

# Factors Delaying Graduate Employment in Tanzania the Case of Morogoro Municipality

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## ABSTRACT

This study was set to examine individual factors among the universities graduates which could delay one's employment irrespective of the situation on the ground. The study examined the influence of a graduate area of residence( urban versus rural), gender, access to information, GPA, type of education (science versus art) and working experience on time it takes a graduate to be employed. The study was done in Morogoro Municipality involving 84 graduates from different clusters of working offices (Banks, Polices, Insurances, Railway Company, etc.) Data were collected through the dissemination of questionnaires among the sampled graduates. Analysis of the data was done using survival analysis. The study findings indicated that access to information, female gender, residing in town after graduation, having good GPA, studying Art or Business subjects and having a previous working experience are associated with getting job quickly than otherwise. The study recommends to the government and other stakeholders to advice the universities to develop curricular which connects to the current job market as well as creating job market centers/agents who would connect graduates with employers and sensitize females to join universities much as they have a high prospect of being employed.

**Keywords :** Employment, Time To Employment

## I. INTRODUCTION

Graduate unemployment is among the major challenges facing both developed and developing countries in the world. The problem of youth unemployment is more critical to developing countries due to the high poverty levels requiring all people to work in order to ensure survival (International Labor Organization, 2011). Youth unemployment in Tanzania is among the major challenges facing the government and policy makers as well as the society and families. According to the International Labor Organization (2006) most of young people in the country are facing many difficulties when it comes to their integration into the labor market when searching for decent and productive jobs. For example at a meeting of the Federal Executive Council presided over by Nigerian President Goodluck Jonathan, a comprehensive paper on graduate unemployment was presented by a group of lecturers and found that about 24% of the Nigerian graduates were unemployed. The

authors wrote: "Graduate unemployment has become a national concern as unemployed youths are more anxious, depressed and unhappy, with attendant sleeplessness, than those with jobs. This not only poses a challenge to the economy, but has also retarded the country's economic growth. "The unemployment is attributable to employees' education and skills being inadequate to meet the needs of modern day jobs." (Fatunde, 2013). According to National Employment Policy (2014), graduate unemployment is attributed by the rising of proportion of graduate and the mismatch between the courses offered by the tertiary institutions and the demand of industries. A study conducted by the Tanzanian government way back in 2014 found out that a total of 27,614 graduates were unemployed out of whom 14,271 were females and 13,343 were males, the Tanzania National Assembly was told (Tanzania Daily News, 2016 January 27). This was revealed by the Deputy Minister in the Tanzania Prime Minister's Office. The minister noted on the other hand that limited funds

have been holding back the government from conducting regular studies on unemployment.

For more than three decades now, Tanzania is faced with the problem of unemployment. The prevalence of unemployment in Tanzania is regarded as a major national developmental challenge, both economically and socially. Unemployment rate in the country started to increase in 1970s when the country experienced economic crisis reflected by the fall in annual GDP growth rate from 5% to an average of 2.6% in early 1980s, and about 1% in the beginning of 1990s (United Republic of Tanzania, 2000). The economic crisis was also reflected in the decline of industrial capacity utilization and a decline in agriculture output, which had an adverse effect on the balance of payment. The ability of the economy to create employment opportunities was severely undermined. The government argues that unemployment in Tanzania is due to lack of human capital, skills and access to resources like land and capital which could foster self-employment (National Employment creation programme, 2007). The government of Tanzania put ways on how to minimize this problem; however the problem is still severely in the country.

Together with the facts given above regarding unemployment problem, there specific issues which pertain to an individual graduate himself which could delay a graduate employment. These could range from area of stay after graduation, gender and the graduate performance at the University, lack of information on the job market and many others. This study aims to explore these factors which together with unemployment problem in the country, they do also add to the severity of the problem at an individual level. Specifically the study intends to investigate the following:

- i. The influence of area of residence and gender on graduate employment.
- ii. The influence of access to information on graduate employment
- iii The influence of graduate GPA, job experience and type of education on graduate employment

The findings from this study could enable stakeholders (parents, guardians, colleges and universities, Ministry of Labor and youth development an others) to understand the factors contributing in delaying graduate employment in Tanzania and see how best they can manipulate such factors for the benefit of graduates

employment. The study was done on graduates employed in Morogoro Municipality.

## II. Literature Review

### 2.1 Factors for Graduate Unemployment

According to Samuel et al (2012), the graduate unemployment is attributable to the fact that employees' education and skills acquired are inadequate to meet the demands of modern day jobs. This issue has become a phenomenal topic of discourse across professional gatherings in media and commentary reviews, employer surveys, national economic debates, social networks and employee forums.. The study also found that inadequate technical knowledge, deficient English proficiency and lack of critical thinking on the part of graduate employees coupled with high technological drive of most organizations in response to tougher competition in the competitive markets are the factors responsible for graduate unemployment.

Ismail (2011), investigated the effects of graduates' characteristic on the chance of being employed. A total of 3,025 Malaysian graduates were involved in the study and the collected data were analyzed using binary logistic regression model. The results showed that the employment prospects of graduate with a good command of English and who possess leadership and technical skills are better when compared to those without these skills. These findings suggest that steps should be taken to improve soft skills among graduates. According to Razak et al (2014), job mismatch, English proficiency and employability skills have influence on unemployment among graduates in Malaysia. The finding showed that, all variables show positive relationship towards the unemployment among graduates.

The study by Dimitrov (2012) which examined youth unemployment in Bulgaria reported that youth unemployment problem was high in the country and factors such as early school leaving age, low education quality and business cycle were the key determinants of youth unemployment. The study also found that social status and family background have great impact on youth unemployment. If parents or one of the parents are unemployed, inactive, have low education, illiterate, without skills and qualification, live in poverty, belong

to particular ethnic groups are likely to duplicate the same to the youth people.

Several factors such as economic, social, political and environmental factors have been related to the youth unemployment in several studies. According to Contini (2010) youth unemployment is a function of the economic condition of a country, labor market and labor policies. A country with high economic development is likely to create more jobs due to output increases which require additional labor force. According to International Labor Organization (2006) a well-designed labor market regulations in the country are very important in building efficient and nondiscriminatory labor system. Such system is better off in the production of employment to both the youth and adult population of the country. Employment registration such as employment protection registration and minimum wage policy affects most of youth which seeks decent work after obtaining a certain level of qualification. The youth unemployment problem has also been linked with educational background and qualification possessed by the young people as compared to the qualification needed in the labor market. There has been a skill mismatch between the youth and the labor market which increases the problem of youth unemployment (Dimian, 2011; OECD, 2005).

According to Msigwa & Kipesha (2013) who studied factors which determine youth unemployment in Tanzania and suggested way forward towards reduction of the problem, they found that education, skills and marital status are all significant factors in explaining the difference in youth employment status in Tanzania. The study used Multinomial logistic regression model (MLM) to analyze the determinants of unemployment in Tanzania and recommended that, the government and policy makers should review job market laws and regulation in order to promote a smooth transition of youth from education to job market. The government should create specific interventions especially in the creation of more formal jobs and strengthening job market regulation relating to youth people to ensure that all youth with education or skills realize their investments in education and contribute to the country development.

## **2.2 Summary of literature review and knowledge gap**

In the above empirical literature reviews, concerning the factors influencing graduate unemployment, most

studies were conducted worldwide and few were done in Tanzania. Most of the factors given as to why there is graduate unemployment problem are low skills of graduate, mismatch between graduate employee skills and those skills required for performance in the modern workplace, deficiency English proficiency, insufficient fund, large number of graduates, lack of critical thinking on the part of graduate employees, low education quality and business cycle, early school leaving age and political and environment factors.

In the reviewed studies, access to information, gender and graduates residence were not seriously considered. This study focused on such unmentioned factors in assessing graduate unemployment in Tanzania using Morogoro municipal as a case study.

## **III. METHODOLOGY**

### **3.1 Research Design and Area of Study**

The research used both quantitative and qualitative approaches with a cross sectional research design where respondents were only interviewed once at a time. The study intended first to know how much time did each of the identified graduates spent to get employment. Thereafter looking at individuals' factors and how they contributed to him/her taking such a stated time to be employed. The study targeted graduates in Morogoro municipality employed in various private and public offices such schools, Banks, Police offices, Insurance companies and business companies.

### **3.2 Sample size and sampling scheme**

The sampling scheme was a one stage cluster sampling. Clusters of different offices as mentioned above were considered in the entire Morogoro municipality, then willing graduates were interviewed from each of the identified offices. At the end of the day the sample size came to be 84 graduates. This figure was found to be reasonably large based on the argument by Bailey (1994) who asserted that a sample of size 30 is sufficient for statistical analysis. The sample of size 84 is by far greater in comparison to 30.

### **3.3 instruments for data collection and Data Analysis**

The researcher disseminated questionnaire to all graduates at each identified cluster. This led to an easy collection of information from several clusters of graduates. Of course some of the graduates did not respond to the given questionnaire, in turn only 84

responded. As regards data analysis, the collected information was processed and analyzed in STATA software using survival analysis.

### 3.4 Model Specification

Based on the literature review in section 2 we could specify the model equation as follows:

$$T = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Area of residence} + \beta_3 \text{Access to information} + \beta_4 \text{Marital status} + \beta_5 \text{Type of Education} + \beta_6 \text{Age after graduation} + \beta_7 \text{GPA} + \beta_8 \text{Difficult in Interview} + \beta_9 \text{Job experience} + \beta_{10} \text{Level of Education} + \varepsilon$$

Where T is time taken for a graduate to secure employment and the rest are the explanatory variables as discussed in section 2.

Equation 1 could be analyzed by OLS, but there are a number of defects in using OLS to analyze a time variable. Greene (2003) as well as Cameron and Trivedi (2005) address the following problems of using OLS in analyzing a time variable. First is the lack of normality as most of the time observations are positively skewed. Second is the fact that in most surveys involving the time to an event, observations are censored. In other words, the individuals are observed before the study was completed or the study comes to an end before the event has occurred. The former is a case of left censoring while the latter is a case of right censoring. However, in this study, respondents were interviewed after being employed and thus censoring is not there. Third there may be the issue that a covariate like age may change during the duration, and the assumption of  $E(x'\varepsilon) = 0$  may be violated, resulting in inconsistent coefficients. If the duration is short, changes in ages may not be substantial. Fourth is the fact that there is no guarantee that OLS will predict positive values of time. This limitation could be serious in prediction. Because of the above problems, the study opted to use survival analysis instead of OLS.

### 3.5 An overview of Survival Analysis

The review is based on the work by Cameron and Trivedi (2005). One may begin by considering the cumulative distribution of the variable time given as  $F(t)$  and its density function given by  $f(t)$ . The relationship between the two is such that

$$f(t) = dF(t)/dt$$

or

$$F(t) = P(T \leq t) = \int_0^t f(s) ds \quad (b)$$

An equally important concept in duration analysis is the survival function which is in fact the greater than or equal cumulative function, defined as

$$S(t) = P(T \geq t) = 1 - F(t) \quad (c)$$

This is the probability that a particular duration equals or exceeds time  $t$ . Another key concept is the hazard function. This is an instantaneous probability of leaving a state conditional on survival to time  $t$ . It is defined as

$$\dots(1)$$

$$\lambda(t) = \lim_{\Delta t \rightarrow 0} \frac{\Pr[t \leq T \leq t + \Delta t / T \geq t]}{\Delta t} = \frac{f(t)}{S(t)} \quad (d)$$

It follows from (d), that

$$\lambda(t) = -d \ln(S(t)) / dt \Rightarrow S(t) = \exp\left(-\int_0^t \lambda(u) du\right) \quad (e)$$

A final related function is the cumulative hazard function or integrated hazard function, defined as

$$\Lambda(t) = \int_0^t \lambda(t) dt = -\ln S(t) \quad (f)$$

These functions can be estimated using both non-parametric and parametric approaches. Non-parametric estimation can be carried out as described below:

Let

$d_j$  be number of durations (spells) ending at time  $j$ ;

$m_j$  be the number of spells censored in  $(t_j, t_{j+1})$

$r_j$  spells at risk at time  $t_j$ .

Then accordingly the hazard rate is estimated as

$$\hat{\lambda}_j(t) = \frac{d_j}{r_j}$$

and the survival function known as the Kaplan-Meier estimator as

$$\hat{S}(t) = \prod_{t_j} (1 - \hat{\lambda}_j(t)) = \prod_{t_j} \left( \frac{r_j - \hat{\lambda}_j(t)}{r_j} \right) \quad (g)$$

The parametric estimation involves estimating the hazard function through regression analysis. As these functions are non-linear, the maximum likelihood method is used to estimate them. Among the popular hazard functions used in survival analysis are Exponential, Weibull, and Gompertz distributions, whose hazard functions are respectively,  $\gamma$ ,  $\gamma \alpha t^{\alpha-1}$  and  $\gamma \exp(\alpha t)$ . These are examples of proportional hazard models (PH), because their hazard functions can be

written in the form  $\lambda(t/x) = \lambda_o(t, \alpha)\phi(x, \beta)$ , where  $\lambda_o(t, \alpha)$  is the baseline hazard expressed as a function of time and  $\phi(x, \beta)$  is the relative hazard expressed as function of the individuals' covariates.

Other approaches include the log-logistic, log-normal and gamma distributions, which fall under the Accelerated Failure Time model (AFT). They are called the accelerated time failure rate because, unlike the proportional hazards, the covariates lead to changes in the baseline hazards. The hazards are formed when modelling the natural log of time rather than time itself. In other words, when modeling  $\ln(t) = x\beta + \mu$ , the hazard will result in either log-logistic, log-normal or gamma, depending on the specification of the distribution of  $\mu$ . The hazards for the log-logistic, Gamma and log-normal distributions are respectively:

$$\frac{\alpha\gamma^\alpha t^{\alpha-1}}{[1+(\gamma t)^\alpha]}, \frac{\gamma(\gamma t)^{\alpha-1} \exp[-(\gamma t)^\alpha]}{\Gamma(\alpha)[1-I(\alpha, \gamma t)]}, \frac{\exp(-(\ln t - \mu)^2 / 2\sigma^2)}{\sigma\sqrt{2\pi}} \Big/ [1 - \Phi((\ln t - \mu) / \sigma)]$$

Two of the proportional hazards mentioned before also follow under AFT. These are the Exponential and Weibull hazards.

#### IV. RESULTS AND DISCUSSION

##### 4.1 Graduate sample characteristics

The study involved 84 graduates in which males were dominant (67%) compared to females who were 33% of all the respondents. In terms of marital status 62% of the respondents were married while 38% were not married. As regards type of education 45% of them had graduated in sciences disciplines where as 55% of the remaining were either in Arts and or Business oriented disciplines. Majority of the graduates (77%) were living in urban areas before securing their employment while a few of them (23%) were living in rural areas. As for age, 49% of them had their age equal to 27 years or above and 51% had their ages below 27 years.

##### 4.2.1 Survival Analysis Results based on non-Parametric Models

##### 4.2.1 Non parametric Analysis

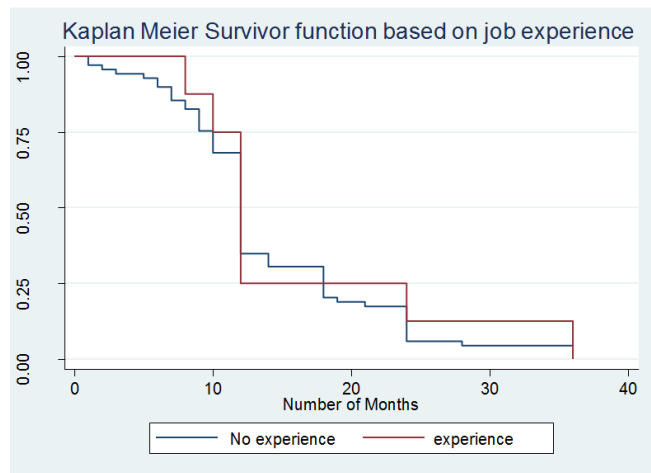


Figure 1: Kaplan –Meier Survival function based on job experience

The graph above shows non-parametric Kaplan Meier survival function between graduates who had job experience against those who had not. Apart from suggesting the median time of 12 months for a graduate to attain employment, the graph suggests that the survival time follows under non-proportional model since the two curves cuts each other. Figure 2, next testify the same scenario.

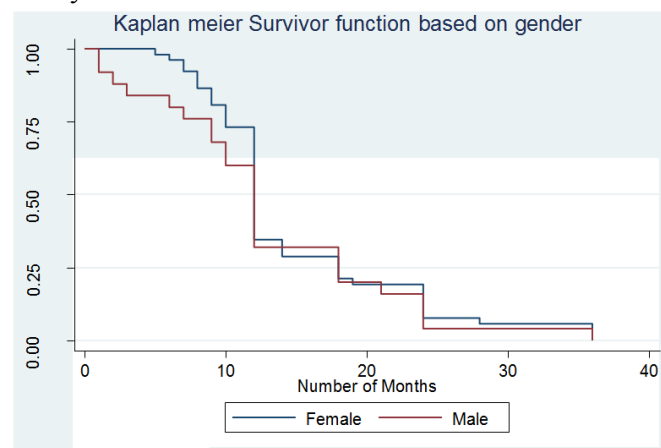


Figure 2 : Kaplan –Meier Survival function based on sex

##### 4.2.2 Survival Analysis Results based on Parametric Models

These results in the previous section imply that we should not consider proportional hazards models, rather our consideration should be purely on AFT models which are exponential, Weibull, log-normal, log-logistic and gamma distributions. When these models were fitted, the exponential model was not even significant and consequently only the remaining four models were

considered. The question of which model to choose can be solved by the Akaike information criteria where a model with the least values of AIC is considered to be the best (Scott long, 1997). Table 1 provides the AIC values for the four models considered.

**Table 1 :** AIC and Log-likelihood values from the survival models

Model	Log-like hood	AIC
Weibull distribution Hazard	-28.99695	81.9939
log-normal distribution hazard	-37.94751	99.89502
Lo-Logistic distribution hazard	-31.23654	86.47308
Gamma distribution hazard	-28.54447	83.08895

Table 1 suggest that Weibull model is the best among all and its results are produced in Table 2

**Table 2:** Weibull regression -- log relative-hazard form

variables	Haz. Ratio	Std. Err.	z	P>z
gender	2.35609	.7738248	2.61	0.009
Area of residence	.4793123	.1812583	-1.94	0.052
Access to information	2.344749	.8029613	2.49	0.013
Marital status	.7958777	.4072205	-0.45	0.655
Type of education	1.509546	.2760296	2.25	0.024
Age after graduation	1.085358	.0665587	1.34	0.182
GPA	2.56874	1.520181	1.59	0.111
Difficult in interview	.4447823	.1152069	-3.13	0.002
Lack of job experience	.1377658	.0909078	-3.00	0.003
Level of education	1.344526	.5245051	0.76	0.448
_cons	6.94e-07	2.09e-06	-4.72	0.000
/ln_p	1.114455	.1032552	10.79	0.000
p	3.047907	.3147123		2.489492
1/p	.328094	.0338774		.267983
LR chi2(10) =				47.41
N=60				
P=0.0000				

The Weibull regression model shows how the independent variables affect the hazard ratio of being

employed. The hazard ratio in this contest is the probability of someone being employed.

Table 2 above shows that gender has significant influence on graduate time to employment. The gender variable is significant (p=0.009) and having a hazard rate of 2.4. Gender was coded as “0” for male and “1” for female, implying that being a female increases time to employment. This indicates that female graduate have high chance of being employed over being unemployed as compared to male graduates. This is consistent with the study by Ismail (et al., 2011) who indicated that the rate of unemployment between female decreased from 1990s. Regarding a graduate area of residence, the variable was slightly significant (p=0,052) with a hazard rate of 0.48. Area of residence was coded “1” for graduates who were living in rural areas after graduation and “0” for those who were in urban area implying that living in rural area reduce time to employment. This could be due to number of factors including the fact that most offices are found in urban areas.

Table 2 shows that access to information is significant (p=0.013) with a rate of 2.3. Access to information was coded as “0” for no access to information and “1” for access to information, implying that having an access to information speed up employment, that is reduces time to unemployment. This observation is consistent with the study by Iriira (2014), who found that one reason for high youth unemployment rate is that first time job seeker have limited access to job vacancy information. Apart from the examined factors, type of education, job experience, a student’s GPA and facing hardness with interview were also examined. As for type of education the variable was significant (p=0.024 and hazard rate 1.5). The variable was coded “1” for those who studied arts or business and “0” for those who studied science implying that those who studied art or business subjects were more likely to be employed faster than those who studied science subjects.

Regarding working experience it was found that for those with no experience they were more unlikely to be employed than those with experience (p=0.003 and hazard rate=0.14). By working experience is meant for those graduates who once had worked before joining the university and stopped working after joining the universities. The observation on working experience is also consistent with the study by Mbalamwezi (2005) who found that hindrance for youth employment is the

demand for work experience, interview technique, quality of education and employer perception towards fresh graduates

As for GPA there was no conclusive evidence ( $p=0.11$ , hazard rate=2.6) regarding its influence on employment. However, the smallness of the p-value (0.11) tends to suggest that the higher the GPA the higher the chance for a graduate to be employed. This observation is consistent with the study conducted by Dimitrov (2012) in Bulgaria who reported that youth unemployment is associated with low education quality. Facing difficult with interviews came also to be highly significant with negative influence on time to employment ( $p=0.002$  and hazard rate=0.44

## V. CONCLUSION

The study was set to examine influence of a graduate gender, area of residence, access to information, type of education, graduate GPA, working experience, difficult in interview on graduate time to employment. All the mentioned factors proved to be crucial in influencing graduate time to employment and therefore needs the attention of all stakeholders including the government. Therefore, government and all concerned authorities should consider the influence of mentioned factors while devising unemployment policies in the country

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