

Determinants of Labor Demand in Blida Craft Sector : A Multinomial logit Analysis.

محددات الطلب على العمالة في قطاع الصناعة التقليدية: تحليل النموذج اللوجستي المتعدد

Elbachir Omar Abdelaaziz, Bouchama Mustapha
Blida 2 university**Received:** 15/02/2020; **Accepted:** 17/10/2020

Abstract: In most countries there are many sectors that contribute to employment. the craft sector is the most dominant domain that attract labors especially the youth category . This research aims to analyze the determinants of employment in Blida's craft sector, and it investigates the demand for craft workers in conjunction with their educational level, age and gender. The analysis is based on cross sectional data collected by Blida Craft Room in 2018, using a descriptive and econometric analysis on 300 handicrafts as a case of study. A multinomial logit analysis is followed in the empirical study to capture choice probability across the employment in production, services and artistic sectors of Blida's handicrafts labor market. The result shows that there is a significant influence of age, gender and education on the probability of the employment status.

Keywords: handicraft sector; employment status ; multinomial logit.

Résumé : Dans la plupart des pays, de nombreux secteurs contribuent à l'emploi. le secteur artisanal est le domaine le plus dominant qui attire les travailleurs, en particulier la catégorie des jeunes. Cette recherche vise à analyser les déterminants de l'emploi dans le secteur artisanal de Blida et étudie la demande d'artisans en fonction de leur niveau d'instruction, de leur âge et de leur sexe. L'analyse est basée sur des données transversales collectées par la chambre d'artisanat de Blida en 2018, en utilisant une analyse descriptive et économétrique sur 300 d'artisans comme cas d'étude. Une analyse multinomiale logit est suivie dans l'étude empirique pour saisir la probabilité de choix dans l'emploi dans les secteurs de la production, des services et des arts sur le marché du travail des artisans de Blida. Le résultat montre qu'il y a une influence significative de l'âge, du sexe et de l'éducation sur la probabilité du statut d'emploi.

Mots-clés : secteur artisanal ; statut d'emploi ; multinomial logit.

ملخص: في معظم البلدان ، هناك العديد من القطاعات التي تساهم في التوظيف. القطاع الحرفي هو المجال الأكثر هيمنة في جذب العمال وخاصة فئة الشباب. يهدف هذا البحث إلى تحليل محددات العمل في قطاع الصناعة التقليدية لولاية البليدة ، ودراسة الطلب على العمال الحرفيين بدلالة مستواهم التعليمي والعمر والجنس. يعتمد التحليل على بيانات مقطعية تم جمعها عن طريق غرفة الصناعة التقليدية و الحرف لولاية البليدة في عام 2018 ، وذلك باستخدام تحليل وصفي وقياسي على 300 حرفي كحالة دراسة. يتم استخدام التحليل اللوجستي المتعدد في الدراسة الميدانية لمعرفة احتمال اختيار التوظيف في قطاع الإنتاج والخدمات والقطاع الفني لسوق عمل الحرفين الخاص بولاية البليدة. تظهر النتيجة أن هناك تأثيرًا كبيرًا للعمر والجنس والتعليم على احتمال اختيار حالات التوظيف.

الكلمات المفتاح : قطاع الصناعة التقليدية و الحرف؛ حالات التشغيل ؛ اللوجيت المتعدد.

I-Introduction :

in 2006, it was estimated that approximately 200000 Algerians were employed by the crafts industry. Many strategies were applied by the Algerian government to develop the local economy and create jobs to the unemployed Algerian youth. According to the Algerian ministry of tourism and traditional industries (2011), traditional handicrafts industry seeks to achieve three main objectives as first, to create 230000 new activity craftsman: and to create 570000 new jobs to

achieve the 960000 job inventory level, second to reach 7% of the working labor force by 2020. Third, to achieve the crude production level of 535 billion Algerian dinars. Three goals were attempted to achieve through working and focusing in many themes (Fatiha, Azizul, 2016). In 2018, many activities were created by the ministry of tourism and traditional industries, these new activities contribute to employ more than 950000 jobs during the period 2003-2020, planners put a forward look with new strategies of development, they call it “the development of local production system”. This system meets many groups of artisans which has a same profession in the same region to develop new skills and cooperate with them by the coordination of the regional room of the handicrafts industry. In last decade the process of employment grow up during the time in this sub-sector through the men and women handicraft labor market. Traditional handicraft industry plays crucial roles to promote job opportunities, for this we attempt to outline the determinants of the employment in Blida’s area. Our research tries to find the factors that influence employment status in this district, a multinomial logit model is used to test all employment determinants. These data are obtained from the Blida’s room of traditional industry and tourism.

The specific objectives of our study are:

- 1- to study the employment determinants through handicraft sector of Blida
- 2- Analyzing the determinants factors of employment.
- 3- Find out the influence of determinants on the likelihood of employment status.

The paper is divided into (7) sections. The second section is about defining handicraft industry. The third section includes literature review. The fourth section is about data sources description. In section five, we show the methodology of the study and the econometric model, and the sixth section represents the estimation of the model and results. The seventh section discusses the results. Finally the paper ends with conclusion.

II- Definition of Traditional Handicraft Industry:

There are many different definitions of traditional handicraft industry from one to another; we can define the traditional handicraft as a common definition is generally referred to those goods which are made by hands using simple tools and technology which are usually artistic in appearance and traditional in nature. A craftsperson mainly uses the locally available resources and makes valuable products without the aid of modern machines (Mohd Arif, Aijaz Ahmad, 2018). The UNESCO offered a definition of handicraft industry in 1997 as “ the traditional products if they are made by artisans manually, and / or by helping hand machine or even mechanical, provided that they constitute a contribution for manual craftsman most important in the final product compound, produces this material without specifying the quantity, and the use of raw materials derived from permanent natural resources (Fatiha, Azizul, 2016). The artisanal product was defined by the UNESCO in 1997 as “ artisanal products are those produced by artisans, either completely by hand or with help of hand tools or even mechanical means, as long as the direct manual contribution of the artisan remains the most substantial component of the finished product (Richard Noella, 2007). Algerian handicrafts industry was defined by this decree “ the traditional handicraft industry and crafts are all production activity or creativity, transformation or art restoration, maintenance or repair or performance of service dominated by manual labor and exercise mainly durable, and in stable or a mobile form or fairs, or individual or in cooperative and traditional crafts of the industry or enterprise and traditional crafts of the industry”(order No.01-96,4). The handicraft sector plays a crucial role in our economy especially in the labor market, strategies of developing and reinforcing

handicraft production promote employment for the most marginalized populations, and therefore it can create jobs at a minimal cost.

III- An overview of literature:

In this section, we focus on the empirical literature that uses the multinomial logit as a tool to estimate the employment model with socio-economic explicative variables.

Joseph et al.,(2018) analyzed the determinants of youth employment in Rwanda from the point of view of the demand, supply and the general labor market. They try to answer the question about what factors influence youth employment in Rwanda, using a multinomial logit model with socioeconomic determinants such as age , gender, education and location. They show a different results on how a socioeconomic determinants influence the youth employment categories (paid employee, own account worker, unpaid family worker, volunteer).

Magnus Carlsson and Stefan Eriksson(2017) analyzed the age and gender differences in labor market outcomes, they investigated how worker's age and gender affect employer's hiring decision in the field of the labor market discrimination. The study uses a binomial logit model with a sample of 6066 resumes send to 2022 employers, the results indicate that employers view age as a negative factor in the recruitment process, the callback rate falls five percentage points for each ten years of aging, and the female applicants have on average 1.4 percent age points higher callback rate than man.

Etfo and Lufumpa (2014) estimated separate regression for both (women, men) and (urban, rural area), they used a multinomial logit model to examine factors influenced the employment in Rwanda. They separated the employment to many categories: employment in formal, informal sector and self employment in non agriculture and agriculture, making a comparison between 2005 and 2011, different results were shown the movement of worker between the different kinds of employment.

Wambrui R.Wamuthenya (2010) examines the determinants of employment in public, private and informal sectors of kenya's urban labor market. A multinomial logit model uses in this study to analyze the effect of social and economic characteristic among the explanatory variables on the four labor force categories: public sector, private sector, informal sector and unemployed. The result shows the estimation of the probability of selected choice, the estimation of the model shed light the important of the age and gender differences in the choice of sectors and the importance of education and the marital status.

Cook (1998) explores with factors influence the likelihood of individual participation in particular employment sectors using data from Shandong province in china for the period (1990-1992). The study uses a multinomial logit model and divide employment to three sectors (agriculture, self employment, wage employment) the result show that many factors influence the employment such as the age , education, gender, marital status.

IV- Data and Descriptive statistics:

According to the handicrafts room of Blida, there is a database register 7327 craftsman, the data show an individual qualities and characteristic of each recorder. The study uses the 2018 data focusing on individuals in the labor force age (16-64), excluding the young children, students work

part-time in informal handcraft sector, individual without craftsman card. The handcraft sector is available with three kinds of activities (production, services, and technical activity). In light of the foregoing we can divide the employment in three categories (productive, services, technical labor), technical labor as carpenter, tailor, pottery makers.....

From the total labor force registered, (22,3%) represent productive labor, services labor (58,6%) and (19,02) represent the technical labor (table 01).

Table01: frequency and percentage of craftsman by categories.

category	frequency	Percentage (%)
production	1635	22.3%
services	4298	58.6%
technical	1394	19.02%
total	7327	100%

Table 2 illustrates total craftsman in Blida by ages (16-65) for women and men in 2018.

Table02: the distribution of craftsman by gender

category	men	women
production	1418	217
services	3656	642
technical	767	627
total	5841	1486

Table 02 shows that the craftsman registered in services are the dominate category by 3656 for men and 1486 for women, we remark that there is a wide difference between men and women in both categories (production and services), this gender gap improves the weak participation of women handcrafter in this sectors because the production and services sectors include hard works and difficult tasks, so women avoid it. Women handcrafters are attracted by artworks; proximally there is no difference in the distribution of men and women in the technical sector.

Table 03 illustrates the distribution of craftsmen by the educational level, education is expressed through the following levels (illiteracy, primary school, middle school, high school, university), and the following table shows the distribution of craftsmen according to their educational level.

Table 03: distribution of craftsmen by educational level.

categories	illiteracy	Primary	middle	high	university
production	8	94	1417	148	37
services	17	127	1039	108	33
technical	38	316	3525	367	54
total	63	537	5981	623	132

The most craftsmen have a middle school level for all categories, it can be explained that the young students who left school, prefer to enroll in the school of professional training. The minority of registered have an illiteracy level and the most of craftsmen who has this level register in technical sector because this sector doesn't require high educated labor but require talented labor, most of them practice art work like (pottery, engraving on stone, traditional drawing....) because they can acquire this skills by training. The majority of the students when they leave the high school prefer the service sector because this one sector require some educational level (computer skills, writing skills....). the (2%) of the total labor represents the craftsmen who has university level where this sector absorbs unemployment from university graduates.

V- Methodology:

We used (Cook 1998) model to assess the determinants of employment in Blida handicrafts sector, this model helps us to examine some of the key socioeconomic determinants such as age, gender, education, marital status, location and type of certificate are qualified as factors from demand functioning which contribute to handcraft employment. Following cook (1998), the model is specified as:

$$emp_i = b_0 + b_1g_i + b_2ag_i + b_3e_i + b_4ms_i + b_5l_i + b_6tc_i + u_i$$

Where (*i*) indicates individuals and (*emp*) represents the employment status in handcraft sector (production, services and technical sector). The socioeconomic determinants including gender (*g*), age (*ag*), educational level (*e*), marital status (*ms*), location (*l*), type of certificate (*tc*) constituted independent variables. The error term (*u*) denotes any measurement error in the employment status and missing variables.

The gender is a qualitative variable take (1) if the individual is a man and (0) if the individual is a woman, entrance of this variable in the model plays a crucial role to capture any gender gap and the existence of discrimination in the labor market of craftsmen. The variable (*g*) is a quantitative variable that tests the sensitivity of the likelihood of the employment status. There is a systematic age and gender differences in key labor market outcomes, elder workers and women often have lower employment rates and total labor market earning, also unemployment duration increase substantially with age (Magnus Carlsson, Stefan Eriksson, 2017, p⁰³).

The educational level is divided into five levels (illiteracy, primary school, middle school, high school, university) , we include four dummy variables, (*ep*) a dummy variable which is coded as one in the case of the individual has a primary level and zero in the other cases, (*em*) takes one if

the handcrafter has a middle school level and zero in the other cases, the same rule for (*eh*) and (*eu*) represents the high school level and university level respectively. we don't include The variable of illiteracy level (*ei*), the qualitative variables has five categories we include only four dummy variables in order to avoid what is called the dummy variable trap (Damodar N.Gujarati, 2004, P³⁰²). Education and employment is a famous topic in theory of labor demand, most studies and previous literature include education as a main variable to determinant the employment. The marital status (*ms*) is qualitative variable represents two cases (single, married), we inset this variable because the employment is affected by the marital status, through previous studies and experiences the employer prefers single worker man or woman instead of married workers. (*ms*) variable takes one if the individual is single and zero if he is married. (*l*) represents the activity zone of the handcrafters, there are two kinds of location (rural area and urban area), this dummy variable takes one if the handcrafter practices his activity in urban area and zero for rural area. (*tc*) is the type of certificate obtained, the craftsmen has two types of diploma, the first is professional certificate granted by professional training center, the second is qualification certificate granted by the room of handcrafters. (*tc*) is a qualitative variable, we include one dummy variable, take one in the case of professional certificate and zero for qualification certificate. We rewrite our model as:

$$emp_i = b_0 + b_1g_i + b_2ag_i + b_3ep_i + b_4em_i + b_5eh_i + b_6eu_i + b_7ms_i + b_8l_i + b_9tc_i + u_i$$

VI- estimation and results:

A multinomial logit is used in this analysis, this model permits the analysis of decision across more than two categories allowing the determination of choice probabilities for different categories of employment in the sector of handcrafter in Blida. In this analysis, we consider three categories which are:

- 1- Employment in service sector.
- 2- Employment in production sector.
- 3- Employment in the technical sector.

Instead of having two dichotomous alternatives (0,1) as in the binomial logit or probit models, the multinomial logit has (*S*) possible states or categories- that is $S = 1,2,3 \dots S$ - that are exclusive and exhaustive (Guy Blaise Nkamleu, 2009, p⁰⁶).

There are three categories, $s = 1,2,3$ and random sample of 300 craftsmen work in Blida handicraft sector, the multinomial logit model assigns probabilities (p_{is}), the event characterized as “ith craftsman in sth category”. The vector of the characteristics of the craftsman is denoted by (*z*) In this model each individual must choose one and only one of the available alternatives and take a reference category with null parameters, consider the first alternative as a reference category to solve an identification problem and to make the probabilities sum to one (R. Carter hill et al.,2011, p⁶⁰⁰).

In the multinomial logit specification the probability of individual *i* choosing alternative *j* is :

$$p(y = s) = \frac{e^{B_j z_i}}{1 + \sum_{k=2}^s e^{B_k z_i}} \quad \text{for } s \text{ not equal to } 1$$

The parameters (b_j) are estimated by the derivation of the log-likelihood, represent a generalization of the binomial probit or logit model:

$$\ln l = \sum_{i=1}^n \sum_{j=1}^J d_{ij} \ln p(y_i = j)$$

Where (p_{ij}) is the probability of individual (i) in state (j). ($d_{ij} = 1$) if $y_i = j$, 0 otherwise. $J = 1, \dots, j$.

The derivatives have the characteristically simple form

$$\frac{\delta \ln l}{\delta b_j} = \sum_i (d_{ij} - p_{ij}) z_i \quad \text{for } j = 1, \dots, j.$$

The exact second derivatives matrix has $j^2 k \times k$ blocks (William H. green, 2003, p⁷²²).

The hessian is:

$$\frac{\delta^2 \ln L}{\delta b_j \delta b_l} = - \sum_{i=1}^n p_{ij} [1(j = l) - p_{il}] z_i z_i$$

Where ($j = l$) equals 1 if (j) equals (l) and 0 if not. The hessian depends on the unknown parameters and the matrix does not involve (d_{ij}).

The model was estimated with individual-characteristic of 300 handcrafters registered in 2018 by the Handicraft Room of Blida. A total of 9 independent variables has been included in the empirical model, using multinomial logit specification. A maximum likelihood procedure was used to estimate the parameters; the employment status should be the outcome variable which is related to the different categories analyzed. We choose the first alternative (employment in service sector) as a baseline category in our model. The model is estimated with the help of **Gretl-program** (see **appendix**), the results of the regression are:

Table 04: Multinomial logit estimation of employment status.

variables	Employment status			
	Emp-production		Emp-technical	
	coefficient	z-statistics	coefficient	z-statistics

constant	-2.45**	-2.31	-6.81***	-3.71
g	1.46***	3.72	-2.59***	-3.14
ag	-0.00059	-0.0222	0.28***	5.62
ep	-0.12	-0.15	-1.46	-1.121
em	1.40**	2.24	-1.44	-1.33
eh	1.13*	1.83	-1.51	-1.35
eu	0.71	1.059	-2.53*	-1.93
ms	1.56***	3.917	-0.54	-0.79
l	-1.2***	-3.12	-0.92	-1.32
tc	1.18***	3.09	-2.5***	3.16
Log likelihood	-136.3416			
Sample size	300			

*** significant at 0.01; ** significant at 0.05; * significant at 0.10.

VII-Results and discussion:

Based on the previous estimation, the likelihood ratio is (371.616) with a p-value (0.0000) tells us that our model is statistically significant, this statistical result leads us to conclude that the handicraft's employment in Blida is influenced by gender, age, education, location, marital status and the type of certificate.

A one unit increases in the variable (age) is associated with a (0.00059) decrease in the relative log odds of choosing the employment in the production sector versus other employment status, however this unit increases of aging is associated with (0.28) increases in the likelihood of choosing the employment in the technical sector, the variable (age) is positive and statistically significant for the third alternative.

The effect of a change in an explanatory variable on the probability ratio is given by this relation (Hill, 2011, p⁶⁰²):

$$\frac{\delta(p_{ij}/p_{i1})}{\delta x_{1i}} = b_{2j} \exp(b_{1j} + b_{2j}x_{1i} + \dots + b_{nj}x_{kj}) \quad j = 2,3$$

This means that if the age increases the probability that the handcrafter will choose production sector or technical sector increase, relative to the probability of choosing services sector.

In general we can notice that the variable gender (g) is important for the production sector, being a man increase the likelihood of choosing this sector, for the technical sector being a woman is

important. Marital status (ms) is positive and statistically significant for the production sector, a married hand crafter enhances the likelihood of choosing this sector. Location (l) decreases the likelihood of production sector, the handcrafter who lives in rural area enhances the likelihood of choosing the production sector. The type of certificate (tc) is statistically significant for both production and technical sector, this variable is important for the production sector, the professional certificate increase the likelihood of production sector and decrease the likelihood of technical sector. The two levels of education (em,eu) are important (with positive effect) for production sector , the four levels of education are effecting negatively on the technical sector, precisely the illiteracy level is important for the technical sector.

In this models the marginal effect is an important tool for analysis, it is the effect of a changing in (x), everything else held constant, on the probability that an individual chooses alternatives, a marginal effects (MEs) differs and are interpretable as the following: a positive (negative) signs implies that a variable increases (reduces) the probability of a particular outcome. We write the marginal effect in the case of a single explanatory variable and three alternatives ($m = 1,2 \text{ or } 3$) as follows (Hill, 2011, p⁶⁰¹):

$$\frac{\delta p_{im}}{\delta x_i} = p_{im} \left[B_{2m} - \sum_{j=2}^3 B_{2j} p_{ij} \right] \dots \dots (B_{21} = 0)$$

We can substitute the marginal effect by the average of marginal effect that expresses the mean of the marginal effect for each explanatory variable, we can write it as follows:

$$AME = \bar{p}_m \left[B_i - \sum_{j=2}^3 B_{ij} \bar{p}_j \right] \dots \dots \dots i = 1.2 \dots k$$

The averages marginal effect (AMEs) of each explanatory variable for specific category are shown in the following table:

Table 05: average marginal effect.

	Emp-production	Emp- technical
	$\bar{p}_2 = 0.52$	$\bar{p}_3 = 0.37$
g	0.083	-0.10
ag	-0.0000286	0.0081
em	0.64	-
eh	0.52	-
ms	0.69	-

l	-0.55	-
tc	0.54	0.82

The (*AME*) of variable age (*ag*) is positive for the technical sector, that means the one year of aging enhance the probability (about 0.0081) of choosing this sector, the one year of aging not important for the second sector. The (*AME*) of variable gender (*g*) is positive for production sector and negative for technical sector, this implies that being a man enhances the likelihood of choosing the second alternative (by about 83%), and reduce the likelihood (about 10%) for the technical sector. The technical sector is attractive for women handcrafter because this sector contains artistic works such as embroidering, swing and pottery or there are some kinds of sex discrimination in the labor market of the production sector (the employer prefer hire man rather than woman).

The positive effect of the two educational (middle school, high school) in the production sector increases the likelihood of choosing this sector, the (*AME*) of education are about (64%) and (52%) for the middle school and high school respectively. In the technical sector the four educational levels have a negative effect on the likelihood of being in this sector, this indicate that the handcrafter who has a illiteracy level enhances the likelihood of being in the technical sector. The variable (*ms*) is positive and statistically significant, being a married handcrafter increase the probability of choosing the production sector about (69%) . the (*AME*) of variable location (*l*) is about (-55%), that means the handcrafter who lives in urban area decrease the likelihood of choosing the production sector about (55%). The (*AME*) of (*tc*) is positive for production sector and negative for the technical sector, the handcrafter who obtained the professional certificate increase the likelihood about (54%) for the production sector and decrease the likelihood about (82%) for the technical sector.

VIII- Conclusion:

The analysis presented above allows us to determine how the factors included in the model affect the likelihood of the employment status, there is a negative relationship between the age and the likelihood of being either in production sector or the technical sector. The average marginal effect of the age results that the one year of aging enhances the likelihood of being in the third sector (technical sector) is about (0.0081). Elder handicrafters are dominated in the technical sector, handicraft rooms can open training workshops for artworks to return the youth worker in this sector. The middle school and high school levels affect the employment in the production sector, the handcrafter who has middle school or high school level increases the likelihood of being in this sector. Obtained a professional certificate enhance the likelihood of being in the production sector, to absorb the unemployment in this youth group who left the school, a strong bridge must be built between the school and the professional training center. The average marginal effect of the gender is negative for the technical sector that means being a woman enhances the likelihood of choosing this sector, this is an important factor working to reduce the female unemployment, so the development of the technical sector by the Blida's handicraft allows to create new jobs for female.

IX- Appendix:

Modèle 1: Logit Multinomiale, utilisant les observations 1-300

Variable dépendante: emp

Écarts type basés sur la matrice hessienne					
	<i>Coefficient</i>	<i>Erreur Std</i>	<i>z</i>	<i>p. critique</i>	
const	-2,44901	1,05861	-2,313	0,0207	**
g	1,46654	0,394270	3,720	0,0002	***
ag	-0,00059234	0,0266537	-0,02222	0,9823	
7					
ep	-0,118877	0,769942	-0,1544	0,8773	
em	1,40076	0,622743	2,249	0,0245	**
eh	1,13189	0,616137	1,837	0,0662	*
eu	0,707419	0,668025	1,059	0,2896	
ms	1,56390	0,399218	3,917	<0,0001	***
l	-1,21347	0,388560	-3,123	0,0018	***
tc	1,18886	0,384638	3,091	0,0020	***
const	-6,81788	1,83501	-3,715	0,0002	***
g	-2,59438	0,826102	-3,141	0,0017	***
ag	0,282293	0,0502000	5,623	<0,0001	***
ep	-1,46384	1,20972	-1,210	0,2263	
em	-1,44964	1,08487	-1,336	0,1815	
eh	-1,50840	1,11500	-1,353	0,1761	
eu	-2,52642	1,30801	-1,932	0,0534	*
ms	-0,544988	0,685882	-0,7946	0,4269	
l	-0,929453	0,703441	-1,321	0,1864	
tc	-2,50305	0,791618	-3,162	0,0016	***
Moy. var. dép. 2,060000			Éc. type var. dép. 0,751631		
Log de vraisemblance -136,3416			Critère d'Akaike 312,6832		
Critère de Schwarz 386,7589			Hannan-Quinn 342,3284		

Nombre de cas 'correctement prédis' = 238 (79,3%)
Test du ratio de vraisemblance: Chi-deux(18) = 371,616 [0,0000]

X-Referrals and references:

- Bouziane fatiha, Azizul Hassan (2016). strategic Determinants for the Development of Traditional Handicraft Industry of Algeria. International Journal of Managing value and Spplly, 07(01), 01-11.
- Damodar N.Gujarati (2004). Basic Econometrics (fourth edition). Usa: the Mc Graw-hill companies.
- Etfo and Lufumpa (2014). Analysis of Gender and Youth Employment in Rwanda. African Development Bank, 01-35.
- Garramiola-bilbao, A.Rodriguez-alvarez (2016). Linking hearing impairment, employment and education. Public Health, (141), 130-135.

- Guy Blaise Nkamleu (2009). Determinants of Child Labour and Schooling in the Native Cocoa Households of Cote d'Ivoire. African Development bank, 46(02), 01-47 .
- Howard J. Shatz et al (2015). The demand for Mongolian labor. Rand corporation, 41-62.
- Kye Woo lee, Miyeon Chung (2015). Enhancing the link between higher education and employment. International journal of Educational Development, (40), 19-27.
- Magnus Carlsson, Stefan Eriksson (2017). The Effect of Age and Gender on Labor Demand. Institute for Evaluation of Labour, 23(07), 01-47.
- Maria Quattri, Kevin Watkims (2019). Child labour and education – A survey of slum settlements in dhaka (Bengladesh). World Development perspective, (13), 50-66.
- Mohd Arif Bhat, Aijaz Ahmad Bhat (2018). Employment Through Handicraft Sector in Jammu and Kashmir state : A comparative study of Kathua and Anautry district. Journal of Economics and Sustainable Development, 19(01), 57-61.
- Ndagijimana et al (2018). An Analysis of The Determinants of youth Employment in Rwanda. East Africa Research Paper In Economics, 11(33), 01-27.
- R. Carter Hill et al (2011). Principles of Econometrics (fourth edition). Usa: Wiley.
- Richard Noella (2007). Handicrafts and Employment Generation for the Poorest Youth and Women. United Nations, 07(17), 01-63.
- Sarah Cook (1998). Who Gets What Jobs in China's countryside ? A Multinomial Logit analysis. Institute of Development Studies, 26(02), 171-190.
- William H. Green (2003). Econometrics Analysis (fifth edition). New York: Pearson Education.