Extent of over Education and under Education in Tanzanian Formal Labour Market

Pius Chaya[1]   Oswald Mashindano[2]   Benson Musoma[1]
1. Department of Rural Development and Regional Planning, Institute of Rural Development Planning, P.O. Box 138, Dodoma, Tanzania
2. Department of Economics, University of Dar Es Salaam, P.O. Box 35096, Dar es Salaam, Tanzania

Abstract
This paper attempts to provide the extent of over education and under education among formal sector workers in the labour market of Tanzania. The cross sectional and Worker Self Assessment (WSA) techniques were employed on 319 workers to collect data using Office interviews. Results from Multinomial logit model (classification tables) show that, 30.4% and 12.5% of the workers were under educated and over educated respectively. In terms of sex, male workers experience high incidence of both over education and under education due to historical and cultural nature of Tanzanian education system; and also the recruitment system that deliberated to favour males. Using Pearson chi square approach, results show that both public and private sectors experience education –job mismatch differently with more under educated workers in the public sector. Therefore, Tanzania formal labour market is not free from Over education and under education. This state of affairs calls for the private and public employers to redesign demand side and supply side education –job matching policies.
Key words: over education, under education, labor policy, education – job mismatch, formal sector, Tanzania

Author Bibliography
Dr Oswald Mashindano is a senior lecturer of economics at the University of Dar es Salaam in Tanzania. He has extensive experience of research in welfare economies, emerging economies and labour market. Dr Ahmed Ame is a Director for postgraduate studies at the University of Dodoma, Tanzania. He has done many research works in the areas of management science/ operational research, quantitative economic analysis and business economics. Dr. Pius Chaya is a lecturer   of Economics and Public Policy at the Institute of Rural Development Planning , in Tanzania. His areas of research include labour market, welfare economics, policy analysis and public finance.

1.0 Introduction

The problems of over education and under education are traced before 1960s (Tinbergen, 1956; Thurow, 1975; Duncan and Hoffman, 1981). Since then, there had been a series of studies on the extent of over education and under education and the way such problems affect the labour markets. More interesting, studies on the extent of education mismatch (i.e. over education /under education) have been only common in developed countries leaving the least developed countries unattended. Study by Linsley (2006) acknowledges that over education is a phenomenon that prevails when a worker has surplus education with respect to current job requirement. More specifically, Over education is thus a devil of productivity since workers who are over educated become less productive (Ame *et al,* 2013), since they are not motivated (Linsley, 2005) to do so due to income penalty(Rumberger,1987; Linsley, 2005). Therefore, over education implies violation of human capital investment desires and thus tends to discourage people to invest in education.

Also, under education has received same attention as for the case of over education. Under education means having a worker whose actual level of education is less than what is required or demanded for doing a particular job. Ame *et al* (2013) defines under education as a shortage of education levels to do a particular job. They further meant that a worker who is under educated has less contribution to the current job that he/she performs. Under education is also a consequence of poorly designed labour market policies that fail to balance between the job and levels of education. Workers who are under educated become less motivated but are on the advantage side when they receive wage premium (Linsley, 2005) and but less productive (Rumberger, 1987) when they are provided to perform a particular job. In the same analysis, under education is also due to high rate of unemployment that forces job seekers to accept any job (Ame *et al;* 2013). Under education is on the other hand an education mismatch or education –job mismatch where workers have education deficit or shortage in relation to the demand for the current job.

Measures of both over education and under education are diverse such as objective (Rumberger, 1987), subjective (Hartog, 2000; Duncan and Hoffman, 1981 ;) and empirical (Verdugo and Verdugo, 1988). In the course of measuring over education and under education, the use of techniques such as Job Analysis (JA), (Oosterbeek and Webbink, 1996; Rumberger, 1987), Realised Measure (RM) ((Groot and Maassen van der Brink, 1995; Verdugo and Verdugo, 1989) and Workers' Self Assessment (WSA) (Linsley, 2006) have been used. The JA focuses on the assessment made by job analyst and then compares the result of the analysis in terms of required and actual level of education. The RM focuses on the use of required level of education that is compared with the standard deviation of the actual level of education. If the required level of education is more by one standard deviation from the mean or median, then the worker is under educated and vice versa (Groot and Maassen van der Brink, 1995;Verdugo and Verdugo, 1989). The WSA also focuses on assessing the actual level of education that the worker possesses with respect to the required level of education to perform a particular job. This method has been popularly applied to study the extent of over education and under education in many parts of the world since it is up-to-date and focuses on an individual's job (Linsley, 2005; Sloane *et al;* 1999; Sloane *et al;* 1996; Robst 1995; Alba-Ramírez, 1993; Duncan and Hoffman 1981; Sicherman, 1991; Hersh 1991). However, workers subjected into WSA can deflate or inflate information about their qualification as observed by Hartog (2000). Despite such challenges, the WSA is still adopted in many studies on quantifying the magnitude of over and under education over education.

Moreover, countries globally experience both over education and under education in different magnitude. The study conducted by Linsley (2005) through the use of WSA with an application of Multinomial Logistic Model (MLM) in Australia ascertained that about 27 percent and 19 percent of the employed people in the Australian Labour market were over educated and under educated respectively. The consistent findings have been observed in different countries. For instance, the study by Alba –Ramirez (1993) on the same topic in Spain through the use of WSA technique found out that about 15.3 percent and 20.6 percent of the employed males and females respectively were over educated while 28 percent and 13.8 percent of employed males and females respectively were under educated. Similarly, Battu and Sloane (2002) conducted study on under and over education in UK through the use of Required Match (RM) technique and found out that, on average, 33 percent of the employed workers were over educated while 21.6 percent of them were under educated. Findings also by Dolton and Vignoles (2002) who used WSA technique to study the extent of over and under education in the UK formal labour market report that the extent of over education and under education was 30 percent and 11 percents respectively.

Bushel and Ham (2003) carried out a study on   the incidence of over education through the use of WSA and found out that 30.3 percent and 39.3 percent of employed males and females respectively were over educated. In the same vein, the findings by Robst (1995) reports on the study conducted in the USA through the use of WSA reveals that 35 percent and 20 percent of the respondents were over educated and undereducated respectively. Findings by Tsang *et al* (1991) on the status of over education in the USA from 1972 -1973 revealed that the extent of over education through Job Analysis was about 52 percent for males and 68 percent for women. When they used WSA; the results show that about 29 percent of males and 23 percent of females had over education problem.

In Africa, however, there is limited evidence on the magnitude of both over education and under education; this is partly due to inadequate experts of labour economics, low country priority on the labour markets and much focus on unemployment as the core labour market problem. In Tanzania, analysis by Msambichaka, (2011) in Mashindano *et al;* (2012) found out that only 20 per cent of the adult population in Tanzania obtained secondary education and above (secondary education 17 per cent, post-secondary education 2 per cent, and university education 1 per cent). These yet provide inadequate proof on the magnitude of over education and under education in Tanzanian labour market. Even though Tanzania has been silent on the magnitude of both over education and under education, yet there are notable initiatives undertaken to address labour market inefficiency including education mismatch.These include Investment Reform and Privatisation (1980s), Public Sector Reforms Programme -PSRP- (1990s) and Civil Service Reforms Programme -CSRP- (1993) (Danish Trade Union, 2003), MKUKUTA II and Tanzania Development Vision 2025. Moreover, the United Republic of Tanzania adopted the National Employment Policy in 2008(URT, 2008). Among other issues, the policy addresses the need to improve labour market conditions. However, the policy itself does not contain empirical evidence on the prevalence of over education and under education. To address labour market legal violations, Tanzania came up with Tanzania Employment Law and Labour Relations Act of 2004 (URT, 2004). Nonetheless, despite all these efforts, Tanzania remains to be silent on the extent of over education and under education in terms of sex, sector of the economy (public or private and regions) in her formal labour market. Therefore, the aim of this paper is to provide quantification of the magnitude of formal sector workers who are over educated and under educated.

2.0 Theoretical Framework

The paper employs the human capital theory, the job signalling model and job competition models to understand how the over education and under education prevail in the labour market. The details of each model follow below.

I. Human Capital Theory (HCT)

Human capital theory has been viewed as a theory providing focus on how investing in education can be worthwhile or worthless. The base of the theory rests on the fact that investors of education become pessimistic on the knowledge, skills and attitudes acquired through such investment as well as the returns to education. The idea of the theory is that the more the person spends money and years in schooling, the more the chance the person is likely to earn more and become more productive(Linsely,2006; Walterskitchen, 1999, Borjas, 2006). This theory assumes further that the labour market will always be perfect (Linsley, 2006; Nordin, 2008).

II. Job signaling Model

The job-signalling model has also been applied to examine over education (Spence, 1973). In this model, firms are assumed to have imperfect information about the productivity of workers. In response to this problem, individuals or employers use education as a signal of quality. Over education arises when there is a signaling equilibrium under which it is optimal for individuals to invest more in education than is strictly required to perform the tasks of their jobs. This implies that there is a systematic over investment in education, which occurs either when the costs of investing in education are low, or when the expectations of individuals or firms about education levels are inflated. Whilst over education can arise in a signaling equilibrium, it is a Pareto inferior equilibrium in which over education persists. Thus, this paper uses this theory to understand how access to information can affect the extent of over education and under education.

III. Job competition model

The job competition model tends to assume that productivity and earnings are related to job rather than worker characteristics. This implies that earnings are driven by demand side factors alone. Over education thus arises when there is an increase in the educational attainment of workers (Linsley, 2005). This causes a shift in the distribution of workers in the labour queue, forcing the low-skilled into low paid jobs or out of the labour market entirely and the same for the case of bumping out effect. Consequently, over education leads to low-skilled workers being 'bumped down' into lower wage jobs or 'crowded out' of the labour market into unemployment. Over education also reduces the return to education as high-skilled individuals are forced to accept jobs lower in the job queue. Despite lower returns to educational investment, it is rational for individuals to invest in education as workers need to defend their position in the labour queue (Thurow, 1975). The job competition model predicts that over education persists, and that it creates economic costs in the form of suboptimal investments in education, allocative inefficiencies, and increased income inequalities. The same applies to under education.

3.0 Methodology

This study was carried out in Dodoma and Dar es Salaam regions, and targeted workers from both formal public and private sectors. The choice of the regions was based on the fact that Dar es Salaam region is leading in terms of having many office workers that accounted for 33.6 percent of all workers in the formal sector (URT, 2012). In this case, about 25.5% (2191556) of workers in Dar es Salaam region were from formal private sector while 8.1%(40,753) of them were from public sector. Dodoma region was chosen not only because of having about 0.9%(7735) of all workers and 1.5 (75469) percent of all workers in the private and public sector respectively (ibid)(see Table 1), but also due to other potential reasons such as the region has got higher government priority list since it was promoted to a capital city; which sees many government offices shifting to Dodoma region (ibid).

Table 1: Employment in the Formal Sector by Regions

Region	Private		Public		Total	
	2010	2011	2010	2011	2010	2011
Dodoma	0.9	0.9	1.6	1.5	2.6	2.4
Arusha	4.0	4.3	1.2	1.1	5.2	5.5
Kilimanjaro	3.4	3.1	1.4	2.1	4.8	5.1
Tanga	2.1	2.2	1.7	1.8	3.8	4.0
Morogoro	8.4	10.6	3.8	3.5	12.2	14.1
Pwani	0.6	0.7	1.1	1.3	1.7	1.9
Dar es Salaam	25.7	25.5	7.2	8.1	32.9	33.5
Lindi	0.3	0.3	1.0	0.8	1.3	1.1
Mtwara	1.1	1.2	0.8	0.8	1.9	2.0
Ruvuma	0.7	1.1	0.9	0.8	1.6	2.0
Iringa	1.8	1.5	2.3	1.7	4.1	3.2
Mbeya	3.0	2.6	2.3	2.2	5.3	4.8
Singida	0.7	0.6	0.9	0.9	1.6	1.5
Tabora	0.6	0.3	1.2	1.3	1.9	1.6
Rukwa	0.3	0.4	0.7	0.4	1.0	0.8
Kigoma	0.5	0.8	1.1	0.9	1.6	1.6
Shinyanga	1.5	1.4	2.3	2.8	3.8	4.2
Kagera	1.0	1.1	0.9	1.2	1.8	2.3
Mwanza	4.9	3.1	1.8	1.7	6.8	4.9
Mara	0.7	0.7	1.6	1.5	2.3	2.2
Manyara	1.5	0.8	0.6	0.5	2.0	1.3
Total	**63.7**	**63.1**	**36.3**	**36.9**	**100.0**	**100.0**
Total Employees	813,297	859,435	463,685	503,124	1,276,982	1,362,559

Source: URT, 2012.

The study decided to choose formal sector as the case study due to its importance for economic growth through service delivery and job creation. The study also employed a cross sectional survey to get data on the problem and prevalence of over education and under education among workers in the formal sector The Workers Self Assessment (WSA) approach was used to get data from workers while assessing themselves their matching or mismatching status with focus on education- job mismatch(Duncan and Hoffman ,1991 ;Sicherman,1991; Hersh,1991; Alba-Ramirez,1993) This approach has been widely used(Van de Velden and Van Smoorenburg, 1997) as it is up-to-date and focuses on how an individual perceives the jobs in the labour market (Duncan and Hoffman, 1991;Sicherman,1991; Hersh,1991; Alba-Ramirez,1993 ;Robst,1995; Sloane *et al* ,1999; Linsley, 2005) Despite the above strengths, it is acknowledged that the method has a number of limitations; which include workers giving wrong information about their education levels as observed by Hartog (2000), the failure to effectively analyse the context of education level that a worker has with respect to the job that he or she performs (Battu *et al.*, 2000).

The data were collected using structured questionnaires with open and closed ended questions. Sampling of units was as follows: For the case of Dodoma region (i.e. 72 workers were from Dodoma municipality, 3 from Kondoa district, 17 from Chamwino district and 31 from Bahi district) while for Dar es Salaam region(i.e. 6 from Temeke city , 152 from Kinondoni city, 38 from Ilala city). Sampling of offices was situational and convenient. Generally, about 319 workers were obtained through multi stage cluster sampling for interview. The choice of offices based on the merit of being public or private. Thus, this study sampled 177 workers from private sector and 142 from public sector.

3.3 Analytical Framework
Part I: Multinomial Logit Model (MLM)- Classification Plots
In order to estimate the magnitude of over education and under education, the classification plot embedded in MLM was used. This table ensures that it matches the required level of education and the actual level of education of the workers. The values on the diagonal show the exact match and the values above the diagonal shows over education while those below the diagonal show under education (see Equations 1-3). To get the extent of mismatch, all workers who were over educated, under educated and perfect match were summed up and divided by the sample size (see equations 4,5 &7) and see also Table 2.
Derivation of the equations as applied in the MLM follows below
Suppose,

- ALE be actual number of years of education as per type of education attainment
- RLE be the required number of years for the current job as per type of education attainment

Thus,

1. A worker is entitled into over education (OE) when ALE>RLE; Thus, ALE-RLE is positive and more than 1..There are excess years of schooling that are not required to perform the current job …………………………………………………………………………(1)
2. A worker is regarded as under educated when ALE<RLE; this further means that , ALE-RLE gives a negative value, meaning that there is deficit in terms of years of education for the worker to adequately perform the job……………………………………………………………(2)
3. The worker has no mismatch when ALE=RLE; ALE-RLE=Zero. This is a worker who is well fitting in the current job, and thus there is no deadweight loss …………….……….(3)

Table 2: Models for Computing the Extent of over and under education

SN	Type of mismatch	Classes of Mismatch	Formula
1	EM	Over education	$OE = \dfrac{\sum_{P=1}^{Pn} oe/sz * 100}{}$ ………(4)
		Under education	$UE = \dfrac{\sum_{P=1}^{Pn} ue/sz * 100}{}$ ……….(5)
2	PM	Perfect Match Education (PME)	$PME = \dfrac{\sum_{P=1}^{Pn} pme/sz * 100}{}$ …..(6)

Where : $P_{n=}$ worker n; $P_{=1=}$ from worker 1 and Sz= sample size of the study

Part II. Estimating the extent of over education and under education – Cross Tabulation

The extent of over education and under education was also computed by using Pearson Chi square distribution (see equation 7). In this approach, the relationship of over education and under education was computed in terms of other parameters such as sector of the economy and sex. Thus, the contingency classification tables were used.

The equation below was used to capture the relationship extent

$$\chi^2 = \sum \frac{(Oi - Ei)^2}{Ei}$$

……………………………………………………..(7)

Where: χ^2 is the calculated Chi Square statistics, O_i is the observed value for person i; E_i is the expected value for person i.

3.8 Data analysis

Data for analysis were cleansed and diagnostic tests to detect econometric errors were performed by using Multinomial Likelihood Estimation method and actually indicated the absence of serious multicollinearity problems. The goodness-of-fit of the multinomial logit model was measured by the Chi square and Log likelihood value as the basis of inference. Finally, the analysis was carried out in SPSS version 16.

4.0 Results and Discussion

4.1 Extent of over education and under education –General Picture

Based on the analysis, it was found out that, on average, about 57.1 percent of workers in the formal labour market of Tanzania had jobs that match their levels of education. Meanwhile, about 30.4 percent and 12.5 percent of the workers in the formal labour market were under educated and over educated respectively(See Table 3).The findings of this study show that majority of workers were under educated. This is due to having a small number of Tanzanians who managed to join tertiary and higher learning institutions since independence. These findings support the analysis by Msambichaka, (2011) in Mashindano *et al;* (2012) which reveal that only 20 percent of the adult population in Tanzania obtain secondary education and above (that is secondary education -17 percent, post-secondary education -2 percent, and university education -1 per cent). Also, findings in this study are similar to those by Dolton and Vignoles (2002) who used WSA technique to study the extent of over and under education in the UK formal labour market. The scholars revealed that the extent of over education and under education was 30 percent and 11 percents respectively. In the same vein, the findings by Robst (1995) reports on the study conducted in the USA through the use of WSA revealed that 35 percent and 20 percent of the respondents were over educated and under educated respectively. Therefore, incidences of overeducation and under education are not only serious in developed countries like UK, USA and Australia but also in developing economies like Tanzania.

Table 3: Extent of Over education and Under education

| | RLE | | | | | | |
ALE	PhD	Master Degree	First Degree	Diploma	Certificate	Std Seven	Total by ALE
PhD	**0**	0	0	0	0	0	**0**
Master Degree	6	**41**	28	0	0	0	**75**
First Degree	0	25	**102**	5	0	0	**132**
Diploma	0	4	40	**29**	4	3	**80**
Certificate	0	0	9	11	**10**	0	**30**
Standard Seven	0	0	0	2	0	**0**	**2**
Total byRLE	**6**	**70**	**179**	**47**	**14**	**3**	**319**

Note: 1. ALE-Actual Level of Education, 2. RLE-Required Level of Education

Using bar chart in Figure 1, it was found out that many workers in the Tanzania formal labour market were under educated (30.4 percent) and few workers (12.5 percent) were over educated as shown in Figure 1. This implies again that, the Tanzania formal labour market currently has many workers who have low levels of education in the jobs compared to what the current job requires. Therefore, it is not surprising that majority of workers had first degree as a required level of education but the actual levels of education they used in their current job was second degree (masters), hence experienced under education. This is to say further that, the problem of under education is huge and has historical base. This is evidenced since independence where education was not given due weight, few managed to go for schooling and in particular were children of kings and chief and this made majority of institutions to miss qualified workers for employing. This eventually made same institutions to employ workers with inferior education levels so as to fill the vacancies. The same workers have served different eras and even after Arusha declaration and all sorts of economic reforms in the country. In the same analysis, recruitment systems were handicapped by low number of qualified people of which made difficult to over haul all the under educated workers at once in the recent economic reforms.
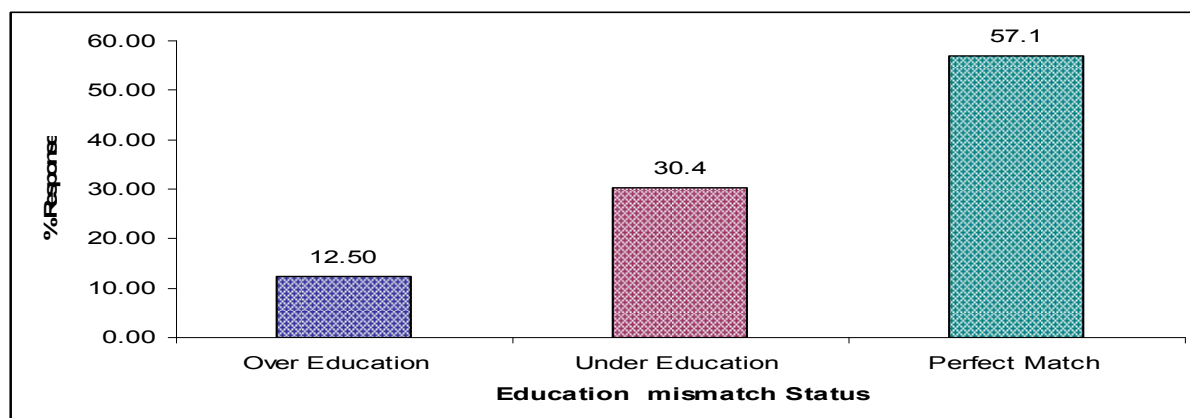

Figure 1: Extent of Education Mismatch in Tanzania

4.2 Extent of over education and under education by sector

Moreover, this study aimed at finding out if there was a difference in terms of the extent of Education Mismatch between private and public sectors using Pearson Chi square or cross tabulation. The results in Table 4 show that while 70.5 percent (62) of workers in the private sector were under educated only 29.5 percent (26) of the workers in the public sector were under educated. Similarly, while about 52.6 percent (20) of the workers in the public sector were over educated, only 47.4 percent (18) of the workers in the private sector were over educated. Therefore, private sector had more workers who were under educated than is the case in the public sector because of lack of a coordinated system of recruitment procedures and policies. It was further revealed that every private sector organisation has its own recruitment policies. This in turn has been misused by some private employers by employing workers with low levels of education in jobs that could require more levels of education. For instance, the position of an accountant that required a bachelor degree could be held by a person with a diploma. The workers who had this mismatch them admitted that lack of employment has forced them to take their current jobs to get earnings. However, they expressed concerns that they were doing more advanced jobs

and paid wages which were much lower than the current job could demand for. This negates the findings by Linsley (2006) that under educated workers are in advantage side since they become exposed to wage premium. This is to say, the premium is not always guaranteed in particular for developing economies like Tanzania. Infact , the situation here is rather that employers are in advantage side because they pay less wage to people who are exposed to advanced jobs.

Table 4: Extent of Education Mismatch by Sector

			Category of Sector		Total by Education Mismatch
			Private Sector	Public Sector	
Status of Education Mismatch	Overeducated	Number	18	20	**38**
		Percent	47.4	52.6	**100**
	Undereducated	Number	62	26	**88**
		Percent	70.5	29.5	**100**
	Perfect match	Number	97	96	**193**
		Percent	50.3	49.7	**100**
Total by Sector		**Number**	**177**	**142**	**319**
		Percent	**55.5**	**44.5**	**100**

4.3 Extent of over education and under education by Sex

On basis of sex, the extent of Education Mismatch differs between male and female workers. Table 5 shows that out male workers who were interviewed to review their education mismatch status, 12.4 percent (25) were over educated, 23.4 percent (47) were under educated and 64.2 percent (129) had perfect match.This implies that majority of male workers were under educated. The high number of male workers to be under educated was due the fact that most of the data collected from private sector were male dominated. In addition, negligence of male workers to upgrade their levels of education coupled with family ties and silence of the recruitment policy on ensuring that workers perform jobs that match their education level have been one of the factors for the male to be more under educated.

On the side of female workers, 34.2 percent (13) were over educated, 34.7 percent (41) of them were under educated and 54.2 percent (64) of them had perfect match (Table 5). The study has found out that majority of female workers are also under educated. However, by comparing between male and female workers, the study has revealed that male workers are more under educated than their counter party. The difference might be due to he government intention to meet the Millennium Development Goals and other national policy priority that focus on having more educational initiatives focusing on raising the number of educated women in the society. These findings are consistent with what was reported by Bushel and Ham (2003) on the over education in USA through the use of WSA where 30.3 percent and 39.3 percent of employed males and females respectively were over educated. Furthermore, findings by Tsang *et al* (1991) on over education in the USA from 1972 -1973 report the same kind of results using Job analysis where 52 percent for males and 68 percent for women were over educated. The same authors report that using WSA; about 29 percent of males and 23 percent of females were over educated. These findings still confirm that Tanzania is not free from both over education and under education and silence of the research has more and far reaching negative impacts on workers, firms and the economy at large.

Table 5: Education Mismatch versus Sex of Workers

		Status of Education Mismatch			Total
	Sex of Respondent	Over educated	Under educated	Perfect match	
Male	Sample size (n)	25	47	129	201
	% within Sex of Respondent	12.4	23.4	64.2	100.0
	% within Status of Education Mismatch	65.8	53.4	66.8	63.0
	% of Total	**7.8**	**14.7**	**40.4**	**63.0**
Female	Sample size(n)	13	41	64	118
	% within Sex of Respondent	11.0	34.7	54.2	100.0
	% within Status of Education Mismatch	34.2	46.6	33.2	37.0
	% of Total	**4.1**	**12.9**	**20.1**	**37.0**
Total	**Sample size(n)**	**38**	**88**	**193**	**319**
	% within Sex of Respondent	11.9	27.6	60.5	100.0
	% within Status of Education Mismatch	100.0	100.0	100.0	100.0
	% of Total	**11.9%**	**27.6%**	**60.5%**	**100.0%**

4.4 Extent of over education and under education by Regions

Findings in Table 6 show that out of 38 workers found over educated, about 65.8 percent (n=25) were from Dodoma region and 34.2 percent (n=13) were from Dar es salaam region. On the other side, out of 88 workers found under educated, about 29.5 percent (n=26) were from Dodoma region and 70.5 percent (n=62) were from Dar es salaam region. The extent of perfect match for Dodoma region was 37.3 percent (n=72) and 62.7 percent (n=121) for Dar es Salaam region. Therefore, for Dodoma region, 41.4 percent (n=51) of the workers are having education mismatch, where the rate for under education being more or less the same to that of over education. The perfect match situation for Dodoma region is at 58.5 percent of all workers interviewed.

As for Dar es Salaam region, the situation of Education Mismatch was different, with the extent of under education surpassing that of over education at the rate of 31.6 percent and 6.6 percent respectively. On the other hand, the workers with perfect match education accounts for 61.7 percent of all workers interviewed. This analysis shows that while majority of workers in Dodoma region are faced with over education problem, Dar es Salaam region faces high incidence of under education. This disparity could be due to the fact that Dodoma region is newly growing city and thus employers are conscious on recruitment policies unlike for the case of Dar es Salaam region. In addition, Dar es Salaam region is a sink of graduates and large proportion of the sample was from Dar es Salaam region. Interestingly, Dar es Salaam region has higher incidence of workers with perfect match than for the case of Dodoma region. The difference could be thanks to being close to much government ministerial offices of which have roles to ensure that recruitment procedures are followed, and also having many offices which absorb idling labour force and hence reduce incidences of mismatch.

Table 6: Extent of Over education and under education by Region

		Region		Total by mismatch
Status of Education Mismatch		**Dodoma**	**Dar es salaam**	
Overeducated	Frequency	25	13	38
	% within Status of Education Mismatch	**65.8**	34.2	100.0
	% within Region	20.3	6.6	11.9
	% of Total	7.8	4.1	11.9
Undereducated	Frequency	26	62	88
	% within Status of Education Mismatch	29.5	**70.5**	100.0
	% within Region	21.1	31.6	27.6
	% of Total	8.2	19.4	27.6
Perfect match	Frequency	72	121	193
	% within Status of Education Mismatch	37.3	**62.7**	100.0
	% within Region	58.5	61.7	60.5
	% of Total	22.6	37.9	60.5
Total by region	Frequency	123	196	319
	% within Status of Education Mismatch	38.6	61.4	100.0
	% within Region	100.0	100.0	100.0
	% of Total	38.6	61.4	100.0

5.0 Conclusion and Policy Recommendations

The aim of this study was to uncover the extent of both over education and under education in the formal labour market of Tanzania. This study therefore concludes that Tanzania has more than quarter of workers in the formal sector who experience over education and under education. The magnitude of over education and under education differs between the public and private sector. However, the Private sector has more workers who are under educated than is the case in the public sector. On basis of sex, male workers have shown a high level of both over education and under education compared to female workers. In terms of regions, majority of workers in Dar es Salaam are under educated while majority of workers in Dodoma are over educated. Since Tanzania is not free from over education and under education incidences, this thus calls for the public –private paternship to holistically address the two issues. More specific and demand driven policy solutions should be designed such as expanding investment and encouraging and supporting self employment for young graduates. The career development policies at work place should be given due weight to ensure that workers who have mismatch get consideration for further training. Finally, the government should enforce the use of employment and labour relation act of 2004 as well as strengthen the coordination role in the labour market. This can also be achieved if the government will resort to harmonised labour policy in particular on recruitment and motivation policies.

References

Alba- Ramirez, A. (1993), Mismatch in the Spanish Labour Market: Over-education, *The Journal of Human Resources, 28, 259-278.*

Ame, A, Chaya, P and Mashindano , O.(2013), Covariance and Corrrelation Between Education Mismatch and Skills Mismatch in Tanzanian Formal Sector: Policy Implication, *Global Journal on Human Social Science -Economics*, Vol 13 Issue 2, pp1-8

Battu, H. and Sloane, P.J. (2002), Toto what extent are ethnic minorities in Britain over-educated, *International Journal of Manpower*, vol. 23 (3), p192-208.

Battu, H., and Sloane, P.J. (2000), How well can we measure graduate over-education and its effects?*' National Institute Economic Review*,

Borjas, G.J. (2006) , *Labor Economics* , 2ND edition McGraw-Hill Education, US

Büchel, F., & van Ham, M. (2003), 'Over education, regional labour markets, and spatial flexibility', *Journal of Urban Economics*, **53**, pp482-493

Chu Ng, Y. (2001), Overeducation and Undereducation and their effects on earnings: evidence from Hong Kong 1986-1996, *Pacific Economic Review*, 6(3); pp. 401-418.

Danish Trade Union (2003), Profile of the Labour Market and Trade Unions in Tanzania, project No.036/002/01:Http:// www.loft.dk accessed in 2009.

Di Pietro, G., & Urwin, P. (2006), Education and skills mismatch in the Italian graduate labor market. Applied Economics, *38*(1), p79-93.

Dolton, P. and Vignoles, A. (2000), The incidence and the effects of overeducation in the UK graduate labour market, *Economics of Education Review*, 19 (2); pp.179-198

Duncan, G. J. and Hoffman, S. (1981), The incidence and wage effects of overeducation ,*Economics of Education Review*, 1; p.75-86.

Erdil, A. and I. H. Yetkiner, I. H. (2001),: A Comparative Analysis of Inter-Industry Wagedifferentials: Industrialized versus Developing Countries, *Applied Economics*

Groot, W. and & Maassen van den Brink, H. (2000), Overeducation in the labour market: a meta-analysis, *Economics of Education Review*, *p*149-58.

Hartog, J. (2000), Overeducation and earnings. Where are we, where should we go?, *Economics of Education* Review, *p* 131-147.

Hersh, J. (1991), Education match and job match, *Review of Economics and Statistics*, p 140-144.

Linsley, I. (2005), Over education in the Australia Labour Market, Its Incidence and Effects: The University of Melbourne, Australia. Research Paper Number 939, ISBN 0 7340 2595 5

Msambichaka, R.(2011), in Mashindano, O.(2012), Education status and Labour market Situation in Tanzania, Dar Es Salaam

Oosterbeek, H.; Webbink, D. (1996), Over scholing, overscholing en inkomen [On education, overeducation and earnings]. *Economisch Statistische Berichten*, Vol. 81, No 4049, p. 240-241.

Robst, J. (1995). "Career mobility, job match, and overeducation." *Eastern Economic Journal*, p 539-550.

Rumberger, R. (1987), The Impact of Surplus Schooling on Productivity and Earnings. *Journal of Human Resources*, 22(1), p24–50.

Rumberger, R. W. (1987). The impact of surplus schooling on productivity and earnings. *Journal of Human Resources*, *22* (1), 24–50.

Schmidt, S.J. (2007), *Econometrics,* McGrawal-Hill Irwin: New York.

Sicherman, N. (1991), Overeducation' in the labor market. *Journal of Labor Economics*, 9: 101-122.

Spence, M. (1973), Job market signalling. *Journal of Labour Economics*, *87*, pp355–374.

Thurow, L.C. (1975), Generating Inequality: Mechanisms of Distribution in the U.S. economy, Basic Books, New York

Tinbergen, J. (1956). On the theory of income distribution. *Weltwirtchaftliches Archiv*, *77*, 156–175.

Tsang, M.C., Rumberger, R.W., & Levin, H.M. (1991), The impact of surplus schooling on worker productivity, *Industrial Relations*, 30, 209-227.

United Republic of Tanzania (URT). (2004), Employment and Labour Relation Act of 2004, , Dar es Salaam.

United Republic of Tanzania (URT). (2008), National Employment Policy,Dar es Salaam.

United Republic of Tanzania (URT). (2012), Employment and Earning Survey ,2012, Dar es salaam,

Verdugo, R.; Verdugo, N.T. (1988), The impact of surplus schooling on earnings: some additional findings. *Journal of Human Resources,* Vol. 24, No 4, p. 629- 695.

Walterskitchen, E. (1999), The relationship between Growth, Employment and Unemployment in the EU, Workshop in Barcelona, 16-18 September 1999, Austrian Institute of Economic Research.