility that plants can upgrade their technology, the capitalization effects appear. Before becoming obsolete, production units can (costless) adapt to the newest technology. This capitalization effect increases the equilibrium level of vacancies and hence decreases unemployment. The increase in growth acts positively on the equilibrium rate of vacancy creation. It reduces the net discount rate at which production units capitalize the expected income from future upgrades.

In normal times, there are substantial flows into and out of unemployment. One good way to measure normal conditions is to take averages over specific long periods. For the period of 1994 through 1999 in the U.S., average conditions were as follows (Blanchard, 2006):

Job-separation rate, (1/S): 1.5% per month
Job-finding rate, p(u): 1.8% per month

2.4 The Second Generation Endogenous Growth Models[20]

2.4.1 Implication of the model

The Schumpeterian second generation endogenous theory of growth [Young (1998), Aghion-Howitt (1998)] provides a way of deleting the scale effect.[21] However, in this paper, we retain the characteristic of "scale effect" in this Schumpeterian model.[22]

   A single final-good (or aggregate consumption) sector produces a homogeneous output good C, according to the CES technology

---

[18] Holding vacancies constant, economic growth by R & D activities raises the job separation rate (1/S), thus increasing unemployment.

19 In addition to the direct effect that works through the job-destruction rate, there is an indirect effect working through the job-creation rate p(v). This indirect creative destruction effect reinforces the direct creative destruction effect by reducing the job-creation rate p(v).

20 This classification and summary of growth models mainly come from Jones(1999).

21 "Scale effect" means that the same R & D effort can lead to sustained growth of productivity.

22 Young (1998) argues that as population increases, the range of goods over which R & D is spread also grows.

We consider the relationships between labor market variables. We introduce hiring costs ($=cA_t$) and assume that the wage being sought is proportional to the technology ($w_t=aA_t$).[23] There is also the quit rate, b, of workers.

In this Schumpeterian model, there are various exogenous variables: quit rate, the cost of hiring and parameter of real wage level, etc. Also, there are endogenous variables: job separation, job creation and (natural) rate of unemployment.(For details, see <Appendix>)

2.4.2 The Hypothesis Being Tested

From these analyses, we can choose some hypotheses for empirical testing research (Aghion and Howitt, 1988):

  1) Growth Rate

The growth rate of output g_A is an increasing function of R & D fertility λ and a decreasing function of the level of real wages w, the hiring cost c, the (real) interest rate and the quit rate of workers b.

  2) Job Separation Rate

The growth rate of output g_A affects the job separation rate positively.

  3) Unemployment Rate

The employment level (or the unemployment rate) is a decreasing (increasing) function of the growth rate of output g_A, the hiring cost c, and the quit rate of workers b.

  4) Job Creation

The rate of job creation is a decreasing function of the growth rate of output g_A, the hiring cost c, and the quit rate of workers b.

Ⅲ. Economic Growth and Labor Market: Empirical Analysis

3.1 Data and empirical analysis: Growth and unemployment

The data set consists of macro-economic variables, such as rate of unemployment, GDP, wage, etc., observed for 26 years (1981-2006) in the U.S. They were obtained from OECD and IFS. Multifactor productivity comes from BLS. In equation (1), it is denoted as A (t). Its baseline index is 2000=100.0. All employees for whom data was collected were aged for 16 years and over. White and Reiter (2011) construct plant-level Solow residuals. They estimate every contribution from U.S. manufacturing plant to industrial demand.

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[23] Hiring cost may include fixed cost associated with maintaining a job equal to job posting cost.

Some monthly data for labor market variables, like the job separation rate used in section 3.4, were obtained from BLS.[24] We use a proxy variable for the growth index of industrial production for the period of March 2003 to October 2007. The job hire (job creation) rate comes from BLS, and is based on total nonfarm workers. Employment level is collected for 16 years and over.[25]

The total separation rate is based on total nonfarm workers.

In this section, we mainly test the predictions for growth and unemployment set forth by Aghion and Howitt (1998).

3.1.1 Natural Rate of Unemployment: HP Filter

The Hodrick-Prescott filter is a smoothing method that is widely used among macroeconomists to obtain a smooth estimate of the long-term trend component of a series. The method was first used in a working paper by Hodrick and Prescott (1997) to analyze postwar U.S. business cycles.[26]

We extracted the series for (unobservable) natural rate of unemployment (HPTREND01; u) through this HP filter: <Table 3> (Column 1) Estimation Results for Natural Rate of Unemployment (HP Filter)[27] - Capitalization Effect

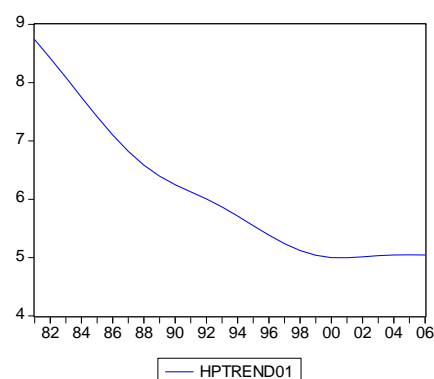**Figure 3.1:** Estimation Results for Natural Rate of Unempolyment (HP Filter)

Table 3: Estimation Results[28]

	1) Cap.		2) Cap.				3) Creative	
Dependent Variable	U(trend)		U(cointegration)		TFP		SEPAR	
Sample	1982 2006(annual)		(annual)		(annual)		2003 2007(monthly)	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	−7.767	0.045*			− 5.507776	0.0235*	2.167728	0.0004*
LOG(RD)	−0.679	0.005*	−1.709	0.088*	1.26073	0.0078*		
WAGE	0.036	0.001*						
LOG(CPI)	1.973	0.009*						
IPTREND							0.011096	0.0478*

TFP								
R&D efficiency								
GROWTH*100								
AR(1)	0.944	0.000*			−0.235457	0.0078*	0.342542	0.0112*

Dependent Variable	4) Cap.				5) Creative		6) Creative			
	TFP(GMM)		U(GMM)		U		HIRER		HIRER/IP	
Sample	(annual)				(annual)		(monthly)		(monthly)	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	−6.1731	0.0111	5.251053	0.3975	3.198633	0.1338	3.548754	0	0.034097	0
LOG(RD)	1.388635	0.0026*								
WAGE			0.396332	0.791						
LOG(CPI)										
IPTREND										
TFP			−1.23198	0.0691**						
R&D efficiency					1.013505	0.0964**				
GROWTH*100							−0.08408	0.0007*	-0.000931	0.0003*
AR(1)					0.885974	0	0.5974	0	0.606257	0

We examined a simple regression model of the natural rate of unemployment u_t for technical innovation represented by a proxy variable, R & D: [29] In a steady state, the growth rate of output is equal to the growth rate of A.[30]

$$u_t = \alpha + \beta x_t + \varepsilon \qquad (3)$$

u: the estimated natural rate of unemployment
x: R & D investment (RD), wage

GLS considering autocorrelation regression produces the results in <Table 3-1>. Considering the goodness of fit, we can see that the evidence is strongly in favor of the capitalization effect of growth on unemployment.

Significantly estimated elasticity of R & D to the decrease of the natural rate of unemployment is 0.58. The wage variable is used to control for confounding factors (e.g., changes in the labor market).

From these estimation results, we can see that the increasing effect of the level of vacancies u and, consequently, the job-finding rate p(u) [capitalization effect] dominates both the increasing effect of job-separation rate (1/S) [creative destruction effect] and the decreasing effect of the job creation rate p( ) [indirect creative destruction effect].

In addition to GLS, we performed (polynomial) finite distributed lags(DL) estimation. A PDL (q) model is expressed as:

$$u_t = \beta + \beta(0) RD_t + \beta(1) RD_{t-1} + \beta(2) RD_{t-2} \ldots + \beta(q) RD_{t-q} + \theta(0)WAGE_{t-1} + e_t \quad (4)$$

Table 3.1: Estimation Results of Polynomial Distributed Lag Model for Natural Rate of Unemployment ; Capitalization Effect

Dependent Variable: HPTREND01		
Sample (adjusted):		

---

29 If estimated coefficient or test result is statistically significant, we denote *, or **, by 5% or 10% confidence level, respectively.

30 Most endogenous economic growth theory assumes TFP is an increasing function of innovation, that is, R & D activities.(Jones, 2002)

1986 2006(annual)			
Lag Distribution of LOG(RD)			
i	Coefficient	Std. Error	t-Statistic
0	-3	1.42	-2.11*
1	-1.16	1.05	-1.1
2	-0.29	0.83	-0.35
3	-0.18	0.74	-0.24
4	-0.61	1.01	-0.6
5	-1.37	1.11	-1.23
Sum of Lags	-6.61	1.24	-5.31*

Estimation results show that total multiplier which is the final effect on natural rate of unemployment of the increase in R&D investment after 5 years is significant and has expected negative sign. (<Table 3-1>)

3.1.2 Time varying random coefficient model and long-term relationship

We need to provide a multiple equation dynamic system for unemployment and innovation in state space form.[31] State space models have been applied in the econometrics literature to model unobserved variables: expectations, measurement errors, missing observations, permanent income, unobserved components, and natural rate of unemployment.[32]

We continue from '2.4 Growth and unemployment', where estimates of a growth model for unemployment (u) and innovation (and growth g) were obtained.[33]

Generally, the model $y_t = X_t\beta + \varepsilon_t$ is analyzed within the frameworks of constant coefficients. It does entail the not entirely plausible assumption that there is no parameter variation across time. A fully general approach would combine all the machinery of the traditional models with a model that allows β to vary across time (Greene, 2006).

Parameter heterogeneity across time can be modeled as stochastic variation. Suppose that we write

$$y_t = \beta_t x_t + \varepsilon_t \qquad (5)$$
where
$$\beta_t = \beta_{t-1} + u_t, \qquad u_t \sim N(0, \sigma)$$

We examined a simple model of the natural rate of unemployment for technical innovation represented by a proxy variable, R & D:

$$u_t = a + \beta_t x_t + \varepsilon_t \qquad (6)$$
u: the observed rate of unemployment
x: R & D investment
β_t: (=$SV1_t$)

Estimation (considering autocorrelation of parameters) produces the following results in Figure 3.2. Considering the goodness of fit, we can see that the evidence is strongly in favor of the capitalization effect of growth on unemployment, except in the early 1990s and the early 2000s.
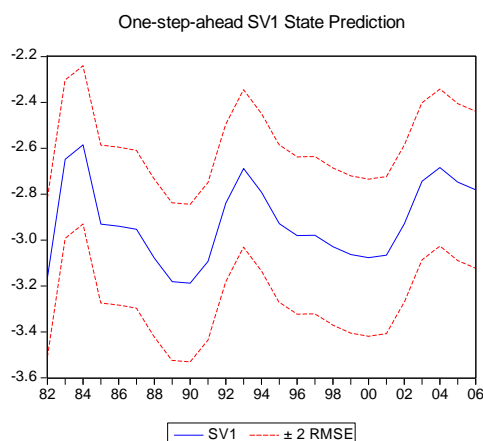
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31 A wide range of time series models, including the classical linear regression model and ARIMA models, can be written and estimated as special cases of a state space specification.

32 There are two main benefits to representing a dynamic system in state space form. First, it allows unobserved variables(state variables; natural rate of unemployment) to be incorporated into, and estimated along with, the observed model. Second, it can be analyzed using a powerful recursive algorithm known as Kalman filter. The Kalman filter algorithm has been used, among other things, to compute exact, finite sample forecasts for Markov switching models and time varying (random) coefficient models.

33 This empirical analysis is also concerned with section 2.6.

We can say that the increase of the estimated random coefficient in the early 1990s and the early 2000s shows the offset effect of creative destruction.[34]

Figure 3.2: Estimation Results for State Variable (State Space)

Now, we consider whether the R & D investment[log(RD)] and unemployment rate(UNEMP) are stationary. The reason for this is to avoid the spurious regression problem.

After performing a Dickey-Fuller unit root test, we see that the two series are nonstationary. Through Johansen's (1998) cointegration test, we conclude that the two variables are cointegrated; that is, they have a long-term equilibrium relationship. We estimate the cointegration coefficient to be -0.585 <Table 3>(Column 2).

3.2 Calibration the effects of growth and hypothesis tests

In this section, we perform calibration to test the predictions for growth and unemployment by Pissarides (1985) and Romer (2006).

Summary: The Effects of Growth on Unemployment (Aghion and Howitt, 1998)

Effect	Growth rate g	Job-destruction b	Job-creation p(v)	Level of vacancies v	Unemployment u
Direct Creative Destruction	↑	↑			↑*
Indirect Creative Destruction	↑		↓		↑*
Capitalization	↑			↑	↓*

We calibrated this search model by assuming some parameter of the U.S. economy. The graph supports the "creative destruction effects." That means that as the growth rate increases, the unemployment rate also increases.[35] However, we should note that job vacancies also increase with unemployment rate.

34 If SV1 is estimated as -2.09, it means 1% changes in R & D expenditure decreases the unemployment rate by 0.0209. This holds when x is in logarithms and Y is in levels.(Stock and Watson, 2007)

35 In reality, the growth may affect the term productivity, A. We do not consider this problem in this paper.

Table 3.2: Calibration Results for Search Model of the U.S. (%, years, and persons); Creative Destruction

	G	lifetime	b	EMPLOYED(E)	Labor Force	VACANCY(v)	Jobs filled	Job finding	Unemployed Rate
US1	1.00%	10	0.10%	142,529,000	149,320,000	43,737,596	0.33%	2.10%	4.55%
US2	1.20%	10	0.12%	140,150,900	149,320,000	47,349,453	0.36%	1.83%	6.14%
US3	1.50%	10	0.15%	137,090,000	149,320,000	54,762,156	0.38%	1.68%	8.19%
US4	1.75%	10	0.18%	135,870,000	149,320,000	65,382,701	0.36%	1.77%	9.01%
US5	2.00%	10	0.20%	131,970,000	149,320,000	65,932,526	0.40%	1.52%	11.62%

In turns, we test the predictions for growth and labor market variables (unemployment) by Aghion and Howitt (1998).

1) Growth Rate

The growth rate of output g_A is an increasing function of R & D fertility and a decreasing function of w, c, r and b. The steady-state growth rate is

$g_A=\lambda g(N/A)$

which is increasing as a function of the level of R & D, N.?

In Table 3 (Column 2), the regression coefficient for TFP (productivity growth) of the level of R & D (LNRD) is significant and of the expected sign.

2) Job Separation Rate

In the Schumpeterian model, the growth rate of output g_A affects the job separation rate positively. We extracted the trend component of the industrial production index.

We estimated how much of an effect the percentage growth rate (IPTREND) has on the job separation rate (SEPAR). Estimation results show that a 1% point growth results in a decrease in the separation rate by 0.01%. This result has the implication that creative destruction effects exist in the sample period from June 2003 to October 2007. <Table 3> (Column 3) Estimation Results for Job Separation Rate; Creative Destruction

3) Unemployment Rate

Since the rate of productivity growth (TFP) and the unemployment rate (UNEMP) are jointly determined, we consider the simultaneous equations model.

We consider the GMM estimator that is defined by a minimizing criterion function. It is based on the assumption that the error terms are not correlated with some instrumental variables.[36]

$$g_A = \alpha + \beta \log(RD)_t + \varepsilon_t, \quad (7)$$
$$u_t = \gamma + \delta g_{A\,t} + \eta \log(WAGE) + \varepsilon_t,$$

The estimated productivity and unemployment rate equations are in <Table 3>(Column 4). Notice that the coefficient of productivity on unemployment is negative.

Among the estimation results in this paper, this regression supports "creative destruction." Generally, the effect of the increase in the frequency (efficiency; SV1) parameter in the R & D equation on unemployment (UNEMP) is known to be neutral (Aghion and Howitt, 1998).[37]

4) Job Creation

The rate of job creation (or the ratio of job creation to growth; HIRER) is a decreasing function of the growth rate (GROWTH) of output g_A, the hiring cost c, and the quit rate of workers b. <Table 3> (Column 6)

5) VAR: Impulse Response Function

Finally, we estimated a 3-variable (output growth g, productivity growth A, unemployment rate u) reduced-form VAR (vector-autoregressive) model to see what the impulse response functions look like using annual time series data(1981~2006). The graph also supports the "creative destruction effects."[38] In addition, we constructed another VAR with one quarter(3

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36 In this model, there are M=2 equations, so it is necessary for at least M-1=1 variable to be omitted from each equation for identification.

37 But, they also admit that if growth depend partly on an exogenous process, then this neutrality may be no longer hold.(Aghion and Howitt, 1998)

38 We had better recognize that the relationship between three variables simultaneously determined. So, we use VAR model.

months) lagged values for seeing relationships between labor market variables. Impulse response shows that increase in production first reveals Creative Destruction and then Capitalization effects.

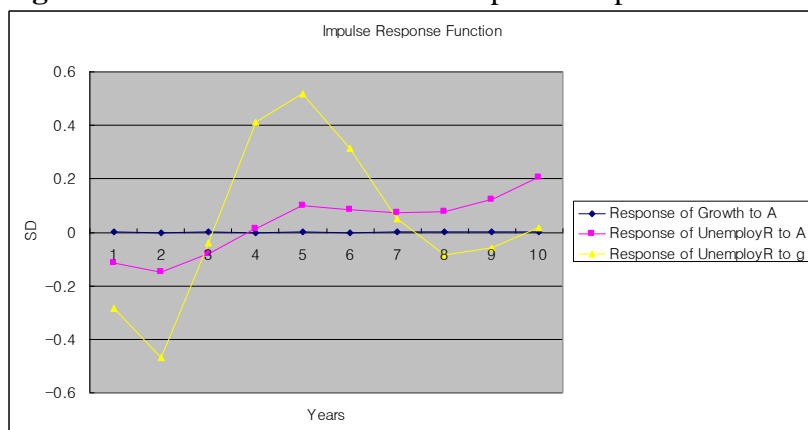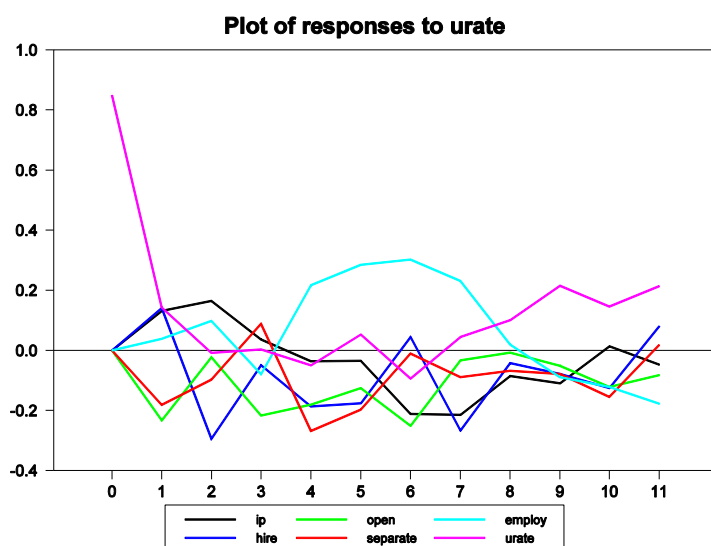**Figure 3.3:** Estimation Results for Impulse Response Functions: Creative Destruction

Figure 3.4: Estimation Results for Impulse Response Functions: First Creative Destruction and Then Capitalization

IP	hirer	openingr	separ	employ	urate
Industrial production	Hiring rate	Job opening rate	Job separation rate	Total employment	Unemployment rate

Ⅳ. Summary and conclusion

Aghion and Howitt (1998) analyzed the relationship between growth and unemployment endogenizing growth. New technology is embodied in plants, which are costly to build. Unemployment is caused by workers having to move from a plant utilizing old technology to one utilizing new technology.

In this paper, we showed that direct creative destruction is not the only effect of faster productivity growth. Suppose that some technological advances are of a form that can be utilized by existing plants. Then investors will be encouraged to create new plants and vacancies by the possibility of benefiting from future technological advances. This capitalization effect could more than offset the creative destruction effect, resulting in an overall decrease in unemployment when growth rises. (Aghion and Howitt, 1998)

We showed that considering goodness of fit of the regression model, we can see that the empirical evidence is in favor of the character of the capitalization effect from R & D activities and economic growth. Therefore, we can conclude that through technological innovation, faster economic growth has decreased unemployment in the past in the U.S. economy.

The empirical results that show "creative destruction" are search model calibration, regression for hiring rate, and impulse response for unemployment rate in VAR model. The other results that show "capitalized effects" are PDL estimation, state space model for unemployment rate, cointegration test for unemployment rate, and GMM estimation for unemployment rate.

In summary, we adopted the approach that the expectations of investors play an important role in technical progress. If this expectation takes the form of optimism, technical progress affects unemployment negatively (reducing unemployment), and we call this phenomenon a "capitalization effect." This comes from the fact that plant units capitalize the expected income from future technology upgrades.

Assuming a simple aggregate production function and neglecting the physical capital, we can see that the following relationship exists (Blanchard, 2006):

Δ employment = Δ output (determined by expectation by firm) - Δ productivity

We can conclude that the relatively high unemployment rate in 2002-2003 comes from investors' skepticism about the economy (and productivity growth), which cannot lead to a high rate of investment (little "capitalization effect").[39] This skepticism about future technology upgrades was, we think, the main factor driving "jobless recovery."

Finally, we can consider the following issues in future research.

First, in the U.S., there has been a shift in the structure of production away from manufacturing and toward the service sector. Davis and Haltiwanger (1992) analyze job creation and job destruction in the manufacturing sector only. They find that these rates are very large: about 10% in a year. However, of the 10% of job destruction, about 80% is replaced by newly created jobs. The omission of analysis of job creation by technical progress is a limitation of this paper.

Second, we analyzed the period of Great Moderation(1980s-2007). But, we can convert the estimation span into recession period before Great Moderation. In addition, extension of data covering into 2014 would also be significant.

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<APPENDIX 1>

We use dynamic programming to express the values of employment (E), jobs filled (J), unemployed (U), and vacancy (V). (Romer, 2006)

$rV_E = w - b[V_E - V_U]$

$rV_J = (A - w - C) - b[V_J - V_V]$

$rV_U = p [V_E - V_U]$

$rV_V = -C + f [V_F - V_V]$ (3'')

We assume that the same of share of surplus is divided between workers and the plant's owner.

$V_E - V_U = V_J - V_V$

After some calculation, we get:

$rV_V = -C + A[f/(p + f + 2b + 2r)]$

The equilibrium level of employment is determined by the intersection of the rV_V locus with the free-entry condition, which implies $rV_V = 0$.

$-C + A[f(E)/(p(E) + f(E) + 2b + 2r)] = 0$ (5)

<APPENDIX 2>

We assume the same fraction of surplus is divided between workers and the firm.

If we denote the surplus generated by the plant as π, the cost of construction of the plant is (Aghion and Howitt, 1998):

$C = (1/2)e^{-rv/m(1,v)} \int e^{-rt} π \, dt$

However, an increase in economic growth increases the rate of return from creating the production plant. It also encourages entry by new production plants and job creation.

When we consider the possibility that plants can upgrade technology without being replaced by new plants, the capitalization effect can exist. Plant can (costless) adapt to new technology with probability p. Then the cost of capital (construction) will be:

$C = (1/2)e^{-rv/m(1,v)} [\int^d e^{-rt} dt + (1-p) \int^S e^{-rt} dt] / (1 - p \, e^{-(r-g)d})$ (d: age of plant)

The change of capital cost affects the value of job filled and job vacancy.

$rV_V' = -C' + A[f/(p + f + 2b + 2r)]$ (3')

The equilibrium level of employment is changed by the intersection of the rV_V' locus with the free-entry condition, which implies $rV_V' = 0$.

$-C' + A[f(E)/(p(E) + f(E) + 2b + 2r)] = 0$ (5')

<APPENDIX 3>

In this section, we show that the capitalization effect experienced a change around 1993. We use the Chow test, which is an F-test for the equivalence of two sub-period regressions. (Hill et al., 2008)

Test results show that the absolute value of elasticity was reduced in 1993.

Table 1: Chow Test Results for the Rate of Unemployment

Chow Breakpoint Test: 1993				
Equation Sample: 1982 2006(annual)				
F-statistic	5.95875		Prob. F(4,17)	0.0035*
Log likelihood ratio	21.90816		Prob. Chi-Square(4)	0.0002*
Wald Statistic	19.20558		Prob. Chi-Square(4)	0.0007*

Dependent Variable: UNEMP				
Sample (adjusted): 1982 1993(annual)				
	Coefficient	Std. Error	t-Statistic	Prob.
C	68.85551	12.97704	5.305948	0.0007*
LOG(RD)	-19.91577	4.469751	-4.455677	0.0021*
WAGE	0.495402	0.132976	3.725504	0.0058*
AR(1)	0.134561	0.240083	0.560479	0.5905

Dependent Variable: UNEMP				
Sample: 1993 2006(annual)				
	Coefficient	Std. Error	t-Statistic	Prob.
C	49.2827	18.05715	2.729262	0.0212*
LOG(RD)	-12.21645	4.694116	-2.602503	0.0264*
WAGE	0.230477	0.081867	2.815244	0.0183*
AR(1)	0.481561	0.252896	1.904185	0.086

<APPENDIX 4>

Using data from productivity growth (TFP) and the rate of unemployment (UNEMP), we derive kernel fit.<Figure> It implies that the relationship between two variables may not be linear.

Figure A1: Kernel Regression Fit for TFP Growth

<APPENDIX 5> Productivity and Unemployment Rate (Blanchard, 2006)

We examine a simple model of the unemployment rate and productivity. For this, we assume the following aggregate production function:

Y=AL

This equation means producing output Y requires (AL) workers. Firms set prices according to markup (1+η). The price setting relationship is as follows:

p=(W/A)(1+η)

Similarly, wage setting follows:

w=pAf(u,b)

The price setting relation determines the real wage:

w/p=A/(1+η)

Under the scenario that expectations are correct, the wage-setting equation will be:

w/p=Af(u,b)

This model has the following implications.

First, when, productivity growth varies, the change in unemployment rate depends on the firm's expectation for productivity of workers. If a slowdown in productivity occurs, the natural rate of unemployment may increase. This is because it takes some time for workers to update their expectations. Second, if a growth in productivity occurs, the rate of unemployment may decrease. This also is because it takes some time for workers to update (increase) their expectations of productivity growth.

In the short term, an increase in the rate of technological progress can lead to either a decrease or an increase in the unemployment rate. The last decade in the U.S. provides an example of each type.[40]

This simple model of Blanchard (2006) gives some implications for the "jobless recovery" of 2002~2003 in the U.S. That is, in spite of some upward productivity shifts, workers might expect more than the real productivity growth.

<APPENDIX 5> Implication of the 2nd Generations Endogenous Growth Model

The Schumpeterian second generation endogenous theory of growth [Young (1998), Aghion-Howitt (1998)] provides a way of analyzing the relationship between growth and employment.

In the second generation growth models, the variety of consumption goods is proportional to the population.[41] The growth of productivity comes from R & D that uses final output (GDP) as the input. The rate of innovation g_A in a sector to which N_t units of output in R & D are given is:[42]

$g_{At}=\lambda g(N_t/A_t)$

Growth in productivity parameter A comes from knowledge spillovers. The measure of the marginal impact of R & D on public knowledge is equal to 1/B.

The rate of technological progress is

$g_A =\Delta A_i/A_i = \lambda g(N/A)$

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40 During the later half of the 1990s, the increase in productivity growth came with a large increase in output growth and a steady decrease in unemployment. Productivity growth was unusually high during the second half of the 1990s(1996-2000). The increase in growth rates is related with an increase in the use of information technology(IT).

41 These implications of growth model mainly come from Jones(1999).

42 The following (augmented) Schumpeterian model comes from Aghion and Howitt(1998).

We consider the relationships between these variables and labor market variables. We introduce hiring costs ($=cA_t$) and assume that the wage being sought is proportional to the technology ($w_t=aA_t$). There is also the quit rate, b, of workers.

In steady-state, the cost of labor for each variety firm is

$$w_t*=A_t*a*= A_t* [a+(b+g_t+r-g_A)c] \qquad (6)$$

The demand for labor by variety firms will be

$$L_{Dt} =\Sigma L_{Yi}= l*(r*, a*e^{g(s-t)})$$

The value of innovation (or the price of patents) is:

$$V_t=A_t v(r+g, a*, g_A) \qquad (7)$$

When consumption grows at the rate g, the rate of interest is:

$$r=\rho+\varepsilon g_A \qquad (8)$$

We have the following arbitrage equation:

$$1= \lambda v(\rho+(\varepsilon+1)g_A, w+(\rho+\varepsilon g_A+b)c, g_A)$$

The steady-state growth rate is

$$g_A=\lambda g(N/A)$$

The demand for labor by monopolistic firms is

$$L_D =\Sigma L_{Yi}= l*(r*, a*)$$

$$=l* [\rho+(\varepsilon+1)g_A, w+(\rho+\varepsilon g_A+b)c]$$

In this Schumpeterian model, there are various exogenous variables: quit rate, the cost of hiring and parameter of real wage level, etc. Also, there are endogenous variables: job separation, job creation and (natural) rate of unemployment.

Is Youth Guarantee a Solution for Increasing Employment Among Young Romanians?

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ARTICLE INFO

ABSTRACT

With an employment rate among young people (under 25 years) of 23,3% Romania has to find a solution for solving this problem in short terms , otherwise we can face a constant migration wave of young people who can't find a job in our country. This article presents the current status on labor market in Romania and in the same time tries to raise the awareness why do we need Youth Guarantees in our country , how important are the policy developed at European Union level to eradicate the unemployment at young ages?. We focused on the general background of this type of policies in European Union since its creations and finishing with the importance of this Youth Guarantee scheme, the way it can be implemented , costs and benefits , successful stories and an interpretation of the forecast of Romanian youth labor force until 2030 and of course some final conclusions and recommendations.

1. Youth employment in Romania - Introduction and literature review

According to World Bank estimations, the working age populations in Romania will drop by 30% in 2050 compared to the level recorded in 2010, three times faster than the average for Western Europe with negative implications on long-term growth and financial sustainability of the country. The Southeast region is the most affected, with a youth unemployment of 31.3% registered in 2011.There will be a permanent link between no employment and poverty, A high level of poverty conducts to an early school leaving phenomenon which leads to youngster without a chance for having a better paid job. A person is considered to be in relative poverty if the income is less than 60% of median income available. (Dinga, 2010), At European level, statistics show that Romania occupies second place in the poverty ranking countries after Bulgaria. The situation in Romania in terms of youth unemployment is more vulnerable (Boajã, 2011) , than that of many EU Member States because high level educated youngsters have more difficulties in finding a job than in the other Member States, resulting that Romania's educational system is not a work market orientated. To solve this problem of unemployment we should be aware that this phenomenon is strongly influenced by poverty, school leaving and level of education, so the three objectives of Europe 2020 Strategy (to reduce early school leaving rate to a maximum of 10 % and to increase the share of tertiary graduates aged 30-34 years at least 40%) should be treated together. The policies conducted in order to have a correlation between education and employment are extremely important, because „the likelihood of a youngster obtaining a stable and adequately remunerated job

depend, among other things, on the quantity and quality of education received". (Garcia, 2011).

Looking at youth unemployment, Choudhry et al. (Choudhry et al.,2010) show that financial crisis have impact on the youth unemployment rate that goes beyond the impact resulting from GDP changes and the effect on the youth unemployment rate is greater than the effect on overall unemployment. Regarding the timeframe of the effects of the crises on youth unemployment, their results suggests that financial crises affect youth unemployment five years after the crises, and the most adverse effects are found in the second and the third year. Starting from this hypothesis we can accept that one explanation for youth unemployment can be found in the financial crisis.

The labor market institutional system in Romania influences labor demand, labor supply, labor market equilibrium and social protection .The worst years for Romanian economy (2009 and 2010) in terms of Real GDP growth rate were followed by a peak in unemployment (for all age groups) in 2011 and the labor market it is still far from 2008 performance.
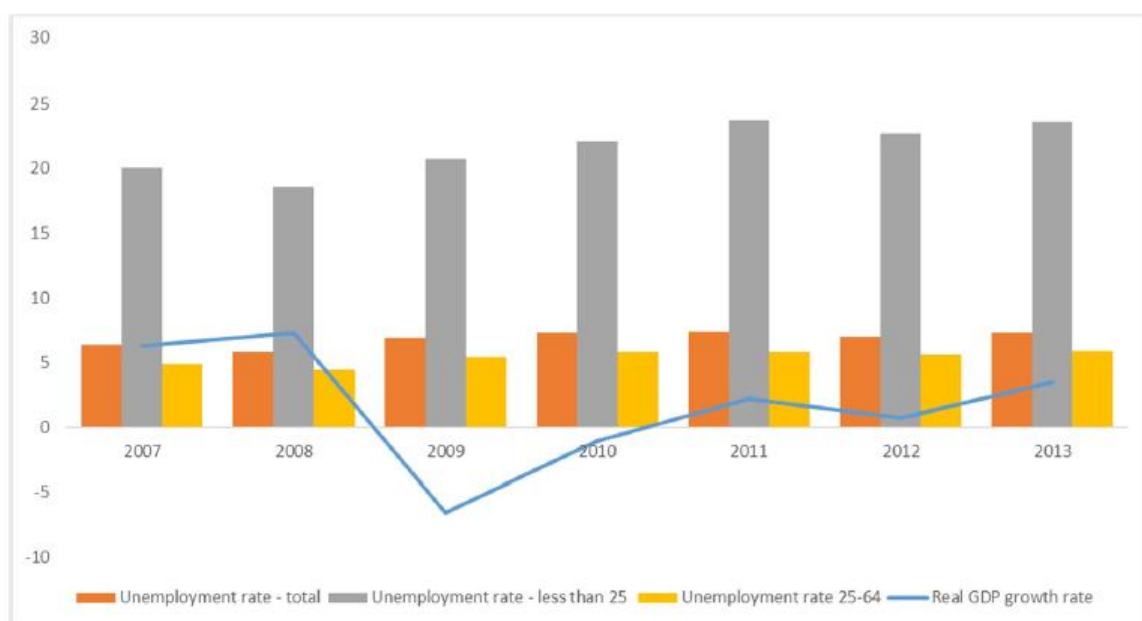

Figure nr. 1: Evidence from evolution of Romanian labor market

Taking a look at the date offered by European Commission (2013) we can observe that the employment rate of the population aged 15 to 64 years of age in Romania (59.3% in QIV 2013) is smaller than the European Union average (64.3% for the same year) the national target being of 70% up to the year 2020. For the age group 30-34 years of age in QIV 2013 is registered a level of the employment rate slightly over the European one (83.2% against 83.1%), for all other age groups (15-19, 20-24, 25-29 years of age), the youth being considerably under the EU-28 values: 7.5% the employment rate for youths between 15 and 19 years of age (against 14.9% in EU-28); 30.8% from the Romanian youths between 20-24 years of age are employed against 47.7% from the youths in the EU; 66.1% from the Romanian young individuals aged between 25-29 years of age are employed against 70.5% of the European young individuals.

At regional level important discrepancies emerge, so that the lowest rates of employment for youths aged between 15-25 years of age were recorded in QIV 2013 in the Regions Centre (15.5%) and West (17.2%), while there are also regions with a significantly better situation, North-East (27.6%), South-Muntenia (25.9%) and South-West Oltenia (25.3%). Also, major

differences are registered between men and women: the employment rate for young men between 15 and 24 years of age.

It is very easy to notice as well that young people from Romania faces a rigid labor market which does not allows them many possibilities to have a job and continue the study or to other activities. Without a flexible labor market we cannot speak about offering similar access and working conditions as other EU countries do. Statistics provided by Eurostat showed that there are only approximately 94.5 thousand youths employed in Romania with ages between 15 and 24 years of age worked part-time in the last quarter of 2013 against 5805.5 thousand individuals within the EU-28. Almost three quarters were employed in this manner involuntary against the situation at European level where approximately the same share of youths prefers this type of employment.

The data provided by the National Institute of Statistics according to year 2014 showed out that the rate of employment (15-64 years old people) has risen with 0,9 % , with higher values for men's (68,7%) than for women (53,3%). The employment rate of young people (15-24 years) was 22.5%., smaller than previous years but still having a high value. In the year 2013, 17.2% from Romania's youths were classified as NEETs (young individuals between 15 and 24 years of age who are not employed, nor in education or training), against 13.0% from the youths within the EU-272. After several years of decline at European level, the weight was stabilized in 2008, but increased thereafter as result of the economic crisis. In Romania the NEET weight also increased from 11.6% in 2008 to 17.2% in 2013. Because the traditional indicators regarding youths' participation on the labor force market has a limited relevance for analyses and prognoses, the NEET concept was implemented. This concept describes and analyses the youths' vulnerability on the labor market. The national and European statistics indicate that, in average, the NEET rate among women is higher than among men, as well as among youths with a low education level.

Having as a background a youths' labor market in a continuing decline for the last years, the aid and interventions measures decided at European level can be the only chance for a more productive , functional and low level of unemployment young people labor market in Romania. Through the measures which should be implemented we see useful: creating jobs for especially for youths, supporting the development of sectors where the number of graduated young people is high, correlating the educational programme (curriculum) with the real need of qualification in the economy.

Implementing a program such as Youth Guarantee can bring lower levels of unemployment among young people and on long term it can be a contributor to the increase of GDP.

2.Youth Guarantee - General background and conceptual delimitations

In order to make a description of the evolution of programs regarding rising of youth employment at European Union level we should look for the beginning of each initiative who has been taken.
First of all we should start our review with Treaty on European Union signed in Maastricht in 1992 which has included a new area regarding education and youth which should focus on : the development of youth exchanges and the implementation of specific programs by the year 2001. Starting 2001, the European Commission released the so called White Paper "A new impetus for European youth " containing the results of wide consultations within European Union and a set of proposal related to a new framework for European cooperation Youth, based on a dual approach: the open method of coordination youth and considering greater size – youthness.

In the next years, the EU Council has adopted common objectives on participation and informing young people about the resolution which should be implemented in the future on common objectives of strengthening the knowledge and understanding of youth and voluntary youth.
Year 2005 brought the European Pact for Youth, as a part of Lisbon Strategy. The main goal was to bring youth policy at a level previously not found in the European Union.

It was introduced a number of policy measures designed to address three major areas:
• employment, integration and social advancement;
• Education, training and mobility;
• Reconciliation of family and professional life.
Three years after we can see the Renewed Social Agenda: Opportunities, Access and Solidarity which was targeting children and young people as well as a priority. It is very well known that each society should value a lot child and youth people because they represent the future labor force of the each country and not at last it is impossible to have economic growth and well fare without a strong and a high productivity of the labor market. According to this the Commission has identified some domains which require intervention such as : high youth unemployment, too many cases of desertion early school, relative job insecurity and inequality in wages applied at young people.
With the occasion of the eighth Conference of Ministers of Youth hold in Kiev in October was adopted a declaration called "The Future Council of Europe Youth Policy: Agenda 2020 " which put a lot of pressure on youth ministers to be able to ensure full integration of young people in society and aiming to ensure access of youth to quality training and education, decent conditions for working and living.

On 27 November 2009 Youth Council of Ministers adopted a Resolution on a renewed framework for European cooperation in the youth field (2010-2018) which has two general objectives: more and equal opportunities for all young people in education and employment, and active citizenship, social inclusion and solidarity among all young people.

1.2 What is Youth Guarantee and which are the benefits that come from it?

This new approach which regards youth unemployment will ensures that **all young people under 25** – whether registered with employment services or not – get a good-quality, concrete offer within 4 months of them leaving formal education or becoming unemployed. This is the last initiative of the European Commission and similar programs were conducted in other EU countries. The good-quality offer should be for a **job**, **apprenticeship, traineeship**, or continued **education** and be adapted to each individual need and situation. At Romanian level, some people feel constrained about this 25 years old target referring to the people who graduated Medicine school Architecture or other 6 years university curriculum.

In order that such a scheme works it is required a strong cooperation between all the key factors such as: employment services, public authorities, education & training institutions, employers, trade unions, providers of career guidance. Each country was helped by European Commission to develop its national Youth Guarantee Implementation Plan but in the same time the Commission runs a pilot program in 4 Member States (Latvia, Finland, Portugal and Romania). During the pilot phase all the concepts , products and visual points were put at disposal at national, regional and local authorities who wished to use it.

Member States have progressed with the implementation of this type of guarantee , but in the same time further efforts are required regarding the public employment services, active labor market policies tailored to each country, vocational education and training and not at last to offer the perfect environment for apprenticeships at companies as a chance to make an easy transition from school to a new job.

Speaking about successful experience in the Member State which have adopted this kind of policy we should emphasize the advantages which can be brought to our country because in other cases there were regeistered the following initiative with positive results :

- **in the case of Finland** it was created a comprehensive Youth Guarantee scheme consisting in a personalized plan for young people which conducted to a 83.5% of young job seekers received a successful offer within 3 months of registering as unemployed.
- in other states (France , Denmark or Czech Republic) were created programs for the development of career management skills and for vocational orientation at schools

- In **Austria** was created in 2008 a "Training Guarantee" for young people up to the age of 18 giving young people the opportunity to learn an apprenticeship trade at a supra-company training institution financed by the PES.
- In **Sweden**, the approach is to stimulate the young unemployed to be active in job-seeking. With a 3 months support at the beginning followed up by active matching process which may be an apprenticeship or further education.

1.3 Which are the cost of having Youth Guarantee at European Union level ?

According to the ILO report (2012) the total **estimated cost** of establishing Youth Guarantee schemes in the Euro zone is **€21bn a year**, or 0.22% of GDP. Their analysis is based on the Swedish model of "special job-search support", estimated to have an annual cost of **€6,000 per unemployed young person plus administrative costs** (in terms of resources needed for Public Employment Services to serve the programe) at €600 per participant.

According to Eurofound report (2012) based on youth unemployment the costs of this guarantee scheme are much higher. Young people not in employment, education or training are estimated to cost the EU **€153bn** (1.21% of GDP) a year – in benefits and foregone earnings and taxes. But we should take into account also that , not all the measures are expensives , for example greater cooperation between stakeholders doesn't require large budgets .

1.4 Why we should encourage the implementation of Youth Guarantee in Romania

It is estimated that around 5 million young people (under 25) were unemployed in the EU-28 area in December 2014, of whom over 3.2 million were in the euro area. Making a calculation based on the population of the EU turns out that we have an unemployment rate of 21.4%. More than one in five young Europeans on the labor market cannot find a job even more in Greece and Spain it is one in two. Speaking of gap we can noticed that between the countries with the highest and the lowest jobless rates for young people the difference is extremely high, more than 44 %   In **Romania**, 27 youth guarantee centers (currently supported by the European Social Fund) were created. These centers aim at identifying young NEETs and offering them integrated packages of personalized services.

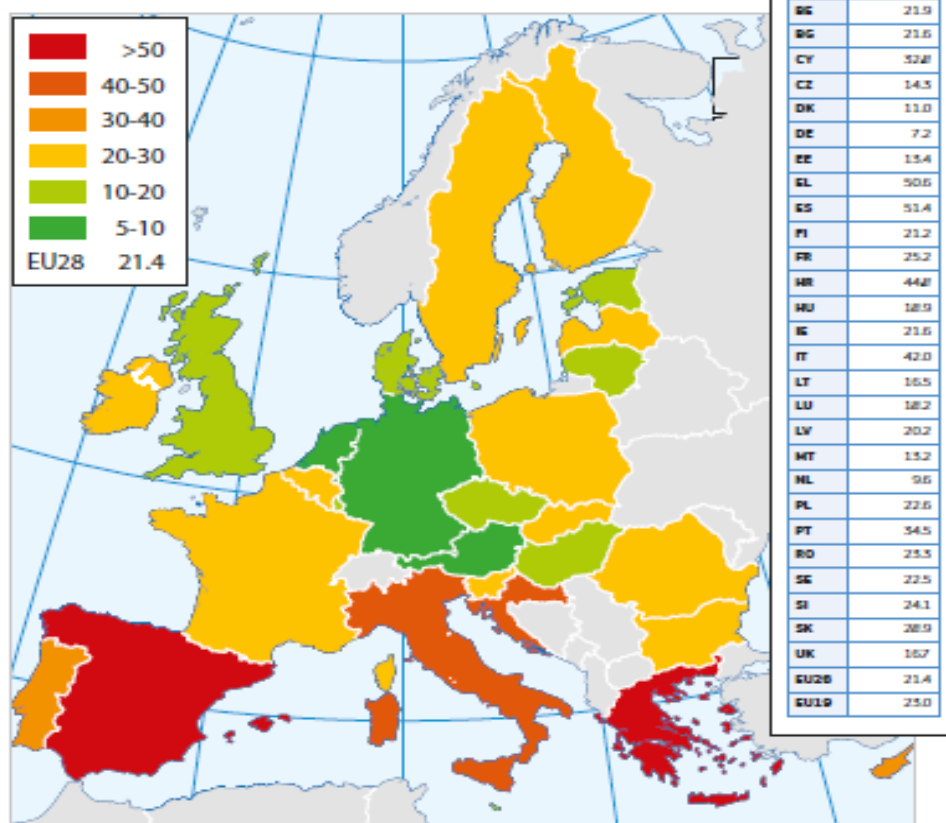**Youth (under 25s) unemployment rate (%), December 2014**

Legend	
>50	
40-50	
30-40	
20-30	
10-20	
5-10	
EU28	21.4

AT	9.0
BE	21.9
BG	21.6
CY	52.8
CZ	14.3
DK	11.0
DE	7.2
EE	13.4
EL	50.6
ES	51.4
FI	21.2
FR	25.2
HR	44.8
HU	18.9
IE	21.6
IT	42.0
LT	16.5
LU	18.2
LV	20.2
MT	13.2
NL	9.6
PL	22.6
PT	34.5
RO	25.3
SE	22.5
SI	24.1
SK	28.9
UK	16.7
EU28	21.4
EU19	23.0

Figure nr. 2 Youth unemployment rate in Europe

Source: http://ec.europa.eu/eurostateurostat.org

 The amount of money allocated for the Youth Guarantee is 105.99 million euros (in current prices) and the regions where it is eligible are : Centre, Sud-Muntenia and Sud-Est.The highest unemployment rate - over 25% in the Centre Region, South-East and South-Muntenia;182 094 young people accessed until now by NEA services, of which 71 893 young people (almost 40%) were employed with the implementation of the program "Youth Guarantee".163.227 young people benefited from counseling and guidance; 4.847 employers were subsidized to provide jobs for young graduates.6.411 micro enterprises were established through grants to young entrepreneurs, thus creating 3205 new jobs; 177 young entrepreneurs have established a start-up and created 440 new jobs. All Member States have progressed in the implementation of Youth Guarantees.

According to the database and forecasting of the International Labor Organization, the labor force which comprises all persons of working age who furnish the supply of labor for the production of goods and services during a specified time-reference period (sum of all persons of working age who are employed and those who are unemployed) has declined.
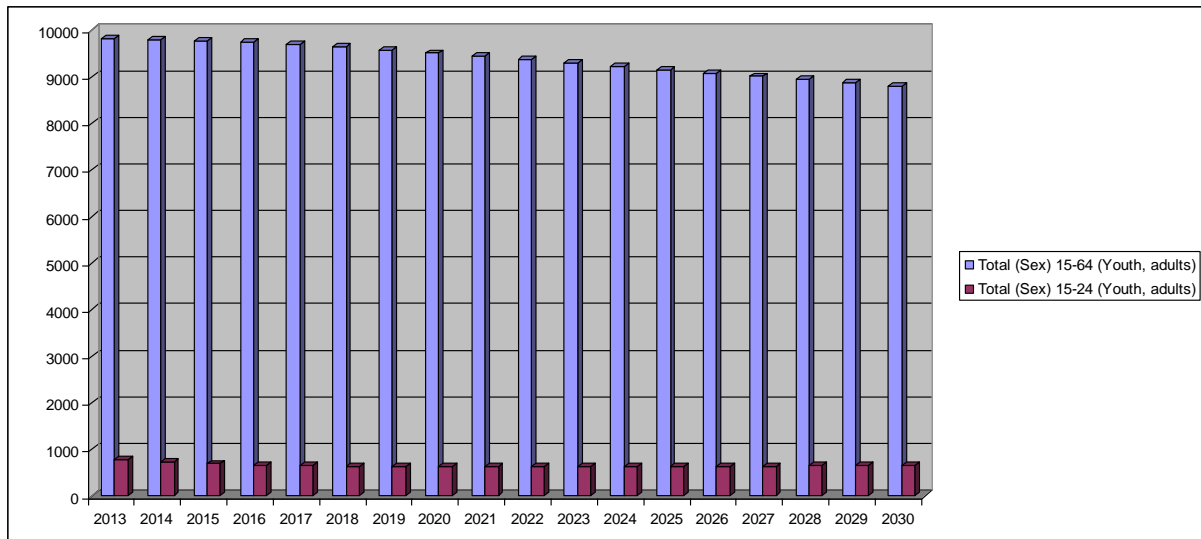
Figure nr. 3 Forecast of the labor force by age criteria for the period 2013-2030

Source: www.ilo.org

If we look at the distribution between men and women among young people(figure nr. 4) . we can observe a decrease of minimum 18% between young men and women between the beginning and the end of the period interval. We can notice as well that this issue affects not only the labor force but also the increase of natality in Romania.
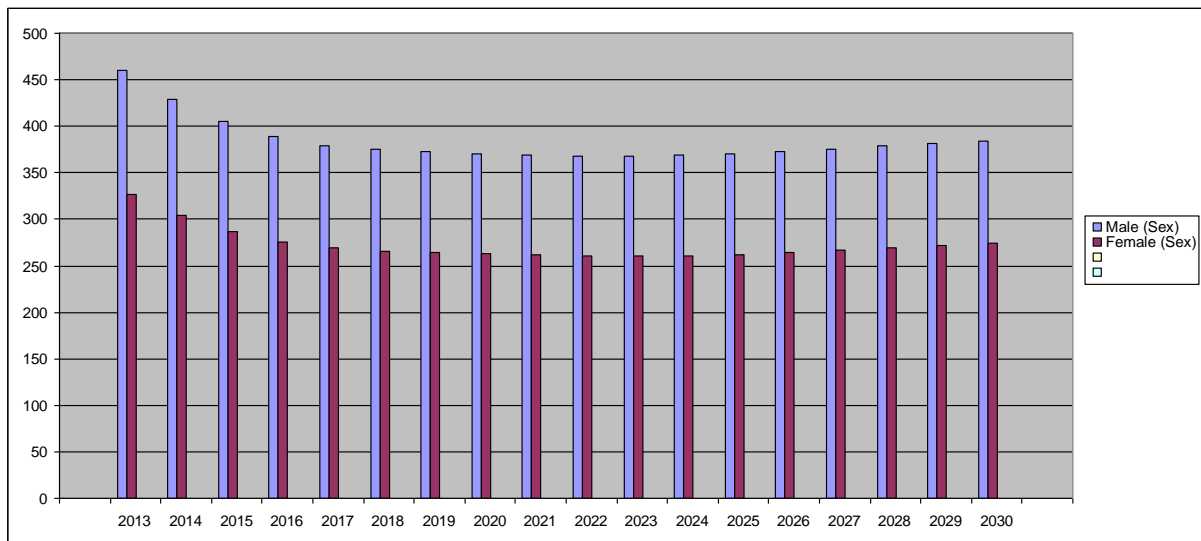

Figure nr. 4 Forecast of the young labor force by sex criteria for the period 2013-2030

Source: www.ilo.org

Youth Guarantee is a new initiative which can combat youth unemployment, ensuring that any young person under 25 - whether registered or not unemployed - receives an offer of quality, within 4 months at graduation or job loss. Job offer must consist of a contract of employment, apprenticeship or internship or a course of training and adapted to the needs and situation of each. The Youth Guarantee is no substitute for the use of macroeconomic instruments, nor for the pursuit of structural reforms, but it can help to make the economic recovery job-rich and it makes a systemic difference in improving school-to-work transitions

1.5 Final conclusions

There are plenty of benefits brought by implementing the Youth Guarantees at macro and micro economical levels, between all of them we should mentions the ones we consider to be the most important:

- Overall, in Romania Youth Guarantee can improve the quality and quantity of apprenticeships, vocational education and training opportunities. Member States must ensure that they give young people the skills that employers are looking for.
- A Youth Guarantee must be considered an investment for Member States. In fact, the cost of doing nothing has been shown to be very important.
- Youth Guarantee is considered as a new major reform for youth employment and the most important in the last years.
- human resource development difficulties integrating into the labor market or return to sustainable;
- retention in employment of young people by increasing their capacity for employment as a result of training / retraining / expertise / training conducted under the auspices of the initiative;
- Promoting entrepreneurship, initiative and the desire personal and professional development and promoting a positive attitude to continuing training.

Besides these measures in order to eradicate and decrease youth unemployment we should take in consideration the following steps:

- First step that should be done and should have a large place in each country policy's agenda refers to the transition from school to labor market. We should not forget the important key role played by school and other training bodies in preventing drop-out by providing targeted support to young people at risk of dropping out, but also offering guidance or access to relevant services to all students.
- Civil society organizations and NGO's can also play an important role in bridging the gap with young people and society.
- Another step requires the mobilization of numerous actors and resources towards a common goal, establishing partnership and giving an important role to the Public Employment Service (PES) and establishment of stable and trustful relationships with social partners.
- An important role is kept by SME's that have been the main job creators over the past decade and are key to open job opportunities for young people who would not necessarily be the first choice in a normal process of recruitment.
- The integration of long term unemployed must be fostered, unemployment benefits schemes should be better linked to activation and support measures and further action is needed to increase the integration of long term unemployed into the labor market.
- On the fiscal side, we should not forget that the tax and benefits systems should support job creation, so it is very easy to notice that some reforms of tax systems have been initiated so as to reduce disincentives to take on jobs and –at the same time- decrease labor taxation to allow companies (re)hire young and long-term unemployed
- Regarding women we should pay attention to the access to affordable and quality childcare services and out-of school care, flexible working arrangements and adequate leave policies and supportive long-term care services which continue to play a crucial role in sustaining female employment and helping men and women to reconcile work and family life.

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The Radiographic Instrument of Corruption

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ABSTRACT

When Romania joined the European Union on January 1, 2007, special provisions were taken in order to facilitate and support the implementation of this action in good conditions and, at the same time, to safeguard the proper functioning of U.E. policies and institutions. Through its accession to the EU, Romania has agreed to assume both rights and obligations assigned to each Member State. According to the normal practice, the European institutions are monitoring the implementation of the Community acquis, in order to ensure itself that these obligations are compiled.

In the Accession Treaty were introduced safeguard clauses and transitional arrangements (for example, restrictions on free movement of workers, access to the road transport networks, provisions concerning the veterinary, phytosanitary and food safety rules) as well as the clear provision that, if there are serious shortcomings in the transposition and implementation of the acquis in the economic, internal market and respectively in justice and internal affairs, harsh sanction measures can be taken. Romania's accession was accompanied by a series of targeted support measures which were instituted with the purpose of preventing or remedying the shortcomings in the areas of food safety, agricultural funds, judicial reform and the fight against corruption.

For the last two ones was established a cooperation and verification mechanism, setting out specific goals to provide the necessary framework for monitoring the progresses in these areas.

Introduction

When Romania joined the European Union on January 1, 2007, special provisions were taken in order to facilitate and support the implementation of this action in good conditions and, at the same time, to safeguard the proper functioning of U.E. policies and institutions. Through its accession to the EU, Romania has agreed to assume both rights and obligations assigned to each Member State. According to the normal practice, the European institutions are monitoring the implementation of the Community acquis, in order to ensure itself that these obligations are compiled.

In the Accession Treaty were introduced safeguard clauses and transitional arrangements (for example, restrictions on free movement of workers, access to the road transport networks, provisions concerning the veterinary, phytosanitary and food safety rules) as well as the clear provision that, if there are serious shortcomings in the transposition and implementation of the acquis in the economic, internal market and respectively in justice and internal affairs, harsh sanction measures can be taken. Romania's accession was accompanied by a series of targeted support measures which were instituted with the purpose of preventing or remedying the

shortcomings in the areas of food safety, agricultural funds, judicial reform and *the fight against corruption*.

For the last two ones was established a cooperation and verification mechanism, setting out specific goals to provide the necessary framework for monitoring the progresses in these areas.

This mechanism was established to improve the functioning of the legislative, administrative and judicial system and to remediate the serious deficiencies recorded in our country in the *fight against corruption.*

The purpose of the cooperation and verification mechanism is to ensure the implementation of those measures which guarantee that the decisions, the administrative and judicial legislation and practices from Romania are in line with the rest of the EU. The progresses of the judicial reform and the *fight against corruption* will allow the Romanian citizens and the Romanian businesses to enjoy their rights as EU citizens. Without irreversible progresses in these areas, Romania risks to be unable to correctly apply the Community law.

In the current legislation of Romania, the corruption acts, along with money laundering, fraudulent banknote, extortion, human trafficking, illicit drugs and precursors, smuggling, traffic with stolen vehicles, counterfeiting of currency or other valuables, and any other crimes with the purpose of obtaining a profit for the benefit of a terrorist entity, all of these are treated as terrorist acts. The evolution of contemporary societies reveals the fact that although the measures and interventions of the social control institutions against the criminality have been intensified, in many countries it can be seen a resurgence and a multiplication of the crimes committed with violence and aggressively.

Corruption is a social problem which concerns both the factors of social control (police, justice, administration) and also the public opinion. The offenses and crimes committed by violence and corruption tend to become very intense and dangerous for the stability and security of the institutions, groups and individuals, being often associated with those of the organized crime, specific to the "subcultures" of the professionalized violence and crime.

The effective combating of the corruption and criminality represents a national interest whose aim is to maintain the status of our country as a stable zone and security generating factor, in the geographic proximity area by strengthening the authority of the state and its institutions.

The National Security Strategy of Romania, in Chapter VIII, approaches the issue of fighting against corruption. Currently, for the *fight against corruption*, it is imperative that the institutions to operate collaborate and be integrated into a system where vital information must circulate professionally, in terms of legality and in an appropriate way, the responsibilities to be clear and do not overlap, and tasks to be accomplished under the law, on time and with maximum efficiency.

The concrete results of the preventive measures adopted by the public institutions are difficult to evaluate in the absence of some analytical instruments integrated into the awareness/ information campaigns, developed until today. A comprehensive anti- corruption campaign, funded by European projects, equipped with all the conceptual elements to provide a clear picture of the status of the actions which were taken to prevent and combat the corruption, both in the public and private sectors, at this moment is in an early stage and requires urgent actions for implement some operational plans to complete the actions carried out to date.

The Global Corruption Barometer assesses the extent in which the key institutions and the public services are perceived as being corrupt and identifies the citizens' views regarding the efforts made by the government in the fight against corruption. Like other reports of Transparency International, the instrument is designed to complement the expert opinions about the corruption from the public sector provided by the Corruption Perception Index and the information about the international bribery flows reflected in the Bribe Payers Index. The Barometer also provides information on corruption's trends in the public perception.

The public's points of view about the corruption are the most important because they give an essential image from the inside, about how corruption affects people's lives all over the world. We consider as being crucial to present people's attitudes on corruption because they are the ones who

suffer its direct and indirect consequences, and they are playing an active role in stopping it, fact that is reflected by improving the governance.

We will use as an example a study conducted by Transparency International which aimed to encourage the public to play an active role in stopping corruption, highlighting its desire to engage in the fight against corruption.

Thus, from September 2012 until March 2013, more than 20.000 people from over 20 countries of the European Union were interviewed about their opinion about the level of corruption in their countries and the government's efforts to fight against it, and in the same time, was revealed the frequency of bribery in different sectors and institutions and it was also investigated the people's willingness to engage in the fight against corruption.

In fact, in the survey, people were asked about their perception of corruption in their countries of origin, and the study reflected points of view regarding the increase or decrease of the overall level of corruption in the recent years. They were also asked about their points of view regarding the corruption widespread in the public sector and in the different institutions, being also evaluated the importance of the personal relationships when they are trying to solve some situations and the influence of the great interests in the government decisions.

1000 people from each of the 20 EU countries who were surveyed from September 2012 until March 2013 as part of the Global Corruption Barometer 2013 survey and the sample from each country was designed to be nationally representative, and where it was possible, the questionnaire was translated into the local languages, using the method face to face or CATI, ie Computer-Assisted Telephone Interviewing, or even the online interviewing.

Material and methods of analysis

In the table below, we will analyze the "Bribe Payers depending on the service''

Country	Education	Legal system	Medical system	Police	Authorizations	Utilities	Taxes	Land services
U.E.	4%	8%	12%	7%	5%	2%	2%	7%
Belgium	2%	6%	3%	4%	3%	3%	3%	6%
Bulgaria	2%	13%	7%	17%	3%	0%	1%	7%
Croatia	0%	3%	4%	3%	2%	2%	1%	6%
Cyprus	4%	11%	14%	10%	8%	5%	9%	13%
Denmark	0%	1%	1%	1%	2%	1%	1%	2%
Estonia	2%	2%	7%	2%	3%	0%	0%	0%
Greece	7%	6%	23%	4%	7%	3%	4%	9%
Hungary	1%	3%	18%	0%	1%	1%	1%	1%
Italy	3%	12%	4%	4%	3%	6%	2%	4%
Latvia	8%	14%	24%	25%	6%	2%	2%	9%
Lithuania	7%	15%	35%	23%	10%	2%	1%	24%

Portugal	1%	2%	2%	1%	2%	1%	2%	7%
Romania	7%	13%	27%	9%	6%	1%	1%	11%
Slovakia	9%	8%	28%	12%	19%	3%	5%	11%
Slovenia	2%	3%	5%	3%	4%	3%	2%	5%
Spain	0%	2%	1%	3%	2%	2%	1%	2%
U.K.	7%	21%	3%	8%	11%	3%	4%	11%

The data are referring to any family member who, in the last 12 months, respectively during 2013, has had contacts with each of the 8 sectors outlined above and has given bribe in any form.

Over 65% of Romanians believe that corruption has increased in Romania in the last two years.

In the same time 8 percent of them believe that this level has remained unchanged and only 29% of Romanians believe that the corruption level is now lower than 2 years ago. 87% of Romanians believe that the government is not effective in the fight against corruption and only 13% of them believe that the anti-corruption measures of the government are effective.

The political parties and the parliament are considered the most corrupt institutions. On a scale from 0 (least corrupt) to 5 (most corrupt) these two institution are receiving a score of 4.5. Besides the justice, private sector and media, for the other institutions, the assessed level of corruption is significantly higher than in the previous years, and the political parties, the parliament and the justice are receiving a score above 4 for the incidence of corruption.

Only 13% of Romanians believe that the government and governors have the ability to fight against corruption. From this perspective, the Romanians are the Europeans with a medium average trust in government, at the lower limit being the Cypriots (3%), Latvians (6%) and Lithuanians (6%). To be noted the fact that 63% of Romanians do not trust anyone regarding the fight against corruption, which places us as the most disappointed European nation, far away from the other ones.

It is found that 61% of Romanians believe that the involvement of ordinary people in the anti-corruption actions is important and thus they can make a difference in the fight against corruption. 59% of them would like to report a corruption act and nearly 71% would sign a petition asking the government to do more in combating the corruption. 50% of those questioned in Romania would be willing to take part in a protest or in a civilized demonstration against corruption. The results are encouraging, but we are still standing among the least active ones in the fight against corruption. Only in Hungary, Lithuania, Estonia, Latvia, Italy and Estonia the percentages of those who would report the corruption cases are lower than in Romania. The data show that although they do not trust institutions, the Romanians trust themselves and think that a sustained effort to encourage whistleblowers may cause a vehement attitude of the citizens against corruption.

In fact it must be identified the means of supporting the actions of Romanian citizens who wish to report the cases of corruption through assistance forms and expert advice.

Anova: Single Factor   ***Table 1   Differences between services***

SUMMARY

Groups	Count	Sum	Average	Variance	s	v
Education	18	66	3.66666667	9.29411765	3.04862553	83.1443327
Legal system	18	143	7.94444444	33.4673203	5.78509466	72.8193734
Medical system	18	218	12.1111111	120.339869	10.969953	90.5775938
Police	18	136	7.55555556	54.9673203	7.41399489	98.126403

Authorizations	18	97	5.38888889	19.8986928	4.46079509	82.7776408
Utilities	18	40	2.22222222	2.41830065	1.55508863	69.9789884
Taxes	18	42	2.33333333	4.47058824	2.11437656	90.6161383
Land services	18	135	7.5	30.9705882	5.56512248	74.2016331
			6.09027778			

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1426.77083	7	203.824405	5.9116636	5.1762E-06	2.07755817
Within Groups	4689.05556	136	34.4783497			
Total	6115.82639	143				

We found significant differences between the percentages of the bribe payers for various services, the highest percentages being marked in red. The differences are significant with a probability greater than 99%.

We also notice that the medical system is in a peculiar situation, the average percentages of the bribe payers being almost twice as the ones of the legal system, police and land services, which is on the second place, with similar values.

Table 2: Comparative Differences between two services

	Education	Legal system	Medical system	Police	Authorizations	Utilities	Taxes
Education	1						
Legal system	0.69930385	1					
Medical system	0.77509053	0.383842204	1				
Police	0.65149846	0.698843399	0.629878	1			
Authorizations	0.8276093	0.511481209	0.5965	0.47865	1		
Utilities	0.23988251	0.289151883	-0.01533	-0.01134	0.30056045	1	
Taxes	0.38327805	0.285336297	0.145402	0.107571	0.54675273	0.655972	1
Land services	0.68302798	0.656847841	0.674481	0.709992	0.64096062	0.217506	0.35993702

Anova: Single Factor			**Table 3:** Differences between countries			
SUMMARY						
Groups	Count	Sum	Average	Variance	s	v
U.E	8	47	5.875	11.26786	3.3567629	57.13639
Belgium	8	30	3.75	2.214286	1.48804762	39.68127
Bulgaria	8	50	6.25	36.78571	6.06512278	97.04196
Croatia	8	21	2.625	3.410714	1.84681192	70.35474
Cyprus	8	74	9.25	12.5	3.53553391	38.22199
Denmark	8	9	1.125	0.410714	0.64086994	56.96622
Estonia	8	16	2	5.428571	2.32992949	116.4965
Greece	8	63	7.875	41.26786	6.42400632	81.57468
Hungary	8	26	3.25	36.21429	6.01783065	185.164
France	8	37	3.50	2.314514	1.38750991	37.38124
Italy	8	38	4.75	9.928571	3.15096357	66.33608

Latvia	8	90	11.25	81.92857	9.0514403	80.45725
Lithuania	8	117	14.625	142.5536	11.93958	81.63815
Portugal	8	18	2.25	3.928571	1.98206242	88.09166
Romania	8	75	9.375	69.125	8.31414457	88.68421
Slovakia	8	95	11.875	65.83929	8.1141411	68.32961
Slovenia	8	27	3.375	1.410714	1.18773494	35.19215
Spain	8	13	1.625	0.839286	0.91612538	56.37695
U.K.	8	68	8.5	36	6	70.58824
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2188.45139	17	128.7324	4.130058	1.5548E-06	1.704427
Within Groups	3927.375	126	31.16964			
Total	6115.82639	143				

The correlation coefficient between the systems listed in Table 2: Comparative differences between two services, shows that in the countries where the bribe is given in the medical system, it is also given in the educational system, fact that is explained by the low social development of these countries, whose state institutions are at an early stage of development.

The correlation coefficient between the judiciary and police demonstrates the interdependence of the two systems in terms of bribery and the practice has demonstrated many DNA (National Anticorruption Directorate) cases in which the offenders who received bribes are either prosecutors and police officers, either judges and policemen, either all together, and with them is associated even the category of lawyers.

We can see high values of the correlation coefficient between the education system and authorizations, between the utilities and taxes, land services and police, land services and authorization.

In Table 3: Differences between countries, there are significant differences between countries with probability greater than 99%, the highest values of these being marked in red. The explanation is determined by the fact that the countries in question were part of the Eastern- European bloc, the former communism, and the period of democracy of nearly 25 years, is not sufficient for a proper functioning of the institutions designed to ensure a climate of legality in this field.

Exceptions to this rule are on the one hand Bulgaria, which has a value of the coefficient to the European medium average, but which in fact are hiding a widespread organized crime, which has penetrated even the highest institutions of the state, and on the other hand Great Britain, which has the same value as that of the eastern bloc countries, due mostly to the fact that here governs another law system that allows the "Lobby" policy which actually creates a multitude of integrity risks. In fact this was the cause for which the executive management of the United Kingdom has founded, for the first time in the world, an integrity system necessary to purify the political and administrative environment, system that represents a model adopted by the other European countries.

	Education	Legal system	Medical system	Police	Authorizations	Utilitie	Taxes	Land service
Education	3.91315		0	0	0	0	0	0
Legal system	4.906799	1.662737		0	0	0	0	0
Medical system	3.435041	3.908112	3.243897		0	0	0	0

Police	5.897755	2.380936	2.972788	2.180624		0	0	0
Authorizations	0.988389	1.208219	-0.06131	-0.04535	1.260525		0	0
Utilities	1.659872	1.190852	0.587856	0.432794	2.611998	3.476333		0
Taxes	3.740609	3.484497	3.654275	4.032843	3.34019	0.891364	1.543177	
Land service	0	0	0	0	0	0	0	0
	t crit=2.12							

The testing of the correlation coefficients was performed using the statistical test T "Student" where

$$t = \frac{(r)}{\sqrt{1 - r^2}} \sqrt{n - 2}$$

Final conclusions

The main conclusion of our scientific research is that the level of the economic development determines the social development and implicitly the existence and the efficient operation of public and private structures that ensure the integrity and the fight against corruption.

The regression model is important for describing the economic development impact on the people's perception regarding the economic freedom and corruption, but can be also used in macroeconomic and global level, in FDI analysis etc.

Regarding the rank of our country, the last in terms of the income per inhabitant from the EU countries, regarding in fact the purchasing power or the living standards, we have revealed a gap almost insurmountable towards the countries from the first part of the classification. We must not relate only to Germany, the economic engine of Europe with the highest GDP in the EU (and the fourth in the world after the US, China and Japan) or to France or to UK. The comparison is too crushing. It is sufficient to take a look at our neighbors table, Hungarians and Bulgarians, or Greeks who are so much blamed, to enlighten ourselves about "the status of our nation".

Romania would have every year the chance to increase its dowry with the allocations received from the EU, with the condition to submit funded projects that will make possible the absorption of European funds. Thus in 2011, on paper, Romania would have been able to obtain from the Union more than twice compared with what it has given. Proportionally, the same thing would have happened to all the time between 2007 (the year of accession to the EU) and 2013. In fact, for this period were absorbed 11.47% of the available amounts, meaning a total value of 33.4 billion Euros.

On February 8, 2013 the European Council reached an agreement regarding the EU budget for the period 2014 - 2020. After 56 years of EU history, this is the first decreasing budget, by 1% net. However, from its value of 960 billion Euros, Romania would receive 39.8 billion. With about six billion more than in the previous period, but with approximately nine billion less than it had proposed from its political point of view. Irrelevant dispute, as long as Romania does not make its country economic homework. And "not making them" is equivalent to a crime against the national interest.

To be pointed out that there were also founded other tools of perceiving corruption as:
- The Bribe Payers Index - BPI- which is a classification of the exporting countries regarding the risk that their firms to bribe abroad and it is based on a survey among the business executives, focusing on the business practices of companies with operations abroad from their country;
- Global Corruption Report- GCR- is a thematic report that analyses corruption regarding a particular sector or a particular problem in governance. The report provides expert research and analysis, as well as studies of cases;

- The National Integrity System Assessment – N.I.S.A.- represents a series of studies from the inside of a country which provides a detailed evaluation of the strong and weak points of the most important institutions that have to ensure a good governance and integrity, such as the executive, legislative, justice, anticorruption agencies and others.

The persistence of corruption in the poor countries requires global actions. The concerted efforts of the rich and poor countries are needed to stop the money flow generated by corruption and to ensure the efficient functioning of the justice with the benefit of the poor people.

The biggest danger which are threatening with the collapse of the nowadays civilization, must be seen in the fact that, while the outside progress seems to have no predictable and possible limits, heading towards infinity, the inside one tends to go down, to zero.

As Alvin Toffler has shown "... we suffer of the smell and of the moral rot of a dying industrial civilization, watching its institutions as they are collapsing, one after another, in a splashing of inefficiency and corruption ''.

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Educational Tourism: Strategy for Sustainable Tourism Development with reference of Hadauti and Shekhawati Regions of Rajasthan, India

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ABSTRACT

Rajasthan is a main tourism State in the nation. It's glorious legacy, bright living customs, traditions, wonderful heritage, mesmerizing natural beauty, vibrant folk, energetic people and delicious cuisines are exceptional attractions for both, domestic and foreign tourists.

The substantial and indescribable tourism products of the State offer enormous potential for development of the tourism industry. Improvement of tourism assets and expanding both, domestic and international tourists' arrivals is a high need for the State especially for the important regions like Hadauti and Shekhawati. Lack of educational programs, awareness, and promotion are few reasons that the regions are not able to attract the tourists towards them. In fact the tourists who are visiting Jaipur, Udaipur, Jodhpur, Pushkar etc. Tourist places of Rajasthan are even not aware about the hidden treasures of Hadauti and Shekhawati regions. Moreover it the regions are facing the problems related with falling prices of agricultural, economic instability, poor infrastructure, lack of resources, unemployment, lack of entrepreneurship etc. In these situations it becomes more important to focus on the resource in which the regions are rich and distinct from other regions of the State. There is no doubt into the potential of tourism at Hadauti and Shekhawati regions. Tourism knowledge of these regions if provided in a learning methodology and strategically planned way these regions will make a benchmark on the State tourism. From Hedonistic tourism to spiritual every experience tourists can get at Hadoti as well as at Shekhawati region. Therefore, there is a requirement for developing Education Tourism at both the regions. It is the high time to change the present patterns of learning of tourism. The present paper is an attempt to stress upon the education tourism adoption as a growth strategy for the sustainable development of tourism in both the regions. The paper also highlights the hindrances and requirements for creating education tourism as an exclusive part of learning.

Introduction

Tourism today is one of the major global industries and an important source for economic growth and employment generation. Tourism is one of the biggest-growing industries on earth and its hegemony appears secure if the current rate of growth is maintained, World Tourism Organization (WTO, 2010). International tourist arrivals have grown steadily from 25 million in 1950 to over 1.1 billion in 2014. At present, 1 in every 11 people worldwide is employed by the tourism sector, with the industry generating US$ 7.6 trillion or 10% of the global GDP in 2014 (WTTC Travel & Tourism Economic Impact 2015). Tourism in recent times has been widely seen as one which has contributed tremendously to the economy of most destination areas, improving their foreign exchange, creating jobs, creating awareness, improving

standards of living and contributing to image-building of destination areas, it is pertinent to note that most developing countries in the world today benefit so much from tourism without recognizing the real impact such tourism activities has on its economy based on the trickle-down nature of tourism benefits to its host (Okech, 2008). In the economic situation of a country like India tourism can play a vital role. Tourism is one of the main sources of internal revenue generation in the world today (Ajake & Amalu, 2012a; Hinch & Butler, 2007). Without a doubt India is able to attract the tourist from all over the world. According to the Travel and Tourism Competitiveness Report 2009 brought out by the World Economic Forum, the contribution of travel and tourism to gross domestic product is excepted to be at US\$ 187.3 billion by 2019.The report also revealed that the real GDP growth for the travel and tourism economy is expected to achieve an average of 7.7 per cent annum over the next 10 years. Export earnings from international visitors and tourism goods are expected to generate US\$ 51.4 billion (nominal terms) by 2019.Moreover, the sector which accounted for 6.4 per cent of total employment in 2009 is estimated to rise to 7.2 per cent of the total employment by 2019. The direct contribution of travel and tourism to GDP is expected to grow by 8.1% per annum INR 3414.8bn (2.0% of GDP) by 2021.By the same year Travel and Tourism account for 30,439,000 jobs directly, an increase of 5,508,000(22.1%) over next ten years. In the last six years, it has created 11 million jobs and has the potential to create another 37 million jobs (estimated by the NSSO, Ministry of Tourism) of the 120 million projected requirement by 2020.

There is no doubt that India is able to attract many International and National tourist towards it's different tourists destination. The known and famous destinations are getting popularity day by day because of it a State like Rajasthan is also started coming on tourism map. Still there is lot which is hidden in the heart of Rajasthan. Today the foreign tourists or domestic tourists are visiting to Jaipur ,Udaipur, Jodhpur, Jaislmer, Pushkar and so on. Highlighting the state tourism statistics, in the 8th edition of Great Indian Travel Bazaar 2015, Vasundhara Raje Chief Minister of Rajasthan Government mentioned that the tourism sector in Rajasthan will see a major surge by 2018. "By 2018, we expect the foreign tourist arrivals to reach 2.5 million from the current 1.5 million and the domestic traffic to be around 50 million from the present 30 million." The state is having diversity in the tourism products yet it is unrevealed in a strategic manner. To make the people(tourists)more acquaint with the knowledge of the hidden treasures of Rajasthan especially the rich circuits/regions such as Hadauti and Shekhawati education tourism can play a vital role.

Education Tourism an Approach of Learning

The term education tourism or edu-tourism refers to any "program in which participants travel to a location as a group with the primary purpose of engaging in a learning experience directly related to the location" (Rodger, 1998, p. 28). Educational tourism" is a "tourist activity undertaken by those who are undertaking an overnight vacation and those who are undertaking an excursion for whom education and learning is a primary or secondary part of their trip". (Brent Ritchie, 2009).It is comprised of several sub-types including ecotourism, heritage tourism, rural/farm tourism, and student exchanges between educational institutions. The notion of traveling for educational purposes is not new (Gibson, 1998; Holdnak & Holland, 1996; Kalinowski & Weiler, 1992) and its popularity in the tourism market is only expected to increase (Gibson, 1998; Holdnak & Holland, 1996). This type of tourism may be categorized into the following dimensions; cultural / historical, eco-tourism / nature based tourism / rural tourism, and study abroad programs (Ankomah and Larson, 2004). Life Long Learning (LLL) is "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective. (European Commission, 2003)

Curriculum and Tourism Curriculum

There is no agreed definition of curriculum, but the word curriculum derives from a Latin word, Currere, referring to the running of a course, as in a chariot race (Marsh and Willis, 2007; Hewitt, 2006). One basic view is that curriculum is "what is taught" (Geofferey Squires, *First Degree: The Undergraduate Curriculum* Buckingham, England: Society for Research into Higher Education, 1990).In the twentieth century, the term curriculum

broadened to include subjects other than the classics (Marsh and Willis, 2007). Sometimes, the word curriculum is also used to describe "a discipline, a specific area of knowledge and academic study" (Hewitt, 2006, p. 406). Tourism education had its beginnings in technical or vocational schools (Airey, 2004; Lo, 2005; Inui, Wheeler, & Lankford, 2006). (Busby, 2001) with educators mainly focusing on producing skilled and knowledgeable personnel for the industry. This emphasis has given short shrift to the value or meaning of tourism education. Courses in tourism were initially introduced in technical and vocational schools. Courses were then transitioned into undergraduate and graduate programs (Ring, Dickinger, & Wober, 2009). Bodewes (1981) believes tourism is an application of established disciplines, as tourism does not have sufficient doctrinal processes to be classified as a full academic discipline.

Smith and Cooper (1999) believe curriculum must be context-related rather than context-bound. This statement urges academics to rethink appropriate curriculum designs containing the necessary content, while also providing room for knowledge flexibility (Rowntree, 1982; Scrimshaw, 1983; Lawton, 1989; Squires, 1990; Goodlad, 1995; Tribe, 2002). Lawton (1989) said that the curriculum planning model should start with two initial stages, namely, philosophical and sociological analyses. Philosophical questions relate to the aims of education and the meaning of worthwhile education. By contrast, sociological questions relate to the present society. A tourism curriculum requires the development of a tourism society, that is not just for businesses but, rather, for all stakeholders (Tribe, 2001). Taylor and Richards (1985) explained curriculum as that which is taught. Tribe (2002) provides a more multifarious definition, curriculum is "...defined as a whole educational experience packaged as a degree program (p. 340)." Gunn (1998, p. 74) stress that the curriculum is "a series of courses of instruction that lead to graduation or certification or a degree, diploma, or similar terminal award. The UK National Liaison Group for Higher Education in Tourism (NLG) (Holloway, 1995, p. 2 cited in Tribe, 2005) aimed to seek an agreement on the body of knowledge that would be acceptable to both academics and practitioners in the tourism industry. The seven core subject areas of NLG are: (1) Meaning and nature of tourism. (2) Structure of the industry. (3) Dimensions of tourism and issue of measurement. (4) Significance and impacts of tourism. (5) Marketing of tourism. (6) Tourism planning and development. (7) Policy and management in tourism.

In 2000, the NLG held another series of consultative meetings to align the core tourism subject areas with the tourism subject community. In turn, the following subject areas were agreed upon: (1) Concept and characteristics of tourism as an area of academic and applied study. (2) Nature and characteristics of tourists. (3) Structure of and interactions in tourism industry. (4) Role of tourism in communities and environments that it affects. (5) Nature and characteristics of tourists. This core knowledge of subjects provides the main strengths in terms of avoiding the narrow confines of the tourism curriculum.

Definition of Education

Education refers to participants' experiences of formal, qualification-based and off-job study (Mallon and Walton, 2005, p.473). Education (is) imparting or acquisition of knowledge; mental or moral training; cultivation of the mind, feelings and manners. (Weyl v Commissioner of Internal Revenue, 48 F 2d. 811 (1931). Acquiring information and inspirational suggestions which cause the individual to think and act along proper lines Jones v Better Business Bureau, 123 F. 2d 767 (1941; US Court of Appeals, 10th Circuit).A fundamental process of learning which is aimed at preparing either for life in general or for a large purpose such as a particular profession or trade, and is in any event without an immediately utilitarian focus (Vancouver Society of Immigrant and Visible Minority Women v. M.N.R., [1999] 1 S.C.R. 10; also at 169 D.L.R. (4th) 34).
"Education ... connotes all those processes cultivated by a given society as means for the realization in the individuals of the ideals of the community as a whole."

Statement of the Problem

Tourism is not only an economic activity it is much more than it. The present research paper has been written to highlight the major issues which are related with two important regions of the Rajasthan State namely Hadauti and Shekhawati. It is identified that there is big gap between the promotion strategies which has been used for the tourism products available in these regions. Secondly, the society is not much aware regarding the significance of education tourism at the regions. Moreover it the educational institutions are not participating and not taking initiatives in the education tourism programs. The hidden treasures are yet to be explored in the regions. The economic conditions are again a problem for the development of the regions. The tourism sector of Hadauti and Shekhwati regions has the potential to attract the learners towards the tourism products available (explored and unexplored).

Objectives of the Paper

- To highlight the importance of Education tourism at Haduati and Shekhawati regions of Rajasthan.
- To suggest a model of integrated informal education with the formal education.
- To stress upon a new pattern of experiencing, learning and promoting the tourist destinations.
- To bring in light a pathway of International collaboration for experiencing and learning about which is yet unexplored.

Resources at Hadauti Region for Education Tourism

Hadauti region is rich in vegetation, dense forests, lush green hills and fertile farms etc. Can be seen here. Hadauti is full of surprises from every nook. Despite of its rich heritage, culture and natural beauty the region is the most unexplored area of the State. Persistent river Chambal is the life line of the region. Other than Chambal Kali Sindh, Parvati and Parwan are the important rivers in the region. The region consists of four districts – Kota, Bundi, Baran and Jhalawar.

Kota city is a beautiful combination of traditional old monuments and innovative new technologies. Amazing forts and temples are located here. Kota is famous for its Kota Doria saris. The tourist attractions are Garh Palace,Maharao Madho Singh Museum, Braj Vilas Museum, Jag Mandir, near Kota places like Kshar Bagh,Kansua,Abheda Mahal,Garadia Mahadev Temple,Badoli Temple are best examples of architecture etc. For Baran , district it is famous that the place was created from 12 meaning bara villages of Solanki rulers and therefore it is called Baran. Near this district, there are lot many places which are yet unexplored. Places like Bilasgarh and Kanyadeh is still not any status of tourist destination despite of the truth that they have some hidden treasures stone sculptures ,rock painting which are having own historical importance. The stone sculptures of Bials consist the lifestyle and the life cycle of human beings .The remains tell a story of a well - planned city. The stone sculptures are not less than the famous Khajuraho Temple of Madhya Pradesh of India. The Kama Sutra ,art of sex is so well defined to educate the people in that era.

The ruined Bilas's Stone Sculptures, Hadauti Region

Source: Author (Dr.Anukrati Sharma, July 2015)

The erotic carving is so much attractive that one cannot neglect it. The architectural ruins and antiques (around 1000-1500 sculptures) are lying in a open place without any type of protection from weather (uncovered).Although when the researcher asked the local residents they told that the Government is constructing a place where these sculptures could be kept. Still there is a high need to protect and educate the people regarding the importance of these ruined sculptures.

The ruined Stone Sculptures outside and in the open area of Bilas Village ,Hadauti Region

Source: Author (Dr.Anukrati Sharma, July 2015)

On the other hand near the district Baran around 45 km, the Sorsan Sanctuary is located. The sanctuary is a place with high potential for tourism. Around 1800 Black Bucks, 324 Chinkaras, Indian Fox, Monitor Lizard and birds like Chestnut Bellied, Black Winged Kite Juvenile, Krestel etc**.** many species of birds are available here at the sanctuary. The Amalsara is an adjoining place to the sanctuary where 6 big and beautiful huts has been already constructed with an investment of Rs-50 Lakh. The sanctuary can be developed not only to viewing the animals and birds but much more could be provided at this place to any of the visitors. Brahmani Mata Temple, Amalsara Huts and Nagda all three jointly make the sanctuary a place where a tourist can view animals, stay and experience the spirituality along with the natural environment. The Brahmani Mata temple is located in a natural cave in the rocks and an unending flame in the temple has been burning from the **last 400 years.** Despite of the potential the sanctuary is neglected. People are not aware about the beauty of this place. In fact it is not well maintained. There is a high need for Education tourism for these types of sanctuaries of Hadauti region.

The Amalsara Toursits' Huts and the Sorsan Sanctuary,Baran,Hadauti Region

Source: Author (Dr.Anukrati Sharma,May 2015)

Baran is rich in heritage the Shergarh Fort, Sitabari, Bhand Deora, Nahargarh Fort, Gugor Fort are some of the forts at the near by places of Baran. Other than these places Shahbad Fort,Kakuni are few important places for learning about the rich heritage of Hadauti region.

Jhalawar is an another charming landscape of Hadauti region. This place is not only different it is distinct in nature. The most important place for learning is the Buddhist caves of Kolvi and the sculpture of Surya Mandir, Jhalara Patan.Jhalara Patan is a place where 108 temples were built over a few centuries .Most of them are destroyed. The Sun temple is the only one which is in fine shape. It is evenly beautiful to the Konark Sun Temple of Orissa. Gagron Fort is among the rarest forts which have both forests and water protected area. The fort is also comes in the UNESCO World heritage sites. Hadauti has lot to offer from eco–tourism, wildlife tourism, heritage tourism to culture tourism.

Resources at Shekhawati Region for Education Tourism

Shekhawati region includes of the districts of Jhunjhunu, Sikar and Churu. The region is well known for wall paintings and frescos that adorn the havelis in this region. This region is also popularly referred to as the "open art gallery". The wonderful fresco and wall paintings of the region is the most important source for education tourism. The havelies such as Ishwardas Mohandas Haveli, Jhunjhunu, havelies of Mandawa, Nawalgarh etc are of world fame. The region consists beautiful temples such as Rani Sati, Khatu Shyam, Shakhmbhari Mata, Jeen Mata, Salasar Balaji. The region is known for its pilgrimage tourism by the domestic tourist. The paintings of the regions are of 16th century in which scenes of epics such as Ramayana and Mahabharata has shown clearly. The modern inventions are also painted on the walls likewise cars, aeroplanes etc.One can learn a lot from the region about the art and culture. At the capital of Shekhawati region in the town of Jhunjhunu the participants can see Kamruddin Shah ki Dargah,Meatani Stepwell, Baadalgarh Fort,Khetari Fort,Birdi Chand wall and Ranti Sati temple.Other then Jhunjhunu Mandawa ,Mukundargh,Nawalgarh,Fathepur are also a good source for exploration and learning about the tradition and culture of Rajasthan.

Themes of Education Tourism
Education tourism can be developed and promoted on different themes in both the regions
Proposed themes of Education Tourism at Hadauti Region –
- Historical Tourism
- Heritage Tourism
- Archaeological Tourism
- Wildlife Tourism
- Educational Tourism
- Sports Tourism
- Farm/Agri Tourism

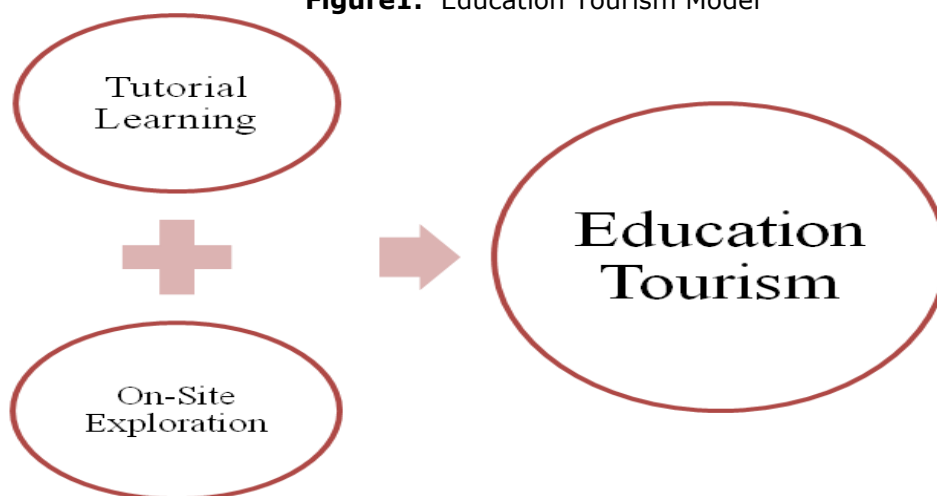Proposed themes of Education Tourism at Shekhawati Region –

- Pilgrimage Tourism
- Eco-tourism
- Cultural tourism
- Culinary tourism
- Film tourism
- Rural tourism
- Highway Tourism

Role of Universities in Education Tourism

The educational institutions are the backbone for the societal development of any State and country. The fortunate part with both the regions is that in these regions the status of education is quite high. The Hadauti region mainly if we will talk about Kota itself having three big Universities namely –University of Kota(the affiliating University of the region),Vardhman Mahaveer Open University and Rajasthan Technical University. Shekhawati is having more deemed and private Universities such as Mody University, Lakshmangarh, Singhania University, Sikar etc. Shekhawati University which is a Government University can also play a vital role for development of Education Tourism. The Universities may work with the different internal and external stakeholders that will produce workable and effective education tourism program. The Universities may start some program through distance learning for creating awareness and for the promotion of the tourists' destinations of the regions.

The   learning model of the education tourism may consists two type of methods .It is a combination of tutorial learning as well as of on site exploration –

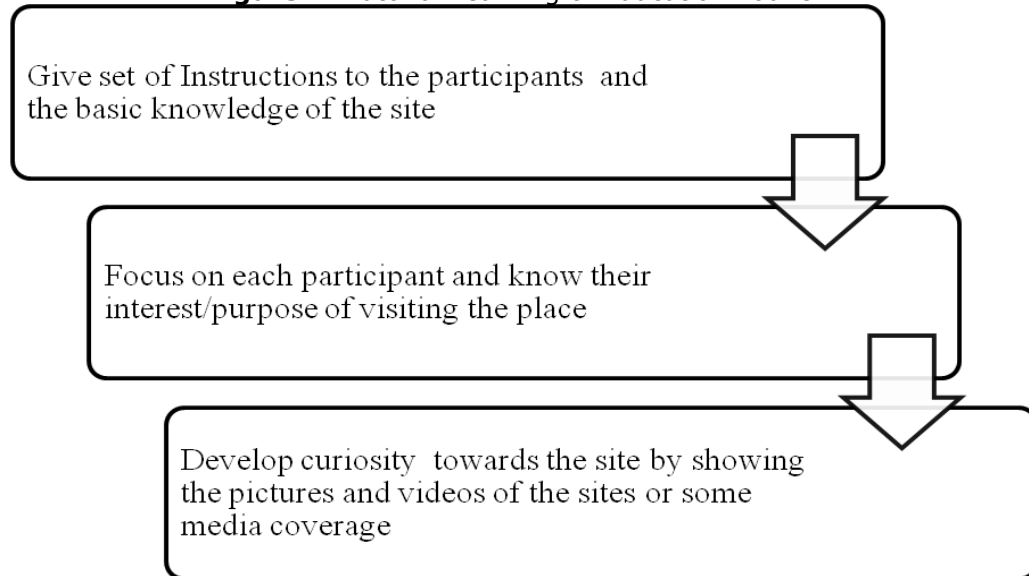**Figure1:** Education Tourism Model

Source: Author

When we talk about the education tourism it is pre requites to decide about the line and length of the education tour program. The education tour program should be specific. For the theme and basic knowledge the participants may start from the tutorial learning and then move to the site for understanding and experiencing it. In the second step of site exploration participants will be able to grab the skills and acquaintance of the site.

In tutorial learning the trainers and mentors/educators may adopt the following steps to make the participants well versed with the tourist destination –

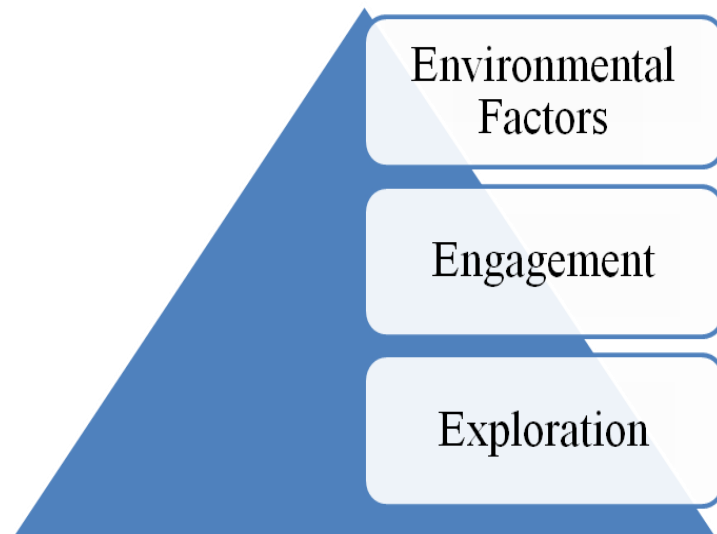**Figure 2:** Tutorial Learning of Education Tourism

Give set of Instructions to the participants and the basic knowledge of the site

Focus on each participant and know their interest/purpose of visiting the place

Develop curiosity towards the site by showing the pictures and videos of the sites or some media coverage

Source: Author

The 3 E's of Education Tourism Learning

Education tourism can avoid a large portion of negative impacts of tourism. When a tourist visits to a tourist destination he/she has to face many types of problems related with communication, cultural, safety etc. To avoid such type of problems education tourism can be a boon. As it involves cultural exchange and collaborations between different people of diverse nations. Therefore, education tourism is an actual learning process along with the safety and security of the tourists /participants. The education tourism will be beneficial only if the participants get benefits. For this while providing the learning the mentors and the organizers must keep in mind the perfect match between the 3 E's i.e. Environmental Factors – It could be the classroom/tutorial environment, ambience of the staying place etc. It is rightly said that environmental education itself provides learning. Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, fosters attitudes, motivations and commitments to make informed decisions and take responsible actions within the environment (Ajake, 2006). A study was conducted by Ashley (2000) on environmental awareness and residents' commitment to tourism. It was discovered from the study that the private sector was the main actor in creating awareness on the need to be environmentally friendly, as well as provide necessary information on environment tourism in the area. He equally observed that providing necessary information about sustainable tourism issues, encouraged people to conserve biodiversity and cultural heritage. Engagement- In terms of active participation of the participants. They should be fully engaged without annoying their interest and preferences. Exploration –Without it the education tourism seems like body without blood. Exploration gives the practical learning to the participants about the sites.

Figure3: Learning and Eduaction Tourism

Source: Author

Hindrances of Education Tourism

The education tourism formulation and implementation are not easy task. There are some hindrances which are associated with it.
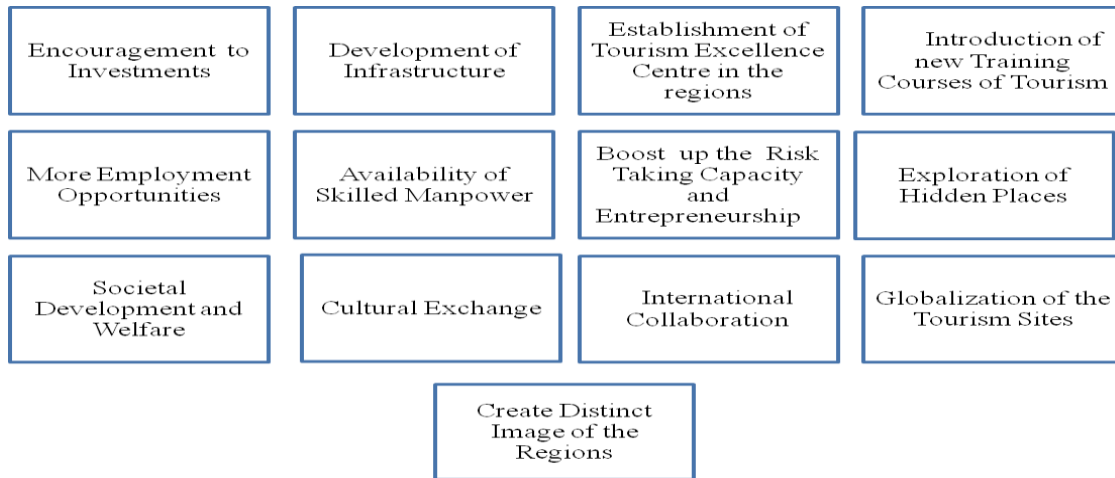
- The first and the foremost problem is of the poor image of the regions in the tourists market.
- Lack of skilled personnel to provide training and practical exposures to the participants.
- Lack of financial assistant to run Educational tour programs.
- Lack of specialists who will be able to organize the education tours.
- Lack of people who are well versed with the foreign languages.
- No branding and promotion of the tourist destinations of the regions.
- Lack of courses and training program of tourism at the Universities level.

Although the regions are facing many problems regarding education tourism still if the programs will be designed strategically surly Hadauti and Shekhawati regions can make wonders. As both the regions have something to offer to everyone. The advantages which these regions are having for education tourism such as the knowledge level of the local people is quite high regarding the tourists places of their region, the place like Kota is a education hub, transport connectivity is good from other places of India.

Benefits of Education Tourism

Education tourism is beneficial in many means for the society at large. Without any doubts education tourism is a tool to provide the development from the grass root of any region, state and country .It is a medium through which the tourists' destinations will be able to get a identity on the global in fact the education tourism is a niche to explore the hidden treasures of a place. The figure 4 is providing a glimpse of the benefits which the Hadauti and Shekhawati Regions may get through education tourism.

Figure 4: Benefits of Education Tourism to the Hadauti and Shekhawati Regions

Source: Author

Findings and Suggestions

The education tourism is a learning process which is actually not focused on economic gains for the participants as well as for the trainers. Education tourism is more about the societal development rather than economic development. Yes off course it indirectly provides a boost to the economic status of any country. As participants visit from one place to another they stay on the destination .In the whole process the people are getting employment and business opportunities. For the regions like Hadauti and Shekhawati which are yet not fully explored it is suggested that the Government, Private Sector and educational institutions should come forward for education tourism .In the light of it few suggestions are recommended –

- A record can be kept for education tourism. The Universities should work with the local people to know the interest of the visitors.
- Skill enhancements trips will be a wonderful way to attract and de-stress the participants.
- Encourage the local people to participate in the education tourism programs. This will give them a participative feeling as well as an earning opportunity.
- The ambiance and facilities related with accommodation, food etc. Can be offered in the local and traditional way. This will again give a excitement to the participants and they feel more closer to the place.
- Be caution while giving the training .Don't try to treat the participants as children.
- The Government should make it mandate for the Universities and educational institutions to organize at least one education tour in a year. The organizations may set free to choose the topic and the theme on which they would like to arrange the education tour.
- For encouraging the education tourism the regions may offer some summer, winter schools, invitations on special occasions such as Diwali, Holi , Christmas, Kite Flying Festival etc.

Conclusions

Education tourism is a mutual beneficial way for the learners and for the society at large. Education tourism is a need in present scenario for the States like Rajasthan. Moreover it the edu tourism can work as a backbone for the survival of many rural area people by generating the employment sources to their places(villages)only. Today the Indian youth is running

towards the Urbanization this is again a problematic situation in terms of de-population at villages and over populated cities, high crime rates, unemployment etc. As India is a country of villages the education tourism is the source through which we may attract the Youth Back to Villages .A state like Rajasthan which is highly rich in terms of heritage, monuments, step wells, fresco paintings, forts, palaces and temples most of these are located in village areas .Therefore, it is a prime time need to concentrate on the projects and process of education tourism. So, the employment will generate at these areas and the hidden treasures will be explored. Not only will this education tourism develop the skilled manpower. The little efforts by the educational institutions, Government and private sector can make wonders in making the regions Hadauti and Shekhawati the top most choice for education tourism on the globe.

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