

## Factors Affecting Duration of Unemployment among Young Graduates of Khyber Pakhtunkhwa (An Approach to Duration Analysis)

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### Abstract

*The study was designed to calculate the waiting time for employment for graduates in KP with respect to their level of education and specialization in the field. Contribution of demographic, socioeconomic status, language proficiency, job preferences, job search methods and nepotisms was also measured regarding the waiting time for employment. Responses of 791 respondents collected through multi-stage non-probability sampling were analyzed with the help of the well-known Kaplan Meier and Cox regression models and Cox proportional hazard models. The study concluded that a graduate waited for 15 months to be employed during the period 2003-2014. Age, language proficiency, level of education, specialization, language proficiency, nepotism and socio economic factors have significant influence on waiting time for employment. The study recommends the development of integrated frame work for information about trends of unemployment, career counseling and elimination of unemployment at national level.*

### Key Words

Unemployment, Kaplan  
Meier, Cox regression

### Introduction

Unemployment, as defined by the International Labor Organization, occurs when people are without jobs and they have been actively looking for work within the past four weeks. Unemployment has emerged as a burning issue in the current economic scenario, not only for the underdeveloped countries but also for the developed countries. This common issue is however effected by different factors in every country. Although unemployment is a natural phenomenon however this phenomena become a problem when the duration of unemployment for any individual becomes too long. Therefore, addressing of this issue require significant amount of research that has been conducted in various parts of the globe. In this regard the study aspires to explore unemployment from durational point of view where the researchers aim to explore those factors which affect the duration of unemployment in Pakistan with a particular focus on the area of KP. During 2012-13 the population of Pakistan is estimated at 184.35 million growing at an annual growth rate of 2%. Of the total population, 60.52 million (32.1%) are in labor force. The Kavkler et al. (2009) calculated the unemployment duration for 5 different European countries in which minimum duration of unemployment is 254 days for Austria and maximum of 478 days for Slovenia. The other countries included in the list are Romania, Macedonia and Croatia with unemployment duration of 264, 353 and 455 days respectively. Gender, age and education level are the most important factors identified in the Kavkler et al. (2009) study which influence the unemployment duration. It is important to search for determining social, physical, economic, regional, demographic factors in this respect. This study aims to determine the duration of unemployment experienced by university graduates in KP Pakistan after completion of their final degree. The study will consider various factors including age, sex, and region, degree of belonging, economic status, social status, and level of education while evaluating the reasons for the duration of unemployment.

### Literature Review

The conceptual base of this study rests on the concepts of unemployment which explore the factors of the duration of unemployment. The abundance of literature available indicates the critical repercussions of unemployment issues for the economic and social development of a nation. This section provides a critical assessment of the significant studies in this area.

Similar to any other market, the labor market also holds a composite structure of a supply side and a demand side. The supply side of the labor market is referred to as labor force and is categorized as an economically active proportion of population. This labor force is further grouped as employed or unemployed. The demand side of the labor market on the other hand reflects the enterprise demand for labor force which can again be further segregated into two components being jobs and vacancies (ICLS, 1982).

The duration of unemployment refers to the average length of time for which the workers are unemployed or underemployed (Boyes & Melvin, 2007). Although the literature gives a significant importance to time as a factor to be considered in defining unemployment yet this time period is most of the times extend more than four weeks to be categorized as unemployed. This 'time' factor therefore emerges as a concept of duration and is dealt with separately within the paradigm of duration analysis. The duration of unemployment has become an issue of national interest as it significantly contributes towards the economic and social costs incurred by the country (Haynes, et al., 2011). Within the perspective of duration analysis for unemployment, Survival analysis is found out to be a popular technique. Studies such as Moffit (1999) used disparate methods for analyzing labor markets and presents new developments taking place in econometric methods for labor market analysis. Similarly use of different parametric and non-parametric techniques can be found in Tansel and Tasci (2005), who examined the effect of different factors on unemployment in Turkey. Further examples include the work of Nivorozhkin (2006) who in his study made use of the competing risk duration model to examine churn rates between past and present employers. Variables of importance in this study included age and duration of service, concluding that regardless of the existence of law in Sweden, workers that were older tended to remain unemployed longer. The technique of semi parametric Cox regression was employed by Kavkler et al., (2009) in a combination of five eastern and central European countries. The study applied Cox proportional hazard models with time dependent covariate to the data. Another researcher Ollikainen (2003) used data from 1997-1999 to model for unemployment duration of men and women in Finland. For the first time single risk discrete time hazard model was used as a base which was then extended to piecewise constant hazard and competing risk models.

The length of time period for which the labor force is unemployed or remains to be unproductive is dependent upon several factors. The factors that contribute towards the duration of unemployment are found to be scattered across several variables counting age, education, gender, geographical location, educational qualification and several others. For instance Serneels, (2001) focused on the factors that lead to reduce unemployment duration such as age and unemployment. Similarly, Hyder (2006) inquired about the unemployment duration and the preference of unemployed for public sector jobs in Pakistan which influenced the duration of unemployment.

The impact of age is found to be significant on the duration of unemployment and underemployment. Serneels (2001) in his study claimed that age is inversely associated with the duration of unemployment. Nevertheless Danacica and Baucea (2006), in their study conducted in Romania from 1998-2006, argued that age has a positive relationship with the duration of unemployment. Van den Berg et al. (2008) in their study comprising sampling Portugal, France, and Denmark found that both young and old people encounter difficulties in becoming employed, both experiences a shortage of opportunities.

Van den Berg et al. (2008) using gender as a variable within registered unemployment data in France found that stratifications based on gender resulted in different unemployment figures. Other studies focusing on gender include Hunt (2004) who conveys that gender gaps are not akin to skills gaps.

Linguistic skills play a significant role in enhancing the employability of the young graduates. The study conducted by Lim (2011) strives to support this fact through analyzing the unemployment duration among the young graduates of Malaysia. The literature reviewed above provides a strong support for considering English language proficiency as one of the major factors affecting the duration of unemployment.

The duration of unemployment is also dependent upon the availability of advanced and well developed job search methods. Thor (2008) studied the unemployment duration of freshly graduated non-western minorities on Dutch labor market by examining their job search methods. An appropriate job search method is always helpful in decreasing the unemployment duration such as internships were more significant for fresh graduates in getting jobs than the public employment offices.

The literature reveals that the state of unemployment tends to prevail for a certain time period which in turn is sorted as the duration of unemployment. However the length of this duration is reliant upon several factors indicated in the literature. The most prominent factors supported in the literature as determinants of the duration of unemployment include age, gender, educational qualification, job search methods and language proficiency. However for every factor identified the literature does not coincide on a single trend and for every different country it communicates a different perspective. Therefore it grows to be imperative for the researchers to study the impact of these factors in the context of Pakistan when analyzing the duration of unemployment and underemployment in Pakistan.

Major objective of the study are given below,

To calculate the duration of unemployment after completion of the final degree.  
 To identify the factors affecting the duration of unemployment?

**Research Methodology**

Calculations of time from graduation to work, variation in time of unemployment and role of different factor on this time were the major objectives of study, to fulfill that the universe for the study was consider being HEC recognized universities and degree awarding institutions working in KP. Using multi-stage sampling, the first stage involved sampling universities/Institutes purposively from all public and private sector universities/Institutes of KP (Pakistan). The above procedure resulted in identification of universities operating in described time frame.

In the second stage graduates of the sampled universities/institutes were conveniently sampled from different districts to collect data using specially designed questionnaires. 1200 hundred questionnaires were distributed among the graduates of selected universities in which 791 has been returned and used for the analysis. The Kaplan Meier model was used to estimate the duration of unemployment and cox regression model was used to test the significant factors which affect duration of unemployment.

**Data Analysis**

The data collected in the previous section have been analyzed in this section using technique of Kaplan Meier and Cox regression model to accomplish the objectives of the study while descriptive statistics have been calculated to explain the composition of the sample with reference to gender, education level and specialization.

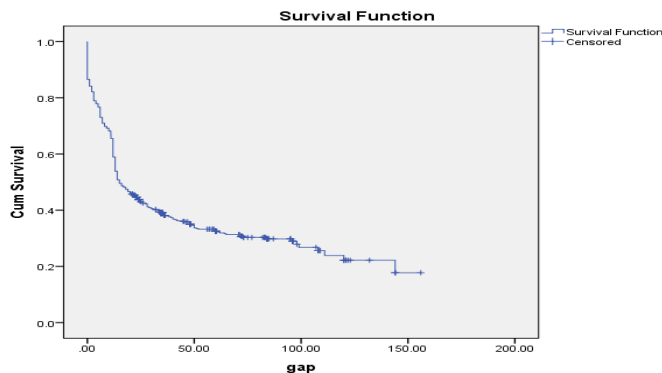
**Waiting Time for Employment**

The study aims to investigate overall waiting time for a graduate in KP to be employed. Survival analysis technique Kaplan Meir test is used to calculate the estimated time for the graduate to be employed irrespective of the specialization they are having. The result of the test have been described in table 1

**Table 1.** Kaplan Meir Median Survival Time for Overall Graduates

Estimate	S. E	95% Confidence Interval	
		Lower	Upper
15.000	1.377	12.30	17.69

The table 1 explained that on average a graduate wait for 15 month to be employed with lower bound of 12.3 month and upper bound of 17.7 month. The result can also be seen in fig 5.



**Figure 1:** Survival Graph for Overall Graduates

**Explanation of Factors Contributing to Waiting Time**

The objective of the study was to identify contribution of different factors i.e. (demographic, level of education, degree, socioeconomic conditions, nepotism, job preferences, personal preference and spoken, written English skills) to unemployment with the help of Cox regression models and Cox proportional hazard models. The value of the Chi Square 156.821 with P-value <0.000 shows that overall model is significant.

To identify the contribution of different factors on unemployment Table 2 can be used. Overall age, level of degree, spoken English, nepotism, and house sizes have significant contribution in waiting time for unemployment.

**Table 2.** Cox regression for duration of unemployment

	Variables in the Equation					
	B	SE	Wald	df	Sig.	Exp(B)
age			59.87	3	.000	
age(1)	2.957	.548	29.071	1	.000	19.239
age(2)	2.438	.364	44.810	1	.000	11.449
age(3)	1.328	.344	14.864	1	.000	3.772
faculty			20.016	8	.010	
faculty(1)	.541	.479	1.278	1	.258	1.718
faculty(2)	.439	.250	3.087	1	.079	1.552
faculty(3)	-.408	.280	2.119	1	.146	.665
faculty(4)	.545	.537	1.030	1	.310	1.725
faculty(5)	.414	.573	.522	1	.470	1.512
faculty(6)	-.908	.483	3.533	1	.060	.403
faculty(7)	-.332	.269	1.518	1	.218	.718
faculty(8)	-.465	.250	3.451	1	.063	.628
level_degree			6.100	2	.047	
level_degree(1)	1.038	.562	3.413	1	.065	2.822
level_degree(2)	.618	.552	1.251	1	.263	1.855
spoke			9.040	4	.060	
spoke(1)	2.299	.862	7.111	1	.008	9.962
spoke(2)	2.084	.821	6.440	1	.011	8.039
spoke(3)	1.658	.843	3.872	1	.049	5.250
spoke(4)	1.526	.870	3.077	1	.079	4.600
written			6.330	3	.097	
written(1)	.552	.728	.575	1	.448	1.737
written(2)	1.034	.712	2.109	1	.146	2.813
written(3)	1.014	.717	1.997	1	.158	2.756
jsm			1.175	5	.947	
jsm(1)	.163	.525	.096	1	.757	1.177
jsm(2)	.379	.430	.779	1	.377	1.461
jsm(3)	.248	.337	.544	1	.461	1.282
jsm(4)	.300	.357	.709	1	.400	1.350
jsm(5)	.097	.443	.048	1	.826	1.102
nepotism			8.372	3	.039	
nepotism(1)	.236	.380	.387	1	.534	1.267
nepotism(2)	-.194	.372	.272	1	.602	.824
nepotism(3)	.340	.389	.761	1	.383	1.404
gender_coded			.139	1	.709	.933
living_pref1	.124	.302	.168	1	.682	1.132
work_pref1	-.628	.327	3.679	1	.055	.534
job_pref			2.070	4	.723	
job_pref(1)	.142	.394	.129	1	.720	1.152
job_pref(2)	.135	.786	.030	1	.863	1.145
job_pref(3)	.009	.434	.000	1	.983	1.009
job_pref(4)	.674	.535	1.592	1	.207	1.963
Important			3.905	2	.142	
Important(1)	-.382	.198	3.743	1	.053	.682
Important(2)	-.310	.281	1.220	1	.269	.734
year_study	.011	.069	.024	1	.876	1.011
HH_size	-.110	.039	8.187	1	.004	.896
House_type			.476	2	.788	
House_type(1)	.243	.377	.415	1	.520	1.275
House_type(2)	.302	.457	.437	1	.509	1.352

Age has a significant contribution on waiting time for employment. Data reveals that one unit change in age will cause change of 19.23, 11.45, and 3.77 units change in chances of being employed for three categories of age

determined. Which can also be explained that at early age the chances of been unemployed is greater but with increase in age, change in education and experience leads to an enhancement of chance for employment in market.

Specialization of graduate also has a significant contribution in chances of unemployment at 10 %. Some of the disciplines have significant contribution in either increasing or decreasing the waiting time to be employed in market. Having the degree of engineering the graduate chances of being unemployed is increase by 55 units. With the degree of law their chances of being employed is decrease by 60% while the management sciences graduate chances of being employed is decrease by 38 % . The result of the cox model support the result of Kaplan Meir results as management sciences, law and engineering graduates are the top three on waiting list for employment with regard to months and these specialization have significant contribution in the unemployment of the graduates.

Data explains that one unit change in spoken proficiency will bring 9 unit changes in decrease in waiting time for employment. Another explanation is improving English proficiency will enhance the chances of employment in the market. One of the reasons is that English is official language in country in spite of being 2nd language. Written English skills have overall significant contribution in reduction of unemployment time at 10 %.

The finding of study also shows significant contribution of nepotism in increasing waiting time for employment at 10%. The data is accordance with prevailing perception in society. Majority of respondents think that nepotism can be seen in work places in KP where employer favoring their close relatives and friends. The result of cox also shows significant contribution of nepotism in increasing the waiting time for unemployment.

A work preference with respect to geographical location also has a significant contribution in reducing the waiting time for unemployment. Working preference in urban can reduce the waiting time by 47% as compared to work in rural setting. So in urban areas there is greater chances of being employed which is increasing the population burden on resources of urban setting in KP which is evident from the condition of cities like Peshawar, Mardan, Abbottabad and D.I.Khan etc.

The house size over here means the no of individuals in one house. The house size also significantly contributes toward the waiting time to unemployment. One unit change in house size reduces the waiting time for employment by 11%.

Factor like job search method, level of education, socio economic condition have no significant contribution in either reduction or enhancement of waiting time to be employed.

The above finding helped in accomplishment of study objective; to identify the contribution of demographic, specialization, language proficiency, working preference, socio economic factors and nepotism on waiting time to be employed.

## **Discussion and Conclusion**

The study aims to calculate waiting time for the graduate to be employed. The study also investigated contribution of different factors i.e. demographic, language proficiency, job search method, job preferences and nepotisms on waiting time for employment. The result of study indicates that overall waiting time for graduate to be employed is around 15 months. The result are consistent with studies of Ollikainen (2003) stated that higher education is a significant factor in curbing unemployment, especially within women. Alternatively, D'Agostino and Mealli (2000) found that in UK, Belgium, and Ireland if an educational level is higher it shortened the unemployment durations, and found no important affect in Greece and Spain. Their findings are additionally supported by the study of Semeels (2001) which strives to confirm a positive effect of education on the duration of unemployment.

Moreover, Domadenik and Pastore (2004) using a multinomial logic model, found that tertiary educational attainment within young adults works as a buffer against unemployment. Kavkler et al., (2009) also confirmed a positive impact of high levels of education on decreasing the unemployment levels in the central and European countries. Similar results were provided by Ollikainen (2003).

Further strength is provided to these findings by the study of Danacica and Baucea (2006), conducted in Romania concluding that higher levels of education tend to shorten the unemployment duration.

Deficiency of higher education is not the only cause of lengthy unemployment durations but it is also increased due to the problems with the educational systems.

The study also investigated the contribution of different factor on the waiting time for unemployment. Cox regression model was used for result.

Age is significantly contributing toward decrease in unemployment. Which is consistent with research of Semeels (2001) in his study claimed that age is contrariwise associated with the duration of unemployment. Nevertheless Danacica and Baucea (2006), in their study led in Romania from 1998-2006, claimed that age has a positive relationship with the duration of unemployment. Van den Berg et al. (2008) in their study found that both young and old people encounter difficulties in becoming employed, both practices a shortage of chances. This indicates inappropriateness of age in determining the duration of unemployment or underemployment.

Kavkler et al., (2009) in their study characterized age as a time dependent variable concluding the fact that over the lengthy durations of unemployment the effect of age diminishes. Initially the age effects were found to be important in Austria, Slovenia and Croatia as in the employment markets of these countries few career prospects appear for the old age labor force whereas in Macedonia and Romania, mostly youth was unemployed.

Level of degree and specialization also contributed to reduction of waiting time for employment as discussed above. Language proficiency also contribute positively to decrease in waiting time for employment consistent with result of studies Lim (2011) strives to support the fact that the attainment of English language proficiency skills leads to the good employment opportunities. Chiswick and Miller (2007) further supported this argument and found that proficiency in English language is highly required in different occupations and it affects the earnings of both native and foreign born individuals. Liu (2008) also investigated the capability of English speaking and found that it has a great impact on the labor supply. Rashid and Hashim (2008) supported the fact by linking the language proficiency with the critical thinking ability that it enhances individuals' skills and in turn increases the chances of employability.

Nepotism also show significant contribution in increasing the waiting time for employment. The result of study can be supported with the work of Keleş, Özkan and Bezirci (2011) who explained that nepotism actually disturbs the overall environment of the organization and have a negative impact on the employee's trust over the organization. A survey in Pakistan carried out by Gillani Research Foundation further supported the findings of this study by concluding that unemployment in the recent years have increased dramatically due to the nepotism highly practiced in country. Nearly half of the population in Pakistan believed that the increased unemployment rate prevailing in the country was due to nepotism which in turn had adverse effects on the society in form of different crimes Gallup Pakistan (2009).

Work preferences at urban and rural also have significant contribution in increasing waiting time for unemployment. Chances of being unemployed increases, with an increased demand for a job with all suitable choices and that fulfills one's preferences. These results are supported by Mathew (1995) who investigated that in Kerala most of the educated unemployment is due to the preference of the individuals for higher salaries. He also concluded that preferences of the individuals differ in the rural and urban areas and among different gender. Socioeconomic status also contributing positively to reduction of waiting time to be employed the result can be supported with the help of Marks and Fleming (1998) who also found moderate effects of socio-economic background on the unemployment of Australian youth.

## **Conclusion**

On the basis of the preceding discussion it is concluded that it took about 15 month on average for a graduate getting employed. As the result indicates that the waiting time across specialization vary according to market conditions of demand and supply. Study also concluded that age, language proficiency, specialization, education level, socio economic conditions and job preferences significantly contribute to waiting time of unemployment. As the model suggests that with the increasing age, it is easier for the people to find job, it means that with time they get more experiences and abilities to fit a job well. As a matter of fact, one should increase his/her social communication and should take part in the internships during the school time (Dong and Lu, 2005). It is controversial to suggest anything about pursuing higher educational levels as a postgraduate student might not find a better job than an undergraduate student. Therefore one must think considerable whether to go on studying and pursuing higher levels or not. Government should also take steps to improve the employment opportunities for the youth. It should establish such a social support system to encourage young people to find a better job. By improving and upgrading the English language capabilities, graduates can have a competitive advantage and thus will be considered well equipped for taking bigger challenges in this era of technological advancement as explained by Rashid and Hashim (2008). Such a system should be established which facilitate the students and help them in improving their English language skills in order to meet the global job market requirements. Such a policy should be established which provides the students with better learning environment so that they can compete with the rest of the world.

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