THE EFFECT OF GENDER ON EMPLOYABILITY IN ROADS CONSTRUCTION IN MALAWI

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THE EFFECT OF GENDER ON EMPLOYABILITY IN ROADS CONSTRUCTION IN MALAWI

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DECLARATION

I, Victoria Mhango, declare that this thesis is my own original work. Where other sources of information have been used, they have been acknowledged. I hereby certify that this work has not been submitted before in part or full for any other degree or examination.

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CERTIFICATE OF APPROVAL

We, the undersigned, certify and recommend for acceptance by the University of Malawi the thesis entitled '*The Effect of Gender on Employability in Roads Construction in Malawi*'.

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DEDICATION

I dedicate this thesis affectionately to my parents, Henrick and Glattis Mhango, and my son, Ndagha. They have always kept me going.

And of course, to the Awesome God, the All Sufficient.

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ABSTRACT

The construction industry is an integral part of the development process in Malawi as it seeks to reduce poverty through infrastructure development. Roads construction is one of the major activities in infrastructure development. Large magnitude of works involved in road projects demand a lot of machinery and man power hence roads construction creates noticeable job opportunities which are seized by both male and female genders, skilled and unskilled. There has been a rise in road construction projects in Malawi over the past ten years. It is therefore anticipated that an increase in investment in the roads infrastructure and also increases in the number of road projects in Malawi would consequently be associated with an increase in employment opportunities in roads construction. However, it is not known whether increased employment opportunities are proportionally offered and seized between different gender groups. This study therefore aimed to establish whether gender influences employability in roads construction in Malawi.

The study determined and categorised job positions and attributes for hypothetical prospective employees for roads construction sector in Malawi. Thereafter "Traditional Conjoint Analysis" was employed to determine the attributes which influence employability more than others. Qualification, Salary, Experience, Gender and Age were the five attributes used in the study. Eighty (80) respondents in employment decision making positions completed two (2) copies of the study questionnaire each. Results show that the influence of gender on employability in Roads Construction in Malawi is relatively inconsiderable. Employers do not exhibit a substantial preference of one group of gender over the other during recruitment. The results of the study further indicate that employers' decisions in the roads construction sector are mainly being influenced by job applicants' work experience and anticipated remuneration package of the applicants. Furthermore, even when age and qualification attributes were excluded from the analysis, the influence of gender on employability of all job categories remained relatively inconsiderable. Therefore, the study concludes that gender does not substantially affect employability in the Road Construction sector in Malawi. The study therefore recommends that women must be encouraged to enrol for non-traditional programmes such as Civil Engineering and other Construction related programmes in order to join the industry. Further, the study recommends that employers take a deliberate move to recognise higher qualifications during

recruitment process to encourage first degree holders to pursue further education in order to attain higher managerial skills.

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
GDP	Growth Domestic Product
MGDS	Malawi Growth and Development Strategy
MK	Malawi Kwacha
NCI	National Construction Industry
NCIC	National Construction Industry Council
NRA	National Roads Authority
NTP	National Transport Policy
RA	Roads Authority
RFA	Road Fund Administration
RPD	Recognition-Primed Decision

CHAPTER 1
INTRODUCTION

1.1 Preamble

The construction industry is of vital importance in any nation's socio and economic development. It is a sector of the economy that basically transforms various resources into constructed economic and social infrastructure and facilities. The various activities that are undertaken in the sector are very crucial in intensifying and maintaining the nation's economic development. Road construction is one of the major activities that are undertaken in the construction industry. Roads construction encompasses construction of new roads, reconstruction of dilapidated roads, rehabilitation and maintenance of roads in poor conditions. Roads construction involve works of large magnitude. These large magnitude of works in road projects demand a lot of machinery and man power hence roads construction creates a lot of jobs. The jobs created are direct, indirect and/or induced. The direct jobs that roads construction create employs both skilled and unskilled labour, and both genders. This study therefore intends to investigate the attributes that are most preferred by employers in filling up key positions in the direct jobs that are created in roads construction.

The mother body of the construction industry in Malawi is the National Construction Industry Council (NCIC). As stipulated in the National Construction Industry (NCI) Act No. 19 (1996), NCIC regulates the construction industry in Malawi and it further conducts monitoring of persons engaged in construction to assess their progress and compliance to ethical codes and professional conduct. In addition, the NCI Act No. 19 also states that NCIC, where appropriate sanctions all the persons who breach the code of conduct by effecting appropriate penalties according to the disciplinary measures stipulated.

According to the revised National Construction Industry Policy (2015) the construction industry plays a major role in the country's economy because it cuts across many sectors of the economy which among others include health, transport, mining and irrigation. The policy also indicates that in 2010 the construction industry contributed 3.0 percent to the Growth Domestic Product (GDP) and 2.8 percent in the subsequent years. Further, the NCIC policy of 2015 indicates that the industry grew by 2.6 percent in 2012 and 7.1 percent in 2013.

The construction industry is an integral part of the development process in Malawi as it seeks to reduce poverty through infrastructure development. The construction industry comprises of a wide range of activities that involve construction, alteration and maintenance works. Construction, rehabilitation and maintenance of roads are some of major activities that are undertaken in construction industry. Roads and construction of roads as part of infrastructure development play a major role in Malawi's economy. In fact, Ministry of Economic Planning and Development's (2006) Malawi Growth and Development Strategy II (MGDS II), (2011 – 2016) argues that infrastructure development is key to the growth and social objectives of the government. The MGDS II (2011 – 2016) further claims that investing in transport infrastructure such as roads, rail, air and water leads to improved access to social services, reduction of transport costs and creation of marketing network as links between production and markets are developed.

The Ministry of Economic Planning and Development's (1998) Vision 2020 is a Malawi Government development framework which defines national goals, policies and strategies. Section 5.2.2 of the Malawi Vision 2020 states that in order to have adequate roads which are well designed and properly managed, there is need for a National Policy on provision of maintenance, funding and management of roads. Vision 2020 also addresses the issue of rural transport system. Section 5.2.6 of Vision 2020 indicates that the rural transport system is inefficient because it has inadequate infrastructure and the government seeks to address this by increasing investments in transport infrastructure. Section 5.2.6 also states that in order to strengthen institutional planning capacity in the roads sector, there is need to encourage private sector and local community participation.

According to Ministry of Transport and Public Works' (2015) National Transport Policy (NTP) which aims at ensuring that transportation system is adequate and properly managed, the transportation system in Malawi is said to be multi-modal, it consists of road, rail, air and inland water transport. In addition, NTP also indicates that in Malawi, road transport is the major and dominant mode of transport handling 99% of domestic passenger traffic, 70% of internal freight traffic and finally 90% of international freight and passenger traffic. The MDGS II (2011 - 2016) indicates that large volumes on internal and passenger traffic led the Malawi government to give high priority to construction and maintenance of roads in Malawi.

Roads construction being a job creator, increase in investment in road infrastructure together with private sector and local communities' participation in planning and management of roads will lead to an increase in employment opportunities in road construction.

1.2 Roads Construction Legal, Policy and Administrative Framework

In Malawi, until 1999, the Ministry of Works was responsible for roads maintenance activities at both urban and district assembly level. However, in 1999, owing to decentralisation, the National Road authority (NRA) was entrusted with the maintenance of roads. The NRA's objectives, according to the National Roads Authority Act (1997), were to mobilise resources for all road maintenance activities and to maintain all designated roads in Malawi. The National Roads Authority Act (1997) further stipulated that NRA remit about thirty five percent of collected revenue through fuel levy to District and City Councils for maintenance of roads in the councils' areas of jurisdiction. The remaining sixty five percent (65%) was for maintaining central roads.

In 2006, NRA through Acts of Parliament was split into two institutions and these are Roads Authority (RA) and Road Fund Administration (RFA) according to Act No. 3 and No. 4 of 2006 respectively. RFA, which according to Road Fund Administration Act No. 4 (2006), is responsible for financing the maintenance and rehabilitation of public roads as well as conducting surveys related to such maintenance and rehabilitation of public roads. The act also states that RFA is responsible for financing routine and periodic maintenance of roads, tracks and trails under the responsibility of the City, Town, Municipal or District councils on cost sharing basis. The RFA Act (2006) further states that RFA is responsible for administering any monetary contribution which is made by the Government for implementation and execution of donor-funded projects for the construction, maintenance and rehabilitation of any public road.

On the other hand, according to Roads Authority Act No. 3 of 2006, RA is responsible for ensuring that public road are constructed, rehabilitated and maintained at all times. The Public road network is classified into five categories and these are main roads, secondary roads, tertiary roads, urban roads and district roads. The Urban (Public and Private Streets) Act (1956), the Public Roads Act (1962) and the Local Government Act No.42 (1998) define these categories, in terms of functionality as follows, the main, secondary and tertiary roads are effectively the country's primary road network while as district and other undesignated road networks act as

feeder systems to the primary road network. Roads Authority Act No. 3 (2006) further stipulates that RA is responsible for advising the Minister of Transport and Public Works and where appropriate the Minister responsible for local Government on preparation and effective implementation of Annual National Roads Programme.

In 2013 the Roads Authority was responsible for a public road network of 15,451 Kilometres and undesignated road network of 9,478 Kilometres that serves rural communities RA Annual Report (2013). The report further indicates that out of the 15,451 kilometres of public roads that RA is responsible for, only twenty eight percent (28%) is paved and the rest is unpaved.

1.3 Roads Construction and Maintenance Funding Agencies

According to RFA Act No.4 (2006), the designated sources of income for the fund are Government of Malawi budget through allocation/appropriation by parliament, fuel levy including International Transit Fees, a fraction of road users levies in form of taxes and tariffs. In the 2012/13 budget, the government allocation for Transport and Public Infrastructure was MK23 billion, out of which MK11 billion was for roads maintenance and MK12 billion was for road construction projects which were at various construction stages. In 2013/14 the budget allocation for Transport and Public works was MK9.1 billion for grading and maintenance of 35,000 kilometres of rural roads and there was no allocation for construction of new roads as there were a lot of ongoing projects such as the Liwonde – Naminga road, Chikwawa – Nchalo Bangula road and Jenda – embangweni – Edingeni – Euthini road. Roads, Public Works and Transport sector was allocated MK31 billion in the 2014/15 national budget, out of this amount, MK10.4 billion was levy collections and was meant for maintenance of roads, MK17 billion was for various road construction projects across the country and MK1.7 billion was for other development projects. In 2015/16 national budget, an allocation of MK6.5 billion was made for maintenance and rehabilitation of road within the four cities. The budgetary allocation for roads construction in 2016/17 is MK35.9 billion, out of which MK28.7 billion is in donor funds and MK7.1 billion in local resources.

In addition, Organisations such as African Development Bank (AfDB) and the European Union (EU) make money available to the Road Fund through the Malawi Government in form of grants, loans and donations. For example, in 2008, EU funded the Rehabilitation and Resealing of the

Lilongwe – Nsipe Road (M1) section and the contract sum was 7,623,059.01 Euros. In the same year 2008, EU also funded the Resealing of Chikwawa – Nchalo – Bangula Road (M1) where the contract amount was 16,092,115.13 Euros. In 2010, EU funded the Mchinji – Kawere Road Project and the project sum was 7,259,687.15 Euros. In 2012, AfDB funded the construction of Lilongwe City West Bypass and also the Blantyre – Zomba Road project, the project sums were MK3.2 billion and MK5.6 billion respectively.

1.4 Road Fund Implementing Agencies

The RFA allocates and disburses funds to implementing agencies for the execution of Road Fund related activities and matters. These implementing agencies include Roads Authority for the management of national road network; Local Assemblies for the management of roads and tracks within their jurisdiction; The National Road Safety Council of Malawi for the management of issues relating to safety of people and animals on public roads and the Road Traffic Directorate (RTD) for traffic control and management on the public roads.

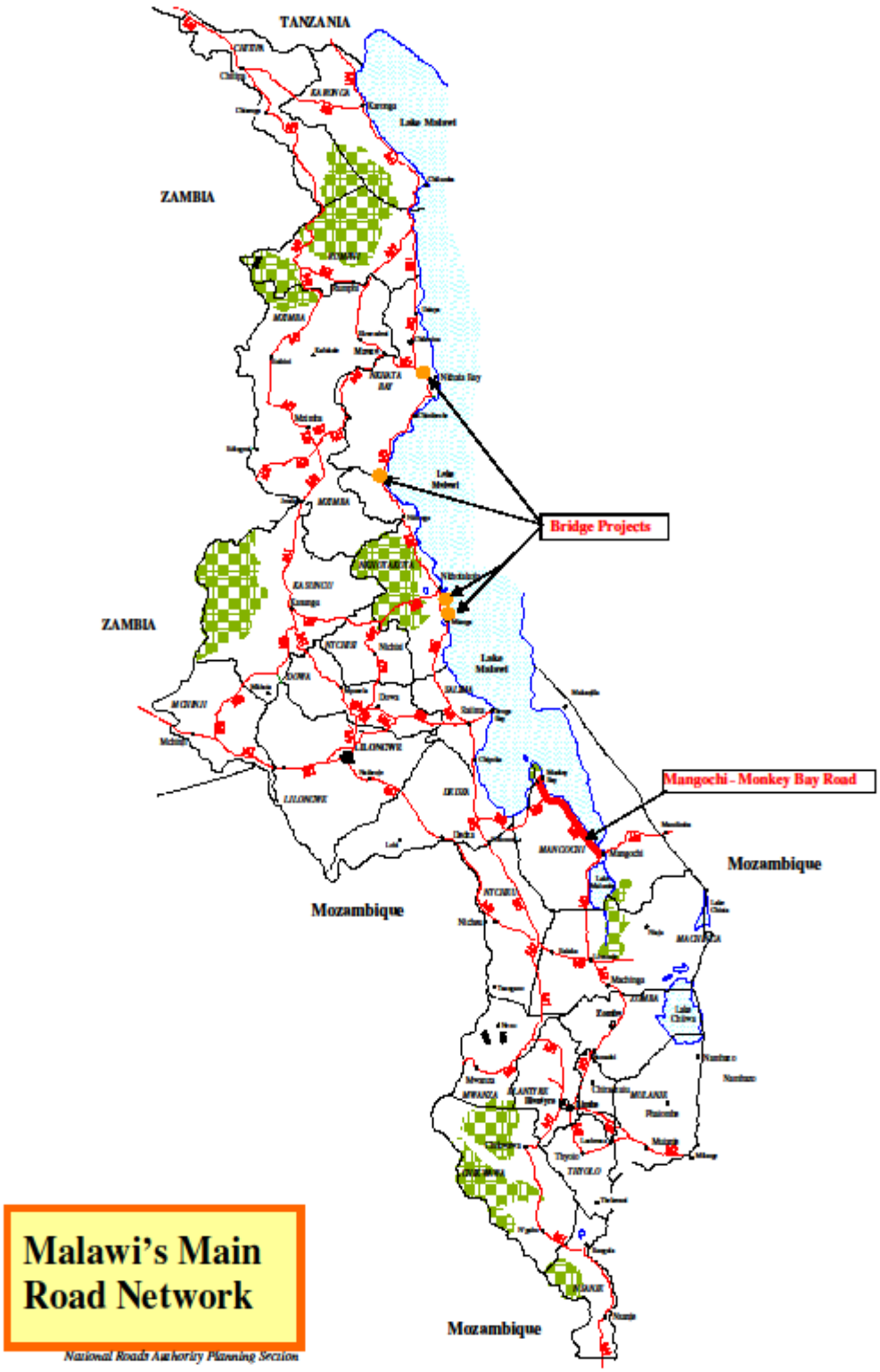
1.5 Road Projects in Malawi

Some of the major road maintenance projects in the past 10 years include; Rehabilitation and Resealing of the Chikhwawa – Ngabu – Bangula Road (M1), an 81.7 Kilometres road which was done by Mota-Engil and was funded by the African Development Bank (AfDB); Reconstruction of Blantyre – Zomba (M3) road, it is 63 Kilometres long; and Periodic Maintenance and Rehabilitation of The Lilongwe-Nsipe (M1) Road.

New roads that have been constructed in the past 10 years include; Lilongwe City West By-Pass with a total length of 13.4 Kilometres, the project was financed by the Malawi Government and African Development Bank and was done by Mota-Engil.

At present, there are some ongoing road projects which include: Upgrading of Jenda – Edingeni Road Project, a 53 Kilometres long road; Upgrading of Milepa – Chiradzulu Road Section (S145), it is a 21.4 Kilometres long road and Lilongwe Old Airport – Kwanyanda – Santhe (S117) and Kasiya Spur (T342) Road Project which is 95 Kilometres long.

It may therefore be anticipated that an increase in the number of road projects in Malawi would naturally be associated with an increase in employment opportunities in road construction.



Source: Roads Authority Planning Section

Figure 1. 1: Map of Malawi Showing Malawi's Main Road Networks

1.6 Roads Projects Procurement

Procurement of works, goods and services in the road sector is done in line with Public Procurement Act No.8 (2003) as well as regulations, guidelines and rules published by the office of the Director of Public Procurement. Public Procurement Act No.8 (2003) indicates that construction companies have to be registered with the National Construction Industry Council of Malawi in order to be eligible to be awarded a contract.

1.7 Roads and Employment in Malawi

Durreval and Mussa (2010) in Employment Diagnostic Analysis on Malawi records that the percentage distribution of working population aged 15 years and above by economic activity is higher for women at 87% against 84% for men and vividly higher in urban areas at 96% than rural areas which is at 79%. In terms of economic activity, the Employment Diagnostic Analysis on Malawi indicates that the construction industry represents 1% of the economic activities and only employs 5% of the working population where the population of men is higher than that of women. This shows imbalance in distribution of employment opportunities between men and women in the construction industry.

According to the National Statistical Office's (2008) Malawi Welfare Monitoring Survey, Malawi's formal employment sector is very small, only 7.2 % of the labour force work in formal employment sector. In relation to this, Ministry of Economic Planning and Development's (2009) Annual Economic Survey which focused on 450 large and medium scale firms indicates that construction industry only employed 3.9% between the years 2005 and 2006.

The Ministry of Transport and Public Works' (2015) National Transport Policy (NTP) states that the operation and management of transport systems, along with construction works, in further development of the system provide a significant contribution to national employment. Hence, it may be argued that over the years, an increase in road building has contributed to the creation of jobs and boosting of the economic capacity. However, the NTP reveals that the transport sector is defined by huge discrepancies in numbers of male and female employees especially in senior positions where male domination is evident. Further, the NTP indicates that it seeks to take a deliberate step in the recruitment and promotion of professionals in the transport sector but it is

not known if the recruitment and promotion opportunities that would be offered would be proportionally shared between males and females.

The Roads Authority, in line with Section 25 (3) of Roads Authority Act No. 3 of 2006, undertakes its mandate by outsourcing all works and services. This outsourcing of works and services has led to an increase in number of private construction firms. These private construction firms include contracting and supervising firms. This increase in numbers of private construction firms has naturally led to increased employment opportunities in the roads construction sector. For example, employment numbers for an international private firm, Mota-Engil, have grown from 1743 employees in 2011 to 3200 employees in 2015. As at 2011, there were 33 female employees against 1710 male employees and as at 2015, there were 98 female employees and 3102 male employees. Female employees represent 3% of total number of employees. However, it is not known if these increased employment opportunities in roads construction are proportionally offered and seized between different gender groups.

Roads construction also offers indirect and induced employment to communities along and within the project stretch. There is blooming of road side businesses as the people working on the project sites are considered to be a readily available market. Small contractors and supervising firms also get subcontracted by large firms, some procurement firms get tenders of supplying construction materials to the project sites. Plant and machinery companies also get opportunities to sell and hire out their equipment. All these activities require labour force, both skilled and unskilled.

1.8 Problem Statement

There have been several studies investigating gender and discrimination in the labour market. For example Marini and Fan (1997) and Booth and Leigh (2010).

For example, Booth and Leigh (2010) carried out a study to investigate if employers discriminate job applicants by gender. They focused on female-dominated occupations and in their findings, they argue that there are some jobs which are considered to be more applicable to women than men. They further argue that this makes employers to directly or indirectly favour women over men who apply for such jobs. In another study, Glick, Zion and Nelson (1988) investigate gender

discrimination in hiring decisions but focusing on personality traits. In their findings, they argue that discrimination in hiring decisions is not only influenced by stereotypes about personality traits of men and women but mainly stereotypes about occupations where some jobs are perceived to be feminine and others masculine hence they echo the findings of Booth and Leigh (2010). From these studies, it is evident that discrimination in labour market is not only because of personality traits but the nature of jobs that the applicants apply for.

In another study, Riach and Rich (2006) adopt the correspondence technique to investigate the differences in earnings between women and men with women's human capital. Riach and Rich (2006) however focus is on individual characteristics for example formal education and job experience and they find out that there are indeed differences in wage decomposition. However the findings cannot justify that the differences between men with women's human capital and women or men and women with identical human capital in terms of wages are due to gender discrimination but may be due to other individual characteristics that could not be controlled for during the study such as gender stereotypes. Unger, Rauch, Frese and Rosenbusch (2011) defines human capital as a person's skills and knowledge that are acquired through education, professional or on-the-job training and experience. Weichselbaumer (2004) also adopts the correspondence technique to investigate the impact of personality traits on gender discrimination by employers, the finding is that gender discrimination during hiring is not influenced by productivity related attributes but biological sex. The technique employed in these studies is good but focus needed to be stretched to look at more other characteristics, on top of looking at the impact of the personality traits the study should have also considered investigating to what extent do particular personality characteristics drive an employer to choose one employee over another.
In conclusion, the common approach in studies investigating discrimination in the labour market has been through wage decomposition where the difference between what women and men with women's human capital earn is considered to be discrimination and also the differences in personality traits where some personality traits have been believed to influence the employers' decisions. This study therefore intends to take the investigation of gender discrimination in the labour market, specifically in road construction, a step further by investigating the influence of prospective employees attributes on employers' hiring decisions.

1.9 Objectives of the Study

The main objective of the study is to determine whether gender influences employability in roads construction in Malawi.

The specific objectives are:

1. To categorise key job positions and their associated employment attributes in roads construction.
2. To construct full-factorial experimental designs (employee options) for combinations of attributes of prospective employees for each job position.
3. To rank employee options through rating of preferences by those in hiring decision making positions and/or prospective employers.
4. To analyse the influence of each attribute on employability in roads construction.

1.10 Significance of the Study

Considering the current employment statistics in the construction industry, one may be tempted to conclude that the industry favours males and /or some particular job positions are feminine or masculine. Therefore, in view of this, the findings of the study will help establish whether there is indeed employment bias towards some gender in the construction industry.

If the study will establish that the road construction industry does not disproportionally favour men, it will help to dispute fears that women may be harbouring that the industry is for men and it will encourage women to enrol for non-traditional programmes such as Civil Engineering and other Construction related programmes in order to join the industry. However, if the study will establish that the road construction industry indeed favours men, then the study will recommend policy change.

CHAPTER 2

LITERATURE REVIEW

2.1 Decision Theory

Decision theory according to Hansson (1994) is the 'theories of decision making', however, he states that much as all human activities involve decision making, decision theory only focuses on some parts of human activities. Further, Hansson (1994) says that decision theory is how human beings use their freedom to non-randomly make choices when presented with several alternatives. In his conclusion of the definition of decision theory, Hansson (1994) indicates that decision theory is more concerned with choices that are made from several options with the influence from goal oriented behaviour.

In their study, Turpin and Marais (2004) compares a number of theoretical decision making models and how senior managers practically make decisions. Turpin and Marais (2004) in the process of their study identifies nine theoretical models. The rational model, according to Simon (1977) considers a logical and well versed decision maker. Its process has four steps which are; Intelligence which involves identifying appropriate occasions for making decisions; Design which involves creating, advancing and analysing possible line of actions; Choices where a particular line of action is selected from available options; and Review where previous choices are evaluated. Lindblom (1959) in his study says that The logical incrementalist view model is the decision making strategy which takes into consideration step by step procedure of selecting appropriate progressive actions whilst keeping room for alterations should need arise. This approach generally involves making feasible changes to progressive actions by choosing an appropriate course of action from existing options to solve existing problems rather than to achieve goals. Simon (1979) indicates that Model of bounded rationality assumes that the logical manager tasked with decision making does not have complete information about a subject as such optimal choices are not always required. Simon (1979) further says that the model is defined by searching for alternatives and having them evaluated sequentially where if an option satisfies a designated criterion then it is accepted as a satisfactory option. Mitroff and Linstone (1993) defines the multiple perspective approach as an attempt to take in all possible perspectives on a problem. They derived this approach from the concept of unbounded systems thinking of Hall, Guo, Davis and Cegielski (2005) which assumes that there is no problem which is an individual

problem but rather a member of other problems. Mitroff and Linstone (1993) classifies the multiple perspective model as either being technical, organisational or individual in nature. Mitroff and Linstone (1993) further indicate that analytical models that involve data collection all fall under technical perspective. Naturalistic decision-making is concerned with investigating and understanding decision making in its natural context. Klein's (2008) Recognition-Primed Decision (RPD) model is an example of Naturalistic decision-making. Klein (2008) observed and analysed over 600 decisions made by people in life-or-death situations, such as firemen, nurses and soldiers. According to Klein (2008), the backbone of the model is the decision-maker's ability to relate a situation to a previous experience in order to recognise appropriate goals associated with such a situation, as well as important cues and what to expect. The RPD model supports the idea that experience will increase the person's ability to recognise a situation. The organisation procedures view, according to Levitt and March (1988), considers decisions as the output of defined standard operating processes which are incited by organisational distinct components where decisions are said to be pre-programmed in existing processes including the routine way of thinking of the people involved. The political view assumes decision-making as a personalised negotiating procedure which is driven by the agendas of the decision makers rather than rational processes. Pfeffer (1981) states that in this approach, decision making is considered as a continuous battle between coalitions as decisions are made in groups where the coalitions use influence and power in a deliberate move to further their own interests rather than what is good for the organisation. Similar to the political view, Garbage can model also adopts a pluralist environment with several decision makers, objectives and opinions. Cohen, March and Olsen (1972) describes decision-making as an organised disorder. Cohen et al. (1972) indicate that "garbage can model" emphasises disorderly and brokenness type of decision-making in organisations, rather than the deliberate wielded approach implied by the political view. Cohen et al. (1972) define a garbage can as a meeting at a choice opportunity of a stream of problems seeking solutions, a stream of solutions seeking problems that they may provide an answer to and a stream of decision makers with divided attention who come and go. Further, Cohen et al. (1972) indicate that the decisions made in this model are solely dependent on the participants as they are the ones creating the "garbage can" where the "garbage can" is removed when a decision is made and sometimes this happens without solving all the problems. The individual differences perspective, according to Keen and Morton (1978), focuses its attention on the problem-solving ability and behaviour of the individual manager where decision making is influenced by the

manager's decision-making approach, background and personality hence it explains how managers' differing personalities influence them to adopt different decision making methods or come to different conclusions.

Turpin and Marais (2004) informally interviewed six prominent decision makers out of which five were male and one was female. All interviewees were graduates with qualification mostly in pure or applied sciences. The interviewees were derived from the government, parastatals and public sector. All respondents were at a level of seniority in their organisations that is Directors and Chief Executive Officers. Each decision maker discussed cases of decision making that they were involved in and used the same to express their own views on decision making but they were not presented with the decision theory models discussed above. The study found out that most decision makers' styles of decision making supported one or more of the nine decision theory models. However, two models, garbage can and incrementalist approach were not supported at all. It was also found out that most of the decisions made were a reaction to what had happened in their environment. Further, it was found out that decision makers relied on self-help desktop technology such as Microsoft Office to support their own styles of decision making technology.

It can be concluded that styles of individual decision makers as well as that of organisations should be clearly understood for one to claim to truly support them. Analytical decision support tools may be of vital importance in solving problems in a complex and industrialised environment but the same tools or methods cannot necessarily be applied to human decision-making.

Employment process also involves decision making hence there is a direct link between the employment process and decision theory. Employment processes, to some extent, support the rational model of decision theory discussed above. In the rational model, decisions are made by a logical and knowledgeable person which also applies to employment processes where hiring decisions are made by senior managers or personnel qualified in the field. Rational model involves identification of appropriate occasion for making decisions which is also seen in employment process where a vacancy or need for recruiting is identified in an organisation before managers may decide to recruit new employees. When a vacancy is identified, recruitment process requires that hiring managers evaluate or shortlist job applicants which is a process that

also takes place in rational model where there is advancement and analysis of possible line of actions. In rational model, the decision makers are presented with several options from which they make a choice of an appropriate solution to the need or problem at hand, likewise, in employment process, employers or hiring managers employ multi-attribute decision making process to select or recruit an appropriate individual for a particular post. In this case, employers are presented with several alternatives with a number of attributes and also with a number of levels and the decisions they make are based on the available options. Much as hiring managers are qualified, they can be knowledgeable about the organisation they are working in including the post they are hiring for but their knowledge of the prospective employee is always limited. Furthermore, hiring has to be made within a predefined period of time. Also, during the recruitment process the prospective employees who in this case are the "possible alternatives" are evaluated sequentially where one who meets the defined requirements is picked as a "satisfactory option". Therefore, it may be argued that the employment process also supports the model of bounded rationality. Job interviews, a part of the employment process mostly take place in a pluralistic environment where there are several decision makers, in this case panellists with several objectives and opinions. At the same time, interviews see to the meeting at an arranged time of a stream of problems (posts to be filled) seeking solutions; a stream of solutions (prospective employees) looking for problems (posts to be filled) that they may provide answers for; and a stream of decision makers (panellists). Hence, it may also be argued that employment processes also fit the garbage can model. Therefore, it may be argued that practically, the employment process is a blend of several decision making models and theories. In this study, an investigation of pragmatic case studies of employment processes and attributes that influence employment was done to understand relationships between employability and attributes that affect decision making. In addition, the isolated attributes also informed the data collection tool for the study.

2.2 Case Studies

This study is premised on the assumption that if gender influences employability in road construction in Malawi then there is some form of discrimination at play within the industry. Several studies have defined discrimination in work environments. For example, Riach and Rich (1995) defined discrimination as employers' differential treatment of job applicants. Ehrenberg and Smith (2016) provided a more general definition of discrimination not being particular to

hiring but to include general differential treatment among workers who possess identical productive characteristics owing to different demographic groups that they belong to. General differential treatment among workers may include discrimination at hiring, during employment and at disposal of human resource. Becker (1957) stated another dimension of employment discrimination as some majority group members' opinions or ideas against those of the minority. Riach and Rich (1995), and Ehrenberg and Smith (2016) definition of discrimination is based on employer versus employee basis while Becker (1957) definition relates well to situations where decision making is based on opinion and on a "majority rules" basis. This study adopts Ehrenberg and Smith (2016), and Riach and Rich (1995) definitions of discrimination at hiring and due to demographic characteristics of job applicants. At the same time, the study adopts Becker's (1957) definition of discrimination at all phases of the employment cycle owing to the influence of majority groups on decision making.

Several dimensions of discrimination in relation to employment have been studied and these include discrimination by race, discrimination by gender, discrimination by work experience, discrimination by wage, discrimination by age, discrimination by occupation and discrimination by sex orientation.

2.2.1 Employment and Gender

Weichselbaumer (2004) investigated gender discrimination in employment by studying the impact of gender stereotypes in terms of personality traits on discrimination during applicant selection. Denham (2010) on his blog on Careers and Worklife defined personality traits as characteristics or attributes that an individual manifests when being normal or fixed style of behaviour of an individual. Some of the examples of personality traits that he gave are attitude, goal focused and being enthusiastic. Weichselbaumer (2004) carried out the study in Austria and adopted the correspondence testing technique. The study involved three hypothetical applicants including a man and two women. All the three hypothetical applicants applied for same jobs. In their application packages they indicated identical skills, knowledge and competencies. The two women however were presented as having different gender roles, one was presented as a feminine woman and the other a masculine woman. The feminine woman was said to have characteristics that the society generalises as feminine in terms of how one does things, their poise and the way they talk while the masculine woman was presented as possessing

characteristics associated with men. The feminine woman's package depicted feminine hobbies on her resume with a photograph attached to it depicting feminine physical appearance such as long hair. The masculine's woman resume showed masculine hobbies with a photograph attached to it showing her masculine physical appearance. In a similar study, Booth & Leigh (2010) investigated if employers discriminate by gender. The study was carried out in Australia labour market and it focused on jobs that are mostly taken by women which were wait-staff, data-entry, customer service and sales. The hypothesis was that since the majority would be women it would consequently follow that those in hiring positions would be women hence there would be an increase in bias towards women relative to the proportion of women in female jobs.

Booth and Leigh (2010) made a second hypothesis that gender discrimination is evident and consistent across various job types. They adopted the audit discrimination technique to analyse gender differences in terms of number of applicants who would get to be called back by the employer for an interview or further details. The technique adopted involved responding to job advertisements by sending matching Curriculum Vitae (CV) which were randomly given feminine and masculine applicants' names.

Riach and Rich (1995) also carried out an investigation on gender discrimination where the aim was to investigate the extent to which gender influences employers hiring decisions. The study was carried out in the Australian State of Victoria over a period of three years from 1983 to 1986. Riach and Rich (1995) also adopted the correspondence testing procedure to conduct the study. The study focused on seven occupations out of which only gardening was manual. The study involved responding to job advertisements of the selected jobs by sending two standard application letters per job advertisement. These application letters were carefully matched in terms of experience, qualification and age such that the only different attribute was gender. The letters were proportionally distributed between the two genders. The letters were restricted to two per job advertisement in order to prevent the employers from detecting them. The jobs that were applied for were those that required written applications. In a similar study, Riach and Rich (2006) investigated sexual discrimination in hiring in the English labour market. They also adopted the Correspondence testing procedure but unlike Riach and Rich (1995) study where seven occupations were chosen, only four occupations were chosen for this study. Out of the seven chosen occupations in Riach and Rich (1995) only one was a traditionally male and the rest

were traditionally for both men and women while as in Riach and Rich (2006) study, out of the four occupations, one was traditionally feminine, another one was traditionally masculine and the remaining two were both male and female. The application letter package was the same where age, qualification and experience were matched except gender. Glick et al. (1988) said that the designation of 'female' and 'male' jobs might have sprouted from stereotypes about traits that women and men possess which in turn lead the society into considering certain types of tasks as being suitable for men only and others suitable for women only.

In findings, Booth and Leigh (2010) established that in occupations where there were over 80% females, call-backs were biased towards female applicants. They observed a notable discrimination against men. They attributed this bias towards female applicants in heavily female dominated occupations to gender-stereotyping arguing that a male applicant cannot be evaluated favourably by female employers for a job that is considered feminine. Gardener (1994) defined stereotypes as unfavourable or negative evaluation and judgement of a category. He also defines stereotypes as agreeable and unjustified beliefs that distinguish one category from the other. The categories could be gender, occupation and sex among others. In less female-dominated occupations, Booth and Leigh (2010) found out that there was no observable bias towards either sex. The study also observed that discrimination is diverse across jobs. Weichselbaumer (2004) also found out that in traditionally male jobs, a woman's unfavourable treatment does not lessen even when she presents herself as a masculine woman and alternatively, a woman is still preferred to a man in traditionally female jobs due to the job being sex stereotyped. It was further found out that owing to gender stereotype, woman with traditionally female characteristics and woman with traditionally male characteristics were treated the same while the man is treated differently. Wichselbaumer (2004) observed a substantial discrimination against women in male jobs and alternatively a substantial discrimination against men in female jobs. It was concluded that differential treatment in the study was motivated by discrimination and not personality traits that are required or associated with productivity.

In their study, Riach and Rich (1995) observed statistically notable discrimination against women in male jobs and senior managerial positions. They concluded that the discrimination pattern depicted in the study was motivated by the perception that women were less capable to handle managerial positions. Riach and Rich (1995) argued that employers had fears that in firms where

women would hold managerial positions profits would be minimal as compared to firms with male managers. Similarly, Riach and Rich (2006) found out that in female jobs, men were discriminated against and in male jobs women were discriminated against while in jobs for both men and women, men were discriminated against. It was concluded that this discrimination was motivated by the benefits that employers were looking for in the employees. Riach and Rich (1995) and Riach and Rich (2006) made the same conclusion that the discrimination observed was owing to personality traits that are associated with productivity. In contrast, Weichselbaumer's (2004) conclusion indicated that the discrimination in her study was caused by gender and job stereotypes.

Fuegen, Biernat, Haines and Deaux (2004) take the studies on discrimination in employment to another dimension by investigating the influence of gender and parental status on employment decisions. The study was carried out in the United States and the samples were derived from Midwestern State University and Eastern University. In the study, one hundred and ninety six undergraduates from two universities were tasked with evaluating fake job applicants. The applicant was either female or male, unmarried or married with two children. The study derived its hypothesis from the shifting standard model. Shifting standard model according to Biernat and Manis (1994) states that different social categories are judged according to the stereotypes made about them. The judgements are incomparable but are specific and directly related to the social category in question. In their study, Fuegen et al. (2004) made the hypothesis that parenthood distinguishes judgements of men and women hence mothers are made to hold on to harsh employment standards than fathers. The study also made use of the Social Role theory to expound on the hypothesis made. Vogel, Wester, Heesacher and Madon (2003) said that in Social Role theory the behaviour of men and women is controlled by the stereotype of responsibilities for men and women as dictated by the society. Fuegen et al. (2004) said that it is parenting roles that guide the judgements of fathers and mothers and not gender. The study established that the participants evaluated fathers as more likely to be hired or promoted than mothers. Men who were not fathers were evaluated more favourably than men who were fathers and similarly, women who were mothers were evaluated less favourably than women who were not mothers. Women and men who were not parents were evaluated comparably and standards set for them to be hired were similar. It was concluded that the differential treatment in the study therefore was not due to gender stereotype but societal judgement of parenthood.

From these studies and findings, it may be deduced that both personality traits and gender stereotypes can significantly contribute to discrimination during employment hiring. Women and men despite having identical knowledge, competencies, skills and personality traits, are still favoured differently when hiring decisions are being made. Job stereotypes also influence decisions that lead to discrimination during hiring. Apparently, employers are very unlikely to employ a woman for a job that is societally male and vice versa, and such biasness may be difficult to control. Although occupation stereotype may be the result of gender stereotypes, propagation of occupation stereotype can be more closely related to the actual numbers of men and women in that occupation. Where there are more women in a particular occupation bias will be towards women and the vice versa. Lastly, personality traits required and associated with productivity can also influence employers hiring decisions which subsequently would motivate discrimination in employment hiring.

2.2.2 Employment and Age

Furunes and Mykletun (2010) characterised age discrimination into two categories namely direct and indirect. Direct age discrimination was defined as a person's less favourable treatment relative to others in a comparable situation based on age. They defined indirect age discrimination as when common employment practice disadvantages people on the basis of their age unless there is a legal reason allowing the employer to do so. Furunes and Mykletun (2010) argued that age discrimination is evidently a common problem in employment. In addition, it was argued that age discrimination occurs at various stages of employment, from recruitment right through to human resource development. Further, it is indicated within the study by Furunes and Mykletun (2010) that age discrimination is a wider abstraction of ageism. Ageism may be defined as prejudgement of one age group toward other age groups. Nevertheless the term refers more to discrimination against the elderly (ibid.). However, Duncan and Loretto (2004) in their study on gender and age based discrimination indicated that in recent times, the term ageism is less associated with age discrimination against the elderly only but refers to age discrimination in general regardless of the ages of the victims and in some instances, ageism and age discrimination are used interchangeably.

Taylor and Walker (1994) in their study on employers' attitudes towards older employees argued that there is substantial evidence that employers judge older employees as loyal and reliable

which are positive attributes. In contrast, Chiu, Chan, Snape and Redman (2001) in their study on age stereotypes and discriminatory attitudes towards older workers argued that older employees possess negative attributes such as inflexibility, resistance to training and also resistance to adoption of new things. Both Taylor and Walker (1994) and Chiu et al. (2001) did not show the connections between the perceived older people's attributes to their suitability for particular jobs. However, Loretto and White (2006) conducted a detailed investigation of a broader range of employers' practices and how these practices connect with their perception of older workers. Loretto and White (2006) adopted the focus group technique as their way of obtaining empirical data. The study was carried out in Scotland. Focus groups were conducted in four areas namely, Dumfries and Galloway, Edinburg and Lanarkshire. All employers including those from the top companies, small businesses and local enterprises were invited to participate in the focus groups such that there was a representation of employers from both private and public sector organisations. They invited a wide range of employers because they wanted to reflect employment diversity that was available in the region and also to be able to recruit between 10 and 12 employers for each focus group. The agenda of the discussions was drawn from previous researches that investigated employability of older workers. The agenda covered all employment cycle phases. The study found out that much as most employers claimed to be operating on equal opportunity policy where they claimed to have no upper age bracket for promotion and training opportunities, in practice it was a different story. It was found out that in practice, both positive and negative bias towards older workers existed. Positive bias towards older employees existed for jobs which required maturity, reliability and stability. Conversely, older employees were disadvantaged in circumstances where employers' thought assumed older employees' attributes could not fit in the job requirements. However, it is not only older workers that are discriminated against. Duncan and Loretto (2004) carried out a study in the United Kingdom at Finserv organisation to establish if the depth and manifestation of age discrimination in employment varied across gender and age groups. They used 2000 questionnaires with open response questions to collect opinions from a randomly selected representative sample. Finserv had about 9000 employees. They found that employees who were above 45 and those who were less than 25 were the most affected by negative age discrimination. The negative age discrimination was more extreme for women than men. Duncan and Loretto (2004) argued that being female seemed to intensify age prejudice because it was mostly the women who were considered "too young and too old". However, among the middle aged, those between 25 and 44, higher proportion of men

experienced age discrimination as compared to women. Across the age range of 25 – 44, age discrimination of men was less variable than of women but across all the age groups, women suffered age discrimination the most.

From these studies, it can therefore be concluded that age discrimination or ageism is present and active in the employment cycle. It can also be concluded that older employees are the biggest victims of age discrimination. Women have been said to never be the right age for employment and they suffer a double blow in terms of being discriminated against by gender as well as age.

2.2.3 Employment and Qualifications

Puhakka, Rautopuro and Tuominem (2010) analysed the link between employment world and education. In 2001 and 2002, Puhakka et al. (2010) investigated the employment status of master's degree graduates from two universities in Finland, University of Soensuu and University of Kuopio. A questionnaire was administered to a total of 1294 graduates from the two universities. The study aimed at establishing the situation of graduates in the labour market, the skills required by the students in the labour market and the difference that existed between vocational and general degree graduates. The study found that 67% of graduates were already employed by the time the students were graduating. Puhakka et al. (2010) then argued that employability is directly connected to skills. In addition, it was argued that university students were supposedly offered skills and knowledge so that their chances of being employed could be increased. According to Becker (1985), skills and knowledge are basically outcomes of human capital investments such as education, on-the-job training and experience. However, Puhakka et al. (2010) study did not determine differential proportions of male to female students based on graduates' employment situation. However, Brown (2003) had a contrary opinion to Puhakka et al. (2010). Brown (2003) challenged the hypothesis that the better ones credentials are the better the job they will get, the greater the reward and also the more equal the hiring opportunities are offered. Brown (2003) exposed social inequalities that have risen from the quest of livelihood and occupation positions. It was argued that the hypothesis led to an increase in number of women who joined the race for managerial and professional work which led to the inflation of the middle class' employment expectations. These expectations were aggravated by the rise in mass higher education that consequently increased numbers of job applicants in the already flooded labour market for the elite jobs. Brown (2003) further argued that in the absence of permanent job

opportunities, applicants were forced to exploit their educational qualifications in order to access permanent employability. Therefore, it may be argued that the level of qualification in not always directly proportional to employability nor remuneration but that the relationship between the attributes may be distorted by employment opportunities shrinkage.

Elliot, Dale and Egerton (2001) conducted a study on the influence of qualifications on women's work histories, employment status and earnings. The study indicated a manifestation of an increase in the qualification levels of women in the United Kingdom at that time. The results of the study also showed that the increase in women's qualification levels was very crucial in influencing attainment of higher levels of employment. In relation to this, Crompton and Sanderson (1986) explored the impact that increased numbers of women in gaining formal qualifications of all kinds had on the then male and female careers. Crompton and Sanderson (1986) argued that there was uneven distribution of women's participation in the formal employment and that employment of women was confined to specific occupations for example secretarial work and if the women were employed in same occupation as their male counterparts, women would, in most cases, be employed at lower levels. Crompton and Sanderson (1986) further argued that the employment of women at lower levels was because women did not have relevant qualification but simply work experience obtained through some part-time jobs. In addition, it was further argued that history had it that since long time ago, women had failed to acquire work-related qualifications but qualifications that were biased towards their gender which anticipated segregation of subsequent employment. Crompton and Sanderson (1986) agreed with Chiplin and Sloane (1982) who also indicated that in the employment structure, women were being located in generally lower and less paying positions since the conception of industrialisation. Chiplin and Sloane (1982) in their book provided a brief review of the main alternative theories of discrimination that have been proposed by economics. In the review, one theory that was looked at was the dual-labour market theory. The theory looks at healthy energetic white males as being concentrated in high paid, stable and secure jobs which offer trainings, promotions and career advancements whereas most women and black workers are concentrated on low-paid and insecure jobs which offer no prospects for career advancements. In this theory review, it was established that for females, lack of appropriate qualifications denied them access to male dominated jobs hence leading them to being overcrowded into a relatively small span of occupations. It was further argued that this overcrowding of women in a relatively

small range of occupations would make them abundant in supply which negatively affect their earnings. Chiplin and Sloane (1982) further established that if women had appropriate qualifications and occupations were opened up to them, there would be improvements in their earnings. Male dominated occupations would experience a decline in wages due to the increase in competition from women while there would be a rise in earning and a more efficient labour allocation in female dominated occupations. Similarly, Crompton and Sanderson (1986) indicated that if women's quality of labour supply through qualifications improved such that women could have guaranteed access to the higher-level occupations and careers, male careers prospects would be reduced if there would be no deliberate effort to proportionally increase these occupations. Echoing Brown (2003), Crompton and Sanderson (1986) also argued that qualifications alone were not an automatic access to a successful career citing for example that some women were evidently overqualified for the jobs that they were employed in.

It can therefore be concluded that it is a common perception that education is an automatic ticket to good jobs, but, as much as it is assumed that less skilled workers are less productive as compared to those workers with better educational qualifications, education alone may fall short in providing access to good jobs so long as the labour market remains segmented. Labour market segmentation as defined by Magnac (1991) refers to a situation in which there are differences in earnings among workers with equal or identical productivity and where the number of workers being hired is controlled. It can also be concluded that, women are confined in low-paid, insecure and unstable jobs not only because they are discriminated against but also because they lack necessary skills and qualifications.

2.2.4 Race and Employment

Pager and Shepherd (2008) defined racial discrimination as an individual's unequal treatment due to their race or ethnicity. In distinguishing differential treatment from disparate impact Pager and Shepherd (2008) defined disparate impact as the equal treatment of individuals based on a set of guiding rules and procedures where the procedures are designed in such a way that they are more favourable to one group at the expense of the other whilst differential treatment was defined as the unequal treatment of individuals due to their ethnicity. In addition, it was argued that discrimination is recognizably different from racial attitudes, racial beliefs and racial ideologies that may be associated with racial difficulties but might in some cases also motivate racial

discrimination. In other words, one can have a racial attitude but not translating such into observable discrimination. In fact, Brief, Dietz, Cohem, Pugh and Vaslow (2000) argued that racist attitudes are still in existence but have only evolved from being straight forward and hostile in nature to being difficult to analyse plus unacknowledged.

Deitch, Barsley, Butz, Chan, Brief and Bradley (2003) carried out a study to provide evidence for the existence of everyday workplace discrimination against blacks using secondary data analysis technique. Data was drawn from a study "Prejudice and Violence in the American Workplace" which was conducted by Erlich and Larcom (1993). In their study, Erlich and Larcom (1993) conducted personal interviews with 327 workers of an American corporation in the Mid-Atlantic State. In these interviews they asked the workers to state the kinds of mistreatment that they were encountering in their everyday work life. Dietch et al. (2003) then used the responses from the workers to extract data from the Black and Whites. Results of the study showed that Blacks reported more mistreatment as compared to the Whites. Although the itemised mistreatments did not directly reference racial discrimination, Dietch et al. (2003) concluded that since it was Blacks that reported more mistreatments, then it was Blacks that suffered everyday racial discrimination in the workplace. Battu and Zenou (2010) also investigated racial discrimination in employment. Unlike Dietch et al. (2003) who focused on Blacks, Battu and Zenou (2010) focused on ethnic minority groups in England, in this case non-whites to determine the relationship between ethnic identity strength and the probability of being employed. Akerlof and Kranton (2000) defined ethnic identity as a person's sense of self perception. Battu and Zenou (2010) made a hypothesis that a community or minority group that is socially excluded from a majority group may have some of its individuals willing to identify themselves with the majority group's cultures to attain a sense of belonging. At the same time, some individuals from the minority group may reject the majority group's culture and this condition may be referred to as an oppositional identity. Battu and Zenou (2010) used data from Fourth National Survey of Ethnic Minorities (FNSEM) collected in 1993 and 1994 by the Policy Studies Institute. The rich information available provided a strong base for Battu and Zenou (2010) to evaluate the factors that led some individuals to adopt oppositional identity and also to ascertain if such preferences are associated with employment penalties. The study found that there was considerable diversity in the non-white population in terms of preferences influenced by their social environment. They also found out that there was an employment penalty associated with the minority non-white

population that extremely refused to identify with the majority white population. It can be concluded that there is indeed racial bias in employment however, some individuals from minority groups may escape from it if they can strategically adopt some majority groups cultures because the majority groups would consider them their own. Nevertheless, those individuals from minority groups that may refuse to adopt and associate with the majority groups cultures may suffer racial discrimination in employment the most.

In another study, Ziegert and Hanges (2005) investigated racial discrimination in employment by adopting the disparate treatment definition of employment discrimination. It was shown that disparate treatments manifest when different standards or different sets of guiding rules are applied to different social groups. Ziegert and Hanges (2005) conducted meta-analyses to identify elements that impacted size, dimension and direction of these differential standards. Meta-analysis according to Wilson (1999) is defined as a method of averaging means across independent studies. Wilson (1999) also indicated that Meta-analysis changes the focus to the direction and magnitude of the effects across the studies. Ziegert and Hanges (2005) made a hypothesis that organisational climate would influence applicants ratings and that that black applicants would have lower ratings compared with white applicants for racial bias. James and Jones (1974) defined organisational climate as a comparatively lasting and dominant characteristic which distinguishes the organisation from other organisations. The study found that White applicants were rated significantly higher than black applicants confirming racial bias and Male applicants were rated significantly higher than female indicating a gender bias.

From these studies, it can be concluded that racial discrimination in employment still exists. However, it cannot be concluded that racial discrimination is the definite cause of racial differences, differences in wages, hiring, occupation and employment as there could be other factors motivating the aforementioned.

2.2.5 Attributes for the study

From the studies discussed in this chapter, it is evident that there are various forms of discrimination in employment cycle. It has been seen that there is discrimination by gender during employment hiring where both men and women are discriminated against due to job stereotypes. However, women suffer discrimination the most as they have been seen to be

evaluated less favourably even in cases where they have identical skills, knowledge and experience with their male counterparts. It has also been established that gender differential treatment during hiring is motivated by employers bias towards one gender and not personality traits associated with productivity. In terms of qualifications, it has been shown that women are confined to low-paid, insecure and unstable jobs not only because they lack relevant qualifications but also because of job stereotypes where employers are bias towards hiring males as they consider women to be less capable to handle certain jobs. In addition, it has also been established that educational qualifications do not provide direct access to better employment more especially to women who even after acquiring better qualifications still end up in secondary jobs in which they prove to be overqualified. Further, it has been argued that level of education is not always directly proportional to employability and earnings but that the relationship between attributes are defined by the availability of job opportunities on the market. The discussion has also shown that discrimination by age in employment exists and it is older workers who suffer it more than any other age group. And amongst the older workers, it is women who are discriminated by age the most. Finally, the discussion has shown that racial discrimination in employment still exists. However, it cannot be concluded that it is racial discrimination which is the absolute cause of racial differences, differences in wages, hiring, occupation and employment as there could be other factors motivating these.

It has been shown that there is no single factor that can be pinpointed as the sole motivation of discrimination in employment. Some factors are playing a direct role while others are playing an indirect role in motivating discrimination in employment. Nevertheless, it could be employers in hiring decision that may be playing a big role in propagation of employment discrimination owing to their tastes and preferences. Prior to hiring, it may be almost impossible for an employer to tell if an individual may be able to successfully carry out their assigned tasks. However, the employer may consider attributes that the prospective employee may possess which might be associated with past good and successful employees. These attributes could be those that can be under prospective employees' control such as educational qualifications and experience. Nevertheless, in order to make hiring decisions, the employer may also consider observable attributes which are never under candidates control such as age, race and sex.

CHAPTER 3

METHODOLOGY

3.1 The Study Area

The study was conducted in the whole spectrum of road construction sector in Malawi. The background of the study revealed that road construction sector in Malawi is comprised of the governing body, which is Roads Authority and construction firms, therefore, the target study area was contracting and consulting firms. Road construction contractors and consultants (both design and supervising) were determined to be the main focus of the study because they are directly involved in the execution of road projects in Malawi

3.2 Determination and Categorisation of Job Positions and Attributes

Job categories were determined by identifying key positions and roles in contracting and consulting firms. The key positions identified on the contractors' side were Site Agent, Measurement Engineer, Materials Engineer, Safety Health and Environmental Officer and Foreman while on the consultants' side were Resident Engineer, Measurement Engineer, Materials Engineer, Works Inspector and Environmentalist. However, for the purpose of this study, the job positions were collapsed into four positions. The collapsing was done by identifying the positions that were available in both contracting and consulting firms, their similarity in roles and responsibilities, their educational entry requirements and also the time available for the study. It was revealed that some positions such Resident Engineer, Site Agent and Site Engineer and also Environmentalist and Safety Health and Environmental Officer had different names but their roles and responsibilities were almost the same hence the name Site Engineer was adopted to represent Site Engineer, Resident Engineer and Site Agent while the name Safety Health and Environmental Officer was adopted to represent Environmentalist and Safety Health and Environmental officer. Also all job positions that did not have a Bachelor's degree as a minimum entry requirement were not considered in the study. Therefore, the final job positions were, Site Engineer, Materials Engineer, Measurement Engineer and Safety Health and Environmental officer.

Attributes associated with employment that were identified included interview (poise and how one answers questions during an interview influence job appointment), salary, influence of

religion and politics, experience, social status, gender, age, race and qualification. However, the study could not focus on social status, race and influence of religion and politics as these were considered to be very subjective and sensitive. And also, the study could not focus on job interview because it was considered that the procedure would be hilarious and overwhelming. Therefore, the final attributes were gender, age, experience, salary and qualification. Each attribute had two levels, upper and lower except for gender which had male and female as shown in Table 3.1.

Table 3. 1: Attributes and Their Levels

Qualification	Gender	Salary	Age	Experience
BSc	Male	Less than 500,000.00MWK	Less than 35 years	Less than 5 years
Masters	Female	More than 500,000.00MWK	More than 35 years	More than 5 years

A full factorial experimental design for each job position was then constructed. This was achieved by creating cards or choice sets from all the possible combinations of attributes and levels for each job position. The number of options were determined by the product of the levels of all the five attributes, i.e., 2^5 where 5 is the number of attributes and 2 is the number of levels for each attribute. Therefore, each job position produced thirty-two possible options.

3.3 Data Collection

The study employed two sets of questionnaires in data collection, "blind and open" to check respondents' biasness. Blind and open questionnaire had same content but only differed in their introductory statements. The "blind" questionnaire did not explicitly indicate that the study was focussed on determining the influence of gender on employability while the "open" questionnaire was explicit. It was anticipated that data from the two sets of the questionnaire could be significantly different. Since each job position had thirty-two possible options, it meant that for all the four job positions, there would be 128 possible choices that a respondent would be required to rate according to their preferences. To avoid laxity from the respondents due to large volume of possible options, the questionnaire was split into two, hence, for blind and open questionnaires, there were two pieces of each. The splitting of the questionnaire reduced the

number of options for each respondent to 64. The respondents were requested to rate each option on a scale of 0 – 10 where 10 would be the most preferred combination and 0 the least preferred such that in analysis the most preferred attribute had a high utility score.

There was no involvement of research assistants hence the questionnaires were self-administered. The questionnaires were administered in person and also through emails. The questionnaires and cover letters are given in Appendix A, B, C, D, E and F.

3.4 Population Sample

The targeted respondents were managers or those in employment making decisions. The study had a targeted number of managers, therefore, purposive sampling was employed. The study had 80 respondents who were envisaged enough to do an analysis.

3.5 Data Analysis

Data collected was analysed using Conjoint Analysis Method. "*Conjoint analysis is a popular marketing research technique that marketer's use to determine what features a new product should have and how it should be priced. The analysis looks at how people make decisions as in what drives people to choose one product over another"* (Curry, 1996, p.2) The data collected, in this case, the respondents' preferences was coded using dummy coding technique as shown in Table 3.2 in order to determine design matrixes which were then analysed using Excel's multiple regression function to estimate utilities.

Table 3. 2: Coding Applied to Each of the Five Attributes for One Full Factorial Design

Card No.	Qualification	Salary	Gender	Experience	Age	Preference
1	Q1	S1	G1	E1	A1	9
2	Q1	S1	G2	E1	A1	9
3	Q2	S1	G1	E1	A1	8
4	Q2	S1	G2	E1	A1	8
5	Q1	S1	G1	E2	A2	9
6	Q1	S1	G2	E2	A2	9
7	Q2	S1	G1	E2	A2	8
8	Q2	S1	G2	E2	A2	8
9	Q1	S1	G1	E1	A2	8
10	Q1	S1	G2	E1	A2	8
11	Q2	S1	G1	E1	A2	7
12	Q2	S1	G2	E1	A2	7
13	Q1	S1	G1	E2	A1	7
14	Q1	S1	G2	E2	A1	7
15	Q2	S1	G1	E2	A1	7
16	Q2	S1	G2	E2	A1	8
17	Q1	S2	G1	E1	A1	8
18	Q1	S2	G2	E1	A1	8
19	Q2	S2	G1	E1	A1	7
20	Q2	S2	G2	E1	A1	7
21	Q1	S2	G1	E2	A2	8
22	Q1	S2	G2	E2	A2	8
23	Q2	S2	G1	E2	A2	8
24	Q2	S2	G2	E2	A2	8
25	Q1	S2	G1	E1	A2	7
26	Q1	S2	G2	E1	A2	7
27	Q2	S2	G1	E1	A2	7
28	Q2	S2	G2	E1	A2	7
29	Q1	S2	G1	E2	A1	7
30	Q1	S2	G2	E2	A1	7
31	Q2	S2	G1	E2	A1	7
32	Q2	S2	G2	E2	A1	7

After coding the attributes, the next step was to code the data for the product characteristics using a dummy coding technique. Since each attribute had two levels, each attribute was represented by two columns as shown in Table 3.3. Zero (0) represented absence of a feature while one (1) represented presence of a feature.

Table 3. 3: Example of Excel Spreadsheet with Coded Data for One Full Factorial Design

Card No.	Q1	Q2	S1	S2	G1	G2	E1	E2	A1	A2	Preference
1	1	0	1	0	1	0	1	0	1	0	9
2	1	0	1	0	0	1	1	0	1	0	9
3	0	1	1	0	1	0	1	0	1	0	8
4	0	1	1	0	0	1	1	0	1	0	8
5	1	0	1	0	1	0	0	1	0	1	9
6	1	0	1	0	0	1	0	1	0	1	9
7	0	1	1	0	1	0	0	1	0	1	8
8	0	1	1	0	0	1	0	1	0	1	8
9	1	0	1	0	1	0	1	0	0	1	8
10	1	0	1	0	0	1	1	0	0	1	8
11	0	1	1	0	1	0	1	0	0	1	7
12	0	1	1	0	0	1	1	0	0	1	7
13	1	0	1	0	1	0	0	1	1	0	7
14	1	0	1	0	0	1	0	1	1	0	7
15	0	1	1	0	1	0	0	1	1	0	7
16	0	1	1	0	0	1	0	1	1	0	8
17	1	0	0	1	1	0	1	0	1	0	8
18	1	0	0	1	0	1	1	0	1	0	8
19	0	1	0	1	1	0	1	0	1	0	7
20	0	1	0	1	0	1	1	0	1	0	7
21	1	0	0	1	1	0	0	1	0	1	8
22	1	0	0	1	0	1	0	1	0	1	8
23	0	1	0	1	1	0	0	1	0	1	8
24	0	1	0	1	0	1	0	1	0	1	8
25	1	0	0	1	1	0	1	0	0	1	7
26	1	0	0	1	0	1	1	0	0	1	7
27	0	1	0	1	1	0	1	0	0	1	7
28	0	1	0	1	0	1	1	0	0	1	7
29	1	0	0	1	1	0	0	1	1	0	7
30	1	0	0	1	0	1	0	1	1	0	7
31	0	1	0	1	1	0	0	1	1	0	7
32	0	1	0	1	0	1	0	1	1	0	7

However, in multiple regression, according to Orme (2010), there can be no perfect prediction of an independent variable based on the condition of any other independent variable or a blend of dependent variables because regression procedure would be unable to separate the effects of the confounded variables. In order to resolve this linear dependency, the first column from each attribute was omitted hence producing a modified data table as shown in Table 3.4. The omission

of the first column of each attribute did not mean that one level of each attribute was discarded, they were implicitly included as reference levels for each attribute.

Table 3. 4: Modified Data Table

Card No.	Q2	S2	G2	E2	A2	Preference
1	0	0	0	0	0	9
2	0	0	1	0	0	9
3	1	0	0	0	0	8
4	1	0	1	0	0	8
5	0	0	0	1	1	9
6	0	0	1	1	1	9
7	1	0	0	1	1	8
8	1	0	1	1	1	8
9	0	0	0	0	1	8
10	0	0	1	0	1	8
11	1	0	0	0	1	7
12	1	0	1	0	1	7
13	0	0	0	1	0	7
14	0	0	1	1	0	7
15	1	0	0	1	0	7
16	1	0	1	1	0	8
17	0	1	0	0	0	8
18	0	1	1	0	0	8
19	1	1	0	0	0	7
20	1	1	1	0	0	7
21	0	1	0	1	1	8
22	0	1	1	1	1	8
23	1	1	0	1	1	8
24	1	1	1	1	1	8
25	0	1	0	0	1	7
26	0	1	1	0	1	7
27	1	1	0	0	1	7
28	1	1	1	0	1	7
29	0	1	0	1	0	7
30	0	1	1	1	0	7
31	1	1	0	1	0	7
32	1	1	1	1	0	7

For Multiple regression both lower and upper boundaries for confidence interval was set at 95%, therefore, the significance level (pre-determined probability) was 0.05.

Multiple regression analysis output gave out three tables, Regression Statistics, Anova and Regression Equation". The output data in the Regression statistics included Multiple R, R-Squared, R-Adjusted, Standard Error and observations. Multiple R basically shows the relationship of one X and one Y, however the study had multiple X, therefore Multiple R. was not used. R-squared which is the coefficient of determination was used instead of Multiple R. R-Squared explained the percentage variation in the dependent variable i.e. employability that was used in the Regression Model. This study had low R-Squared values. The low R-Squared values were because the study was dealing with human behaviour. Frost (2013) says that humans are difficult to predict than physical processes. Also, Frost (2013) indicates that low R-Squared values are acceptable if the predictors are statistically significant such it is still possible to draw important conclusions on how changes in the predictors are associated with changes in the responsive values. Lastly, R-adjusted is used to eliminate unnecessary increase of the number of attributes in order to increase the value of R-Square and in this study, it was not employed as the number of attributes was kept constant. Standard Error calculates the confidence level interval behind T-test and for this study it was not considered as T-test was not done. Observations represented the number of tests in the regression analysis.

Determination of whether the attributes employed in the study significantly influenced employability was done using the output data in the Anova table through the following parameters:

F (df range) = F, p where:

F (df range) = number of times an attribute is chosen relative to the number of times it was available for choices in an F test (df = N-k-1 where N is the number of data entries and; k is the number of variables)

F = p-value (F significance) for the F test

p = pre-determined probability

Regression equation table output data included coefficients and p-values of the attributes. Regression equation output data determined part-worth utilities or preference scores for levels within and across attributes. "*These utilities (part-worth) give a measurement of value of each level in terms of its contribution to that were made and so shows the relative value of one level*

against another." (dobney.com, 2016, p.3). Part-worth's within attributes was therefore determined by analysing the relationship between pre-determined probability (p = 0.05) and the independent variables. The value of the coefficient determined the size of effect that the attribute had on employment where the greater the coefficient the most preferred or influential the attribute and the vice versa. The significance of the attribute was determined by p (calculated probability) while p-values determined the significance of the corresponding attribute where p – value of less than 0.05 meant that the contribution of the attribute was statistically significant and the vice versa.

However, the p-values and coefficients did not clearly indicate the relative importance across attributes. The relative importance of attribute, according to dobney.com (2016) is the determination of which attribute is the most important where the importance is measured by taking the relative impact of one attribute compared to the others. Therefore, the relative importance of each attribute on employability was determined by calculating the attribute importance percentages from relative part-worth utility ranges. To determine the percentages, the utilities (coefficients) Attribute Utility Range (AUR) were calculated based on a zero utility value of a given reference attribute (dummy) and thereafter, the attribute utility ranges were added together in order to determine the total utility range (TUR). Therefore, Relative Importance of Attributes (RIA) percentage was determined by the formula:

$$RIA = \frac{AUR}{TUR} * 100\%$$

In summary, the study strategy and methodology was quantitative. The study involved creation of possible prospective employers' choices from job categories and the attributes that were determined. These cards were then developed into a questionnaire. These possible options on the questionnaire were ranked by respondents who rated the possible options on a given scale. The ratings or preferences were analysed using excel multiple regression to interpret results and findings**.**

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Demographics of Respondents

Information about the respondents captured in the study included, gender, experience in the construction industry, position held and number of years on current position. There was a total of 80 respondents out of which 19 were female and 61 were male representing 24% and 76% respectively as depicted in Figure 4.1. The respondents were distributed over Malawi; Southern Region, Central Region and Northern Region had a representation of 38%, 56% and 6% respectively. The experience of respondents was in three categories, 0-5 years of experience, 6 – 10 years of experience and those with over 10 years of experience, their representations were 19%, 36% and 45% respectively as shown in Figure 4.2.

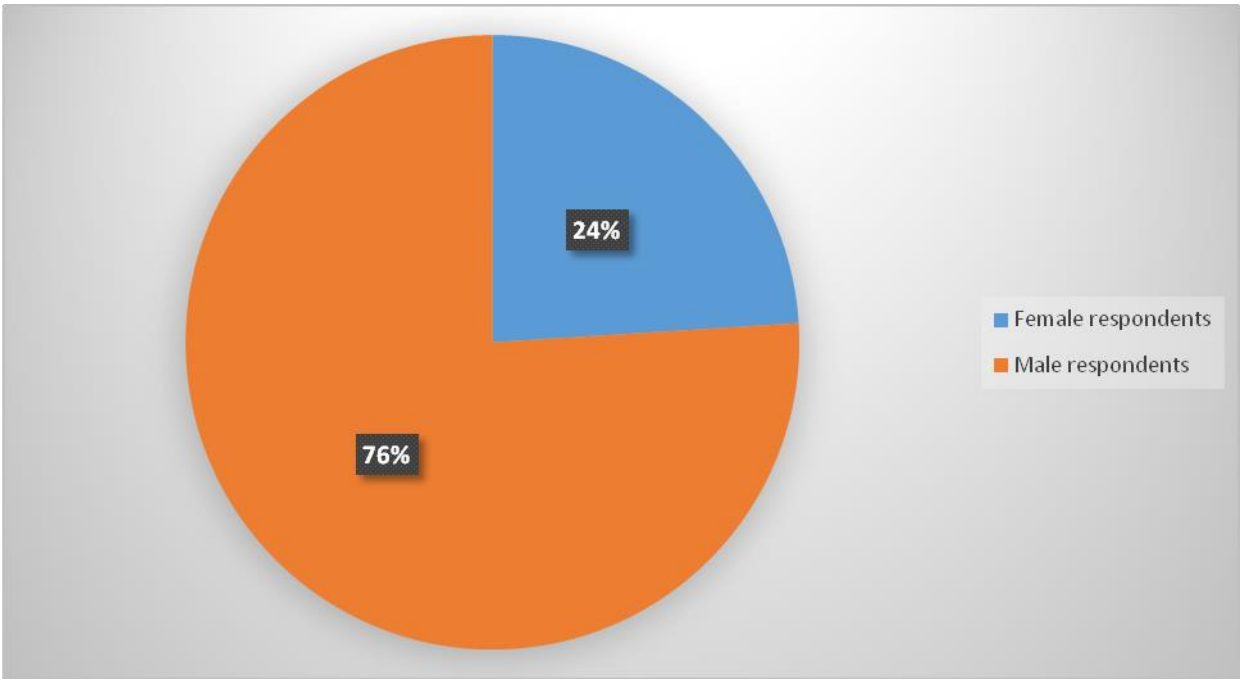


Figure 4. 1: Pie Chart Showing Proportions of Female and Male Respondents

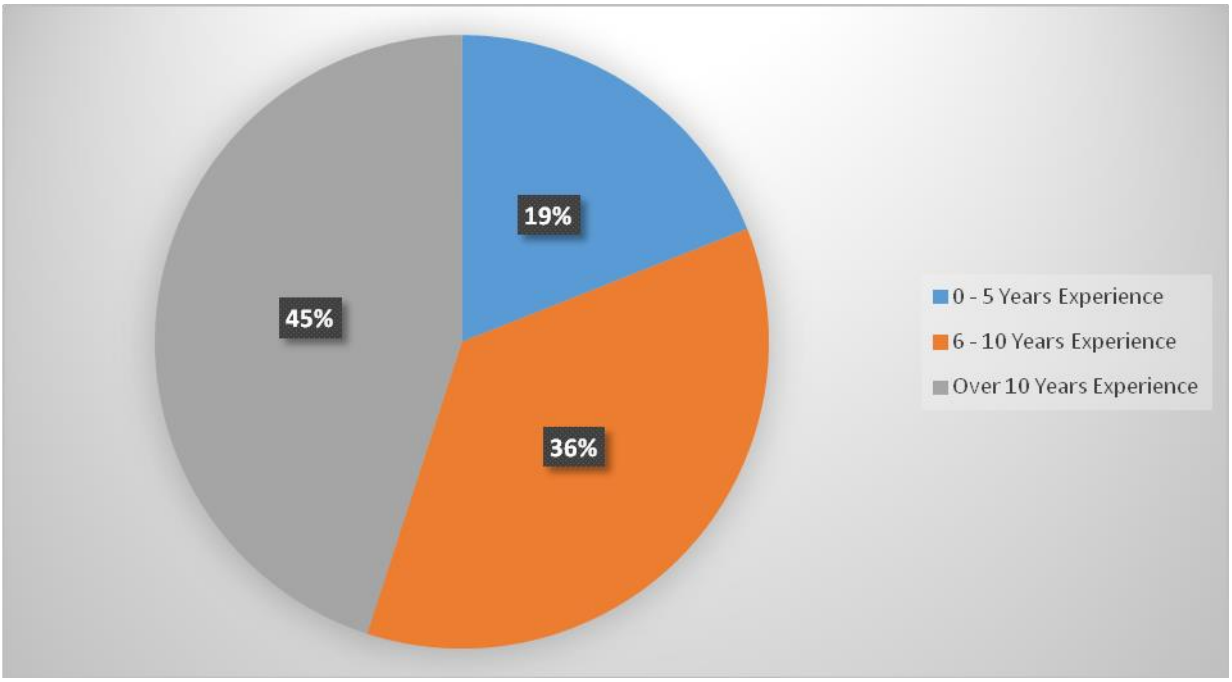


Figure 4. 2: Pie Chart Showing Proportions of Respondents by Years of Experience

4.2 Multiple Regression Results by Job Categories

4.2.1 Blind and Open Data for the Site Engineer Category

Table 4.1 shows a summary of multiple regression analysis for Blind and open data for the Site Engineer Category. Results for both Blind and Open data for the Site Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,634) = 15.795$, $p < 1.126E\text{-}14$ and $F(5,634) = 17.877$, $p < 1.3345E\text{-}16$ respectively. Further, results for both Blind and Open data suggest that males were more likely to be considered for the post than female prospective employees, $\beta = 0.3022$, $p = 0.1008$ for Blind data and $\beta = 0.4968$, $p = 0.0172$ for Open data. The likelihood of employment for males was significant for Open data only with $p < 0.05$. However, gender was not the most relatively important attribute for both Blind data, RIA = 11% and Open data, RIA = 13%. Experience, RIA = 53%, p = 1.14305E-14; Salary, RIA = 22%, p = 0.0010 and Experience, RIA = 35%, p = 7.4180E-11; Salary, RIA = 29%, p = 8.3330E-08 were the most influential attributes for both Blind and Open data scenarios respectively. Results also show that despite the fact that Gender had a significant p-value of 0.0172 for Open data, Gender had a comparatively low RIA of 13%. Therefore, it may be argued that the influence of gender on employability was not substantial for both Blind and Open data scenarios.

Table 4. 1: Summary of Multiple Regression Analysis for Blind and Open Data for the Site Engineer Category

	Blind Data		**Open Data**	
df	5, 634			
F	15.7946		17.8766	
Significance	1.1262E-14		1.3345E-16	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.3053	0.0973	-0.5531	**0.0080**
> MK500,000	0.6041	**0.0011**	1.1281	**8.3330E-08**
Male	0.3022	0.1008	0.4969	**0.0172**
> 5 Years	1.4547	**1.1431E-14**	1.3781	**7.4179E-11**
> 35 Years	-0.0703	0.7023	-0.3781	0.0696
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	11%	0.0973	14%	**0.0080**
Salary	**22%**	**0.0010**	**29%**	**8.33297E-08**
Gender	11%	0.1008	13%	**0.0172**
Experience	**53%**	**1.1431E-14**	**35%**	**7.4180E-11**
Age	3%	0.7023	10%	0.0696

Since results show that gender was not a significant determinant of employability for both Blind and Open data sets, the two data sets were combined for further analysis in order to determine whether coefficients (i.e. influence and significance) and RIA for gender would change. Results for combined Blind and Open data for the Site Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,1274) = 30.6227$, $p < 1.7419E-29$. Further, results for combined data also suggest that males were more likely to be considered for the post of Site Engineer than female prospective employees, $\beta = 0.3995$, $p = 0.0042$. The likelihood of employment for males was significant with $p < 0.05$. However, Gender was not the most important attribute for the combined Blind and Open data, RIA = 13%. Experience, RIA = 47%, $p = 2.4839E-23$ and Salary, RIA = 29%, $p = 7.3124E-10$ were the most influential attributes. Results also show that despite the fact that Gender had a significant p-value of 0.0043, Gender had a comparatively low RIA of 13%. Therefore, it may be

argued that the influence of Gender on employability of the Site Engineer category remained insubstantial for the combined Blind and Open data. Table 4.2 shows a summary for the multiple regression analysis for combined Blind and Open data for the Site Engineer category.

Table 4. 2: Summary for Multiple Regression Analysis for Combined Blind and Open Data for the Site Engineer Category

	Blind & Open Data Combined			
df	5, 1274			
F	30.6227			
Significance	1.7419E-29			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	-0.1239	Qualification	4%	0.3747
> MK500,000	0.8661	Salary	**29%**	**7.3134E-10**
Male	0.3995	Gender	13%	**0.0043**
> 5 Years	1.4164	Experience	**47%**	**2.4839E-23**
> 35 Years	-0.2242	Age	7%	0.1084

4.2.2 Blind and Open Data for the Measurement Engineer Category

Table 4.3 shows a summary for the multiple regression analysis for Blind and Open data for the Measurement Engineer category. Results for both Blind and Open data for the Measurement Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,634) = 22.9705$, $p < 3.1553E\text{-}21$ and $F(5,634) = 23.6963$, $p < 7.0840E\text{-}22$ respectively. Further, results for both Blind and Open data suggest that males were more likely to be considered for the post than female prospective employees, $\beta = 0.1522$, $p = 0.4340$ for Blind data and $\beta = 0.3969$, $p = 0.0448$ for open data. The likelihood of employment for males was significant for Open data only with $p < 0.05$. However, Gender was not the most relatively important attribute for both Blind data, RIA = 5% and Open data, RIA = 11%. Experience, RIA = 35%, $p = 2.4253E\text{-}08$; Salary, RIA = 56%, $p = 1.6762E\text{-}18$ and Experience, RIA = 52%, $p = 4.8596E\text{-}08$; Salary, RIA = 26%, $p = 2.3387E\text{-}06$ were the most influential attributes for Blind and Open data scenarios respectively. Results also show that despite the fact that Gender had a significant p-value of 0.0447 for Open data, Gender had a comparatively low

RIA of 11%. Therefore, it may be argued that the influence of gender on employability was not substantial for both Blind and Open data scenarios.

Table 4. 3: Summary of Multiple Regression Analysis for Blind and Open Data for the Measurement Engineer Category

	Blind Data		**Open Data**	
Df	5, 634			
F	22.9705		23.6963	
Significance	3.1553E-21		7.0840E-22	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.1116	0.5663	0.2156	0.2751
> MK500,000	1.7603	**1.6762E-18**	0.9406	**2.3387E-06**
Male	0.1522	0.4340	0.3969	**0.0448**
> 5 Years	1.0984	**2.4253E-08**	1.8719	**4.8596E-20**
> 35 Years	-0.0141	0.9424	-0.1531	0.4382
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	4%	0.5663	6%	0.2751
Salary	**56%**	**1.6762E-18**	**26%**	**2.3387E-06**
Gender	5%	0.4340	11%	**0.0448**
Experience	**35%**	**2.4253E-08**	**52%**	**4.8596E-20**
Age	0%	0.9424	4%	0.4382

Since results show that gender was not a significant determinant of employability for both Blind and Open data sets, the two data sets were combined for further analysis in order to determine whether coefficients (i.e. influence and significance) and RIA for gender would change. Results for combined Blind and Open data for the Measurement Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,1274) = 42.7232$, $p < 8.7475E\text{-}41$. Further, results for combined data suggest that males were more likely to be considered for the post of Measurement Engineer than female prospective employees, $\beta = 0.2745$, $p = 0.0488$. The likelihood of employment for males was significant with $p < 0.05$. However, Gender was not the most important attribute for the combined Blind and Open data,

RIA = 8%. Experience, RIA = 44%, p = 1.6202E-25 and Salary, RIA = 40%, p = 1.6021E-21 were the most influential attributes. Results also show that despite the fact that Gender had a significant p-value of 0.0488, Gender had a comparatively low RIA of 8%. Therefore, it may be argued that the influence of Gender on employability for the post of Measurement Engineer was not substantial for the combined data. Table 4.4 shows a summary for the multiple regression analysis for combined Blind and Open data for the Measurement Engineer category.

Table 4. 4: Summary for Multiple Regression Analysis for Combined Blind and Open Data for the Measurement Engineer Category

	Blind & Open Data Combined			
df	5, 1274			
F	42.7232			
Significance	8.7475E-41			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	0.1636	Qualification	5%	0.2401
> MK500,000	1.3505	Salary	**40%**	**1.6021E-21**
Male	0.2745	Gender	8%	**0.04883**
> 5 Years	1.4852	Experience	**44%**	**1.6202E-25**
> 35 Years	-0.0836	Age	2%	0.5482

4.2.3 Blind and Open Data for the Materials Engineer Category

Table 4.5 shows a summary for the multiple regression analysis for Blind and Open data for the Materials Engineer category. Results for both Blind and Open data for the Materials Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, F (5,634) = 10.2064, p < 2.0225E-09 and F (5,634) = 23.0314, p < 2.7829E-21 respectively. Further, results for both Blind data and Open data suggest that males were more likely to be considered for the post than female prospective employees, $\beta = 0.3697$, p = 0.0440 for Blind data and $\beta = 0.3375$, p = 0.0814 for open data. The likelihood of employment for males was significant for Blind data only with p < 0.05. Gender was not the most relatively important attribute for Open data, RIA = 10%, however, for Blind data scenario, Gender was the second most relative important attribute on the same position with Salary with RIA = 17%. Experience, RIA = 56%, p = 1.7284E-10; Salary, RIA = 17%, p = 0.0517; Gender, RIA = 17%, p = 0.0440

were the most influential attributes for Blind data scenario while as Experience, RIA = 50%, p = 2.9549E-18; Salary, RIA = 30%, p = 1.1376E-07 were the most influential attributes for Open data scenario. Results also show that Gender had a significant p-value of 0.0447 and a comparatively high RIA of 17% for Blind data scenario. Therefore, it may be argued that the influence of gender on employability for the post of Materials Engineer was not substantial for Open data scenario but for Blind data scenario.

Table 4. 5: Summary of Multiple Regression Analysis for Blind and Open Data the Materials Engineer Category

	Blind Data		**Open Data**	
df	5, 634			
F	10.2064		23.0314	
Significance	2.0225E-09		2.7829E-21	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.1834	0.3171	-0.0625	0.7467
> MK500,000	0.3572	0.0517	1.0375	**1.1376E-07**
Male	0.3697	**0.0440**	0.3375	0.0814
> 5 Years	1.1891	**1.7284E-10**	1.7375	**2.9549E-18**
> 35 Years	0.0328	0.8579	0.30625	0.1138
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	9%	0.3171	2%	0.7467
Salary	17%	0.0517	**30%**	**1.1376E-07**
Gender	17%	**0.0440**	10%	0.0814
Experience	56%	**1.7284E-10**	**50%**	**2.9549E-18**
Age	2%	0.8579	9%	0.1138

Despite the fact that results show that gender was not a significant determinant of employability for Open data scenario but for Blind data scenario, the two data sets were combined for further analysis in order to determine whether coefficients (i.e. influence and significance) and RIA for gender would change. Results for combined Blind and Open data for the Materials Engineer category show that likelihood of employment was significantly influenced by attributes employed

in the study, F (5,1274) = 31.0970, p < 6.1722E-30. Further, results for combined data suggest that males were more likely to be considered for the post of Materials Engineer than female prospective employees, β = 0.3536, p = 0.0083. The likelihood of employment for males was significant with p < 0.05. However, Gender was not the most important attribute for the combined Blind and Open data, RIA = 13%. Experience, RIA = 53%, p = 1.1661E-26 and Salary, RIA = 25%, p = 2.1938E-07 were the most influential attributes. Results also show that despite the fact that Gender had a significant p-value of 0.0083, Gender had a comparatively low RIA of 13%. Therefore, it may be argued that the influence of Gender on employability for the post of Materials Engineer was not substantial for the combined Blind and Open data scenarios. Table 4.6 shows a summary for the multiple regression analysis for combined Blind and Open data for the Materials Engineer category.

Table 4. 6: Summary for Multiple Regression Analysis for Combined Blind and Open Data for the Materials Engineer Category

	Blind & Open Data Combined			
df	5, 1274			
F	31.0970			
Significance	6.1722E-30			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	0.0605	Qualification	2%	0.6515
> MK500,000	0.6973	Salary	**25%**	**2.1938E-07**
Male	0.3536	Gender	13%	**0.0083**
> 5 Years	1.4633	Experience	**53%**	**1.1661E-26**
> 35 Years	0.1695	Age	6%	0.2055

4.2.4 Blind and Open Data Safety Health and Environmental Officer

Table 4.7 shows a summary for the multiple regression analysis for Blind and Open data for the Safety Health and Environmental Officer category. Results for both Blind and Open data for the Safety Health and Environmental Officer category show that likelihood of employment was significantly influenced by attributes employed in the study, F (5,634) = 12.7875, p < 7.3453E-12 and F (5,634) = 20.5895, p < 4.4232E-19 respectively. Further, results for both Blind and Open data scenarios suggest that males were more likely to be considered for the post than female

prospective employees, β = 0.0959, p = 0.6170 for Blind data scenario and β = 0.278125, p = 0.1820 for Open data scenario. The likelihood of employment for males was not significant for both Blind and Open data scenarios with p > 0.05. Also, Gender was not the most relatively important attribute for both Blind data, RIA = 3% and Open data, RIA = 8%. Experience, RIA = 25%, p = .0004; Salary, RIA = 42%, p = 1.6795E-09; Qualification, RIA = 25%, p = 0003 and Experience, RIA = 49%, p = 2.4015E-15; Salary, RIA = 35%, p = 8.3451E-09 were the most influential attributes for Blind and Open data scenarios respectively. Results also show that for both Blind and Open data cases, Gender had comparatively low RIA, 3% for Blind data and 8% for Open data; Gender also had no significant p-value for both Blind and Open data, p = 0.6170 for Blind data and p = 0.1820 for Open data. Therefore, it may be argued that the influence of gender on employability was not substantial for both Blind and Open data scenarios.

Table 4. 7: Summary of Multiple Regression Analysis for Blind and Open Data for the Safety Health and Environmental Officer Category

	Blind Data		**Open Data**	
Df	5, 634			
F	12.7875		20.5895	
Significance	7.3453E-12		4.4233E-19	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.6928	**0.0003**	0.1844	0.3761
> MK500,000	1.1728	**1.6795E-09**	1.2156	**8.3451E-09**
Male	0.0959	0.6170	0.2781	0.1820
> 5 Years	0.6860	**0.0004**	1.6906	**2.4014E-15**
> 35 Years	-0.1266	0.5095	0.1156	0.5788
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	**25%**	**0.0003**	5%	0.3761
Salary	**42%**	**1.6795E-09**	**35%**	**8.3451E-09**
Gender	3%	0.6170	8%	0.1820
Experience	**25%**	**0.0004**	**49%**	**2.4015E-15**
Age	5%	0.5095	3%	0.5788

Since results show that gender was not a significant determinant of employability for both Blind and Open data sets, the two data sets were combined for further analysis in order to determine whether coefficients (i.e. influence and significance) and RIA for gender would change. Results for combined Blind and Open data for the Safety Health and Environmental Officer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,1274) = 30.3405$, $p < 3.2208E\text{-}29$. Further, results for combined data suggest that males were likely to be considered for the post than female prospective employees, $\beta = 0.1870$, $p = 0.1885$. However, the likelihood of employment for males was not significant with $p > 0.05$. Also, Gender was not the most important attribute for the combined Blind and Open data, RIA = 6%. Experience, RIA = 39%, $p = 1.6351E\text{-}16$ and Salary, RIA = 40%, $p = 1.1681E\text{-}16$ were the most influential attributes. Results show that Gender had no significant p-value, $p = 0.1885$ and also had a comparatively low RIA, RIA = 6%. Therefore, it may be argued that the influence of Gender on employability for the Safety Health and Environmental Officer category was not substantial for the combined data. Table 4.8 shows a summary for the multiple regression analysis for combined Blind and Open data for Safety Health and Environmental Officer.

Table 4. 8: Summary for Multiple Regression Analysis for Combined Blind and Open Data for Safety Health and Environmental Officer

	Blind & Open Data Combined			
df	5, 1274			
F	30.3405			
Significance	3.2308E-29			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	0.4386	Qualification	15%	**0.0021**
> MK500,000	1.1942	Salary	**40%**	**1.1681E-16**
Male	0.1870	Gender	6%	0.1885
> 5 Years	1.1883	Experience	**39%**	**1.6351E-16**
> 35 Years	-0.0055	Age	0%	0.9693

4.2.5 Discussion for Job Categories

Among the four job categories employed in the study (Site Engineer, Measurement Engineer, Materials Engineer and Safety, Health & Environmental Officer) the anticipation, based on

literature, was that at least for Safety Health and Environmental Officer post, employment would be biased towards females. The aforementioned expectation was premised on the notion that prospective employers would associate the Safety Health and Environmental Officer post with a woman's personality traits such as "compassionate, caring and nurturing" and hence consider it a feminine job and the other three categories by their nature would be considered masculine. However, results of the study show that for all the four job categories, although the likelihood of males to be employed for the post was more than females was significant in some cases, Gender had no substantial influence on employability if the relative importance of the attributes were considered. These results therefore do not relate to the study of Riach and Rich (2006) who found out that in female jobs, men were discriminated against and in male jobs women were discriminated against while in jobs for both men and women, men were discriminated against in terms of employment. Also, the results do not relate to the study of Wichselbaumer (2004) who observed a substantial discrimination against women in male jobs and alternatively a substantial discrimination against men in female jobs.

4.3 Multiple Regression Results by Gender of Respondents

4.3.1 Results by Gender of Respondents for the Site Engineer Category

Table 4.9 shows a summary for the multiple regression analysis by Gender of respondents for the Site Engineer category. Results for both Female and Male respondents for the Site Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,282) = 8.4194$, $p < 1.9346E-07$ and $F(5,986) = 23.1865$, $p < 4.5752E-22$ respectively. Further, results for both Female and Male respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.4846$, $p = 0.0858$ for Female respondents and $\beta = 0.3744$, $p = 0.0172$ for male respondents. The likelihood of employment for males was significant for Male respondents only with $p < 0.05$. However, gender was not the most relatively important attribute for both Female respondents, RIA = 14% and Male Respondents, RIA = 13%. Experience, RIA = 39%, p = 2.8463E-06; Salary, RIA = 30%, p = 0.0003 and Experience, RIA = 48%, p = 7.4179E-11; Salary, RIA = 28%, p = 8.3329E-08 were the most influential attributes for both Female and Male respondents respectively. Results also show that despite the fact that Gender had a significant p-value of 0.0172 for Male respondents, Gender had a comparatively low RIA of 13%. Therefore, it may be argued that the

influence of gender on employability was relatively inconsiderable for both Female and Male respondents.

Table 4. 9: Summary for the Multiple Regression Analysis by Gender of Respondents for the Site Engineer Category

	Female Respondents		**Male Respondents**	
df	5, 282		5, 986	
F	8.4194		23.1865	
Significance	1.9345E-07		4.5752E-22	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	-0.4722	0.0951	-0.0228	0.8871
> MK500,000	1.0278	**0.0003**	0.8192	**8.3330E-08**
Male	0.4861	0.0858	0.3744	**0.0172**
> 5 Years	1.347	**2.8464E-06**	1.4365	**7.4180E-11**
> 35 Years	0.125	0.6578	-0.3256	**0.0696**
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	14%	0.0951	1%	0.8871
Salary	**30%**	**0.0003**	**28%**	**8.3330E-08**
Gender	14%	0.0858	13%	**0.0172**
Experience	**39%**	**2.8463E-06**	**48%**	**7.4180E-11**
Age	4%	0.6578	11%	**0.0426**

4.3.2 Results by Gender of Respondents for the Materials Engineer Category

Table 4.10 shows a summary for the multiple regression analysis by Gender of respondents for the Materials Engineer category. Results for both Female and Male respondents for the Materials Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,282) = 9.6291$, $p < 1.6827E-08$ and $F(5,986) = 23.5712$, $p < 1.9789E-22$ respectively. Further, results for both Female and Male respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.4167$, $p = 0.1368$ for Female respondents and $\beta = 0.3328$, $p = 0.0278$ for male respondents. The likelihood of employment for males was significant for Male respondents only with $p < 0.05$.

However, gender was not the most relatively important attribute for both Female respondents, RIA = 12% and Male Respondents, RIA = 11%. Experience, RIA = 51%, p = 3.1653E-09; Qualification, RIA = 18%, p = 0.0333 and Experience, RIA = 47%, p = 3.1829E-19; Salary, RIA = 25%, p = 1.2331E-06 were the most influential attributes for Female and Male respondents respectively. Results also show that despite the fact that Gender had a significant p-value of 0.0278 for Male respondents, Gender had a comparatively low RIA of 11%. Therefore, it may be argued that the influence of gender on employability was relatively inconsiderable for both Female and Male respondents.

Table 4. 10: Summary for the Multiple Regression Analysis by Gender of Respondents for the Materials Engineer Category

	Female Respondents		**Male Respondents**	
df	5, 282		5, 986	
F	9.6290		23.5712	
Significance	1.6827E-08		1.9789E-22	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	-0.5972	**0.0333**	0.2514	0.0988
> MK500,000	0.5417	0.0534	0.7425	**1.2331E-06**
Male	0.4167	0.1368	0.3353	**0.0278**
> 5 Years	1.7083	**3.1653E-09**	1.3921	**3.1829E-19**
> 35 Years	-0.1111	0.6910	0.2510	0.0993
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	**18%**	**0.0333**	8%	0.0988
Salary	16%	0.0534	**25%**	**1.2331E-06**
Gender	12%	0.1368	11%	**0.0278**
Experience	**51%**	**3.1653E-09**	**47%**	**3.1829E-19**
Age	3%	0.6910	8%	0.0993

4.3.3 Results by Gender of Respondents for the Measurement Engineer Category

Table 4.11 shows a summary for the multiple regression analysis by Gender of respondents for the Measurement Engineer Category. Results for both Female and Male respondents for the

Measurement Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,314) = 11.0336$, $p < 8.3969E-10$ and $F(5,954) = 32.6797$, $p < 7.9560E-31$ respectively. Further, results for both Female and Male respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.2375$, $p = 0.4098$ for Female respondents and $\beta = 0.2869$, $p = 0.0712$ for male respondents. The likelihood of employment for males was not significant for both Female and Male respondents, both had $p > 0.05$. Gender was not the most relatively important attribute for both Female respondents, RIA = 6% and Male Respondents, RIA = 8%. Experience, RIA = 44%, $p = 2.9039E-08$; Salary, RIA = 34%, $p = 1.0734E-05$ and Experience, RIA = 42%, $p = 9.2359E-19$; Salary, RIA = 40%, $p = 2.4414E-17$ were the most influential attributes for both Female and Male respondents respectively. Results also show that for both Female scenarios, Gender had non-significant p-values, $p = 0.4098$ for Female respondents and $p = 0.0712$ for Male respondents, as well as comparatively low RIA, RIA = 6% for Female respondents and RIA = 8% for Male respondents. Therefore, it may be argued that the influence of gender on employability was relatively inconsiderable for both Female and Male respondents' scenarios for the Measurement Engineer category.

Table 4. 11: Summary for the Multiple Regression Analysis by Gender of Respondents for the Measurement Engineer Category

	Female Respondents		Male Respondents	
Df	5, 314		5, 954	
F	11.0336		32.6797	
Significance	8.3969E-10		7.9560E-31	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	-0.3	**0.2980**	0.3181	0.0455
> MK500,000	1.2875	**1.0735E-05**	1.3715	2.4414E-17
Male	0.2375	**0.4098**	0.2869	0.0712
> 5 Years	1.6375	**2.9039E-08**	1.4344	9.2359E-19
> 35 Years	-0.2875	0.3185	-0.0156	0.9217
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	8%	0.2980	9%	0.0455
Salary	**34%**	1.0735E-05	**40%**	**2.4414E-17**
Gender	**6%**	0.4098	8%	0.0712
Experience	**44%**	**2.9039E-08**	**42%**	**9.2359E-19**
Age	8%	0.3185	0%	0.9217

4.3.4 Results by Gender of Respondents for Safety Health and Environmental Officer Category

Table 4.12 shows a summary for the multiple regression analysis by Gender of respondents for the Safety Health and Environmental Officer category. Results for both Female and Male respondents for the Safety Health and Environmental Officer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,314) = 4.6439$, $p < 0.0004$ and $F(5,954) = 23.4116$, $p < 5.5599E\text{-}26$ respectively. Further, results for both Female and Male respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.2063$, $p = 0.4957$ for Female respondents and $\beta = 0.1806$, $p = 0.2609$ for male respondents. The likelihood of employment for males was not significant for both Female and Male respondents, both had $p > 0.05$. Gender was not the most relatively important attribute for both Female respondents, RIA = 7% and Male Respondents,

RIA = 5%. Experience, RIA = 40%, p = 0.4957; Salary, RIA = 29%, p = 0.0091 and Experience, RIA = 36%, p = 8.7490E-16; Salary, RIA = 40%, p = 4.5152E-16 were the most influential attributes for both Female and Male respondents respectively. Results also show that for both Female and Male respondents scenarios, Gender had no significant p-values, p = 0.4957 and p = 0.2609 Female and Male respondents respectively and also comparatively low RIA, RIA = 7% and RIA = 5% for Female and Male respondents respectively. Therefore, it may be argued that the influence of gender on employability was relatively inconsiderable for both Female and Male respondents' scenarios for the Safety Health and Environmental Officer.

Table 4. 12: Summary for the Multiple Regression Analysis by Gender of Respondents for the Safety Health and Environmental Officer Category

	Female Respondents		**Male Respondents**	
df	5, 314		5, 954	
F	4.6439		27.4116	
Significance	0.0004		5.5599E-26	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.2688	0.3749	0.4952	**0.0021**
> MK500,000	0.7938	**0.0091**	1.3277	**4.5151E-16**
Male	0.2063	0.4957	0.1806	0.2609
> 5 Years	1.1063	**0.0003**	1.2156	**8.7490E-14**
> 35 Years	-0.3938	0.1939	0.1240	0.4403
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	10%	0.37487	15%	**0.0021**
Salary	**29%**	**0.0091**	**40%**	**4.5151E-16**
Gender	7%	0.4957	5%	0.2609
Experience	**40%**	**0.0003**	**36%**	**8.7490E-14**
Age	14%	0.1939	4%	0.4403

4.3.5 Multiple Regression Results by Gender of Respondents for Combined Job Categories

Table 4.13 shows a summary for the multiple regression analysis by Gender of respondents for combined job categories. Results for both Female and Male respondents for all job categories show that likelihood of employment was significantly influenced by attributes employed in the study, F (5,1210) = 30.14561, p < 6.1032E-29 and F (5,3898) = 100.6491, p < 4.2007E-100 respectively. Further, results for both Female and Male respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.3306$, p = 0.0223 for Female respondents and $\beta = 0.2953$, p = 0.0002 for male respondents. The likelihood of employment for males was significant for both Female and Male respondents with $p < 0.05$. However, gender was not the most relatively important attribute for both Female respondents, RIA = 11% and Male Respondents, RIA = 10%. Experience, RIA = 46%, p = 1.0239E-22; Salary, RIA = 29%, p 2.7506E-10 and Experience, RIA = 46%, p = 1.0992E-64; Salary, RIA = 35%, p = 5.1655E-40 were the most influential attributes for both Female and Male respondents respectively. Results also show that despite the fact that Gender had significant p-value for both Female and Male respondents, p = 0.0223 for female and 1.0002 for female respondents, Gender had a comparatively low RIA of 11% and 10% for Female and Male respondents respectively. Therefore, it may be argued that the influence of gender on employability remained relatively inconsiderable for both Female and Male respondents for combined job categories.

Table 4. 13: Summary for the Multiple Regression Analysis by Gender of Respondents for Combined Job Categories

	Female Respondents		**Male Respondents**	
Df	5, 1210		5, 3898	
F	30.1456		100.6491	
Significance	6.0132E-29		4.2007E-100	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	-0.2615	0.0704	0.2581	**0.0011**
> MK500,000	0.9194	**2.7506E-10**	1.0606	**5.1655E-40**
Male	0.3306	**0.0223**	0.2953	**0.0002**
> 5 Years	1.4458	**1.0239E-22**	1.3704	**1.0992E-64**
> 35 Years	-0.1760	0.2233	0.0077	0.9227
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	8%	0.0704	9%	**0.0011**
Salary	**29%**	**2.7506E-10**	**35%**	**5.1655E-40**
Gender	11%	**0.0223**	10%	**0.0002**
Experience	**46%**	**1.0239E-22**	**46%**	**1.0992E-64**
Age	6%	0.2233	0%	0.9227

4.3.6 Discussion of Results by Respondents' Gender

There were a total of 80 respondents out of which, 19 were females and 61 were males. In the analysis of data by gender of the respondents, the anticipation was that women employers would prefer female candidates to male candidates for the posts and male employers would prefer male candidates to female candidates. However, results show that for both female and male respondents, the influence of gender on employability was relatively inconsiderable, there was no substantial preference of female employer to female employee or male employer to male employee. These results therefore relate to the findings of Booth and Leigh (2010) who found out that there was no observable employment bias towards either gender in less female-dominated occupations.

4.4 Multiple Regression Results by Experience of Respondents

4.4.1 Results by Experience of Respondents for the Site Engineer Category

Table 4.14 shows a summary for the multiple regression analysis by Experience of respondents for the Site Engineer category Results for respondents with, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3) for the Site Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,186) = 5.9596$, $p < 3.8797E-05$; $F(5,538) = 13.6908$, $p < 1.3477E-12$ and $F(5,538) = 23.3587$, $p < 2.8865E-21$ respectively. Further, results for Y1, Y2 and Y3 respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.4846$, $p = 0.4045$ for Y1, $\beta = 0.2941$, $p = 0.1877$ for Y2 and $\beta = 0.5478$, $p = 0.0063$ for Y3. The likelihood of employment for males was significant for Y3 respondents only with $p < 0.05$. Gender was not the most relatively important attribute for Y1 respondents, RIA = 14% and Y2 respondents, RIA = 9%, however, for Y3, Gender was the second most relatively important attribute together with Salary with RIA = 16%. Experience, RIA = 39%, p = 4.294E-07; Salary, RIA = 30%, p = 0.4405 and Experience, RIA = 21%, p = 0.0012; Salary, RIA = 46%, p = 6.527E-12 were the most influential attributes for Y1 and Y2 respondents respectively while Experience, RIA = 57%, p = 1.411E-21, Gender, RIA = 16%, p = 0.0050 and Salary, RIA = 16%, p = 0.0063 and were the most influential attributes for Y3. Results also show that Gender had a significant p-value of 0.0063 and also a comparatively second highest RIA of 16% for Y3 respondents. Therefore, it may be argued that the influence of gender on employability was not substantial for Y1 and Y2 respondents but for Y3 respondents.

Table 4. 14: Summary for the Multiple Regression Analysis by Experience of Respondents for the Site Engineer Category

	Less than 5 Years		6 - 10 Years		Above 10 Years	
df	5, 186		5, 538		5, 538	
F	5.9596		13.6908		23.3587	
Significance	3.8797E-05		1.3477E-12		2.8865E-21	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	-0.4722	0.3134	-0.4265	0.0563	0.2537	0.2043
> MK500,000	1.0278	0.4405	1.5662	**6.527E-12**	0.5625	0.005
Male	0.4861	0.4045	0.2941	0.1877	0.5478	0.0063
> 5 Years	1.3472	4.2942E-07	0.7279	**0.0012**	1.9890	1.411E-21
> 35 Years	0.125	0.9377	-0.3897	0.0811	-0.1287	0.5194
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	14%	0.3134	13%	0.0563	7%	0.2043
Salary	**30%**	**0.4405**	**46%**	**6.527E-12**	**16%**	**0.0050**
Gender	14%	0.4045	**9%**	0.1877	**16%**	**0.0062**
Experience	**39%**	**4.294E-07**	**21%**	**0.0011**	**57%**	**1.411E-21**
Age	4%	0.9377	11%	0.0810	4%	0.5194

4.4.2 Results by Experience of Respondents for the Materials Engineer Category

Table 4.15 shows a summary for the multiple regression analysis by Experience of respondents for the Materials Engineer category Results for respondents with, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3) for the Materials Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,186) = 32.2278$, $p < 4.9832E-11$; $F(5,538) = 11.3953$, $p < 1.8129E-10$ and $F(5,538) = 22.3147$, $p < 2.3520E-20$ respectively. Further, results for Y1, Y2 and Y3 respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.0385$, $p = 0.8759$ for Y1, $\beta = 0.3934$, $p = 0.0850$ for Y2 and $\beta = 0.4522$, $p = 0.0153$ for Y3. The likelihood of employment for males was significant for Y3 respondents only with $p < 0.05$. Also, Gender was not the most relatively important attribute for all the three scenarios, RIA = 1% for Y1; RIA = 13% for Y2 and RIA = 13% for Y3. Experience,

RIA = 63%, p = 1.182E-12; Salary, RIA = 20%, p = 0.0157; Experience, RIA = 34%, p = 1.486E-05; Salary, RIA = 45%, p = 8.325E.09 and Experience, RIA = 53%, p = 3.128E-20, Salary, RIA = 15%, p = 0.0055 were the most influential attributes for Y1, Y2 and Y3 respondents respectively. Results also show that despite the fact that, for Y3 respondents, Gender had a significant p-value of 0.0153, Gender had a comparatively low RIA of 13%. Therefore, it may be argued that the influence of gender on employability was not substantial for Y1, Y2 and Y3 respondents for the materials Engineer category.

Table 4. 15: Summary for the Multiple Regression Analysis by Experience of Respondents for the Materials Engineer Category

	Less than 5 Years		**6 - 10 Years**		**Above 10 Years**	
df	5, 186		5, 538		5, 538	
F	13.2278		11.3953		22.3147	
Significance	4.9832E-11		1.8129E-10		2.3520E-20	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.1740	0.4811	-0.15809	0.4883	0.2390	0.1990
> MK500,000	-0.6010	**0.0157**	1.3346	**8.325E-09**	0.5184	**0.0055**
Male	-0.0385	0.8759	0.3934	0.0850	0.4522	**0.0153**
> 5 Years	1.8802	**1.182E-12**	0.9963	**1.486E-05**	1.7831	**3.128E-20**
> 35 Years	0.2969	0.2298	-0.0846	0.7108	0.37877	**0.0421**
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	6%	0.4811	5%	0.4883	7%	0.1990
Salary	**20%**	**0.0157**	**45%**	**8.325E-09**	**15%**	**0.0055**
Gender	1%	0.8759	13%	0.0850	13%	**0.0153**
Experience	**63%**	**1.182E-12**	**34%**	**1.486E-05**	**53%**	**3.128E-20**
Age	10%	0.2298	3%	0.7108	11%	**0.0421**

4.4.3 Results by Experience of Respondents for the Measurement Engineer Category

Table 4.16 shows a summary for the multiple regression analysis by Experience of respondents for the Measurement Engineer category. Results for respondents with, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3) for the

Measurement Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,282) = 8.9282$, $p < 6.9368E-08$; $F(5,578) = 9.7890$, $p < 8.2464E-09$ and $F(5,578) = 29.3922$, $p < 9.7986E-27$ respectively. Further, results for Y1, Y2 and Y3 respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.3174$, $p = 0.2436$ for Y1, $\beta = 0.3542$, $p = 0.1696$ for Y2 and $\beta = 0.2039$, $p = 0.3174$ for Y3. The likelihood of employment for males was not significant for all scenarios, Y1, Y2 and Y3 all had $p > 0.05$. Also, Gender was not the most relatively important attribute for all the three scenarios, RIA = 10% for Y1; RIA = 10% for Y2 and RIA = 5% for Y3. Experience, RIA = 53%, p = 4.669E-09; Salary, RIA = 18%, p = 0.0462; Experience, RIA = 39%, p = 3.598E-07; Salary, RIA = 30%, p = 7.402E-05 and Experience, RIA = 39%, p = 4.882E-13, Salary, RIA = 50%, p = 5.337E-20 were the most influential attributes for Y1, Y2 and Y3 respondents respectively. Results also show that despite the fact that Gender had no significant p-value, Gender also had comparatively low RIA for all the three scenarios, RIA = 10%, RIA = 10% and RIA = 5% for Y1, Y2 and Y3 respectively. Therefore, it may be argued that the influence of gender on employability was not substantial for Y1, Y2 and Y3 respondents for the Measurement Engineer category.

Table 4. 16: Summary for the Multiple Regression Analysis by Experience of Respondents for the Measurement Engineer Category

	Less than 5 Years		6 - 10 Years		Above 10 Years	
df	5, 282		5, 378		5, 602	
F	8.9282		9.7889		29.3922	
Significance	6.9068E-08		8.2464E-09		9.7986E-27	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.1993	0.4637	0.3958	0.1249	-3.9622E-16	1
> MK500,000	0.5438	**0.0462**	1.0313	**7.402E-05**	1.9342	**5.337E-20**
Male	0.3174	0.2436	0.3542	0.1696	0.2039	0.3174
> 5 Years	1.6424	**4.669E-09**	1.3333	**3.598E-07**	1.5066	**4.882E-13**
> 35 Years	-0.3993	0.1426	-0.3438	0.1824	0.2303	0.2591
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	6%	0.4637	11%	0.1249	0%	1
Salary	**18%**	**0.0462**	**30%**	**7.402E-05**	**50%**	**5.337E-20**
Gender	10%	0.2436	10%	0.1696	5%	0.3174
Experience	**53%**	**4.669E-09**	**39%**	**3.598E-07**	**39%**	**4.882E-13**
Age	13%	0.1426	10%	0.1824	6%	0.2591

4.4.4 Results by Experience of Respondents for Safety Health & Environmental Officer Category

Table 4.17 shows a summary for the multiple regression analysis by Experience of respondents for the Safety Health and Environmental Officer category. Results for respondents with, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3) for the Safety Health and Environmental Officer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,282) = 87.2263$, $p < 2.1963E\text{-}06$; $F(5,578) = 7.3170$, $p < 1.4649E\text{-}06$ and $F(5,578) = 24.9982$, $p < 6.2896E\text{-}23$ respectively. Further, results for Y1, Y2 and Y3 respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.20625$, $p = 0.4500$ for Y1, $\beta = 0.2865$, $p = 0.2502$ for Y2 and $\beta = 0.1151$, $p = 0.58543766$ for Y3. The likelihood of employment for males was not significant for all scenarios, Y1, Y2 and Y3 all had p

> 0.05. Also, Gender was not the most relatively important attribute for all the three scenarios, RIA = 7% for Y1; RIA = 10% for Y2 and RIA = 3% for Y3. Experience, RIA = 44%, p = 2.566E-06; Qualification, RIA = 24%, p = 0.0081; Experience, RIA = 36%, p = 6.44E-05; Salary, RIA = 38%, p = 3.828E-05 and Experience, RIA = 31%, p = 5.739E-09, Salary, RIA = 47%, p = 1.413E-18 were the most influential attributes for Y1, Y2 and Y3 respondents respectively. Results also show that besides the fact that Gender had no significant p-value, Gender also had comparatively low RIA for all the three scenarios, RIA = 7%, RIA = 10% and RIA = 3% for Y1, Y2 and Y3 respectively. Therefore, it may be argued that the influence of gender on employability was not substantial for Y1, Y2 and Y3 respondents for the Safety health and Environmental officer.

Table 4. 17: Summary for the Multiple Regression Analysis by Experience of Respondents for the Safety Health and Environmental Officer Category

	Less than 5 Years		**6 - 10 Years**		**Above 10 Years**	
df	5, 282		5, 378		5, 602	
F	7.2263		7.3170		24.9982	
Significance	2.1963E-06		1.4649E-06		6.2896E-23	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.7271	**0.0081**	0.2656	0.2862	0.4112	0.0517
> MK500,000	-0.1229	0.6525	1.0365	**3.828E-05**	1.9178	**1.413E-18**
Male	0.2063	0.4500	0.2865	0.2502	0.1151	0.5854
> 5 Years	1.3090	**2.566E-06**	1.0052	**6.44E-05**	1.2467	**5.739E-09**
> 35 Years	-0.6215	0.0234	-0.1615	0.5167	0.3849	0.0686
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	**24%**	**0.0081**	10%	0.2862	10%	0.0517
Salary	4%	0.6525	**38%**	**3.828E-05**	**47%**	**1.413E-18**
Gender	7%	0.4500	10%	0.2502	3%	0.5854
Experience	**44%**	**2.566E-06**	**36%**	**6.44E-05**	**31%**	**5.739E-09**
Age	21%	0.0234	6%	0.5166	9%	0.0686

4.4.5 Multiple Regression Results by Experience of Respondents for Combined Job Categories

Table 4.18 shows a summary for the multiple regression analysis by Experience of respondents for the combined job categories. Results for respondents with, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3) for the Site Engineer category show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,954) = 26.6331$, $p < 2.9462E-25$; $F(5,1850) = 39.1051$, $p < 2.7732E-38$ and $F(5,2298) = 85.6847$, $p < 9.1093E-83$ respectively. Further, results for Y1, Y2 and Y3 respondents suggest that males were more likely to be considered for the post than female prospective employees with $\beta = 0.205$, $p = 0.1549$ for Y1, $\beta = 0.3341$, $p = 0.0052$ for Y2 and $\beta = 0.3203$, $p = 0.0017$ for Y3. The likelihood of employment for males was significant for Y2 and Y3 respondents only with $p < 0.05$. However, Gender was not the most relatively important attribute for all the respondents' experience categories, RIA = 9% for Y1, RIA = 12% and RIA = 9% for Y3. Experience, RIA = 68%, p = 2.272E-27; Age, RIA = 11%, p = 0.0803 and Experience, RIA = 34%, p = 2.147E-16; Salary, RIA = 44%, p = 5.172E-26 and Experience, RIA = 44%, p = 4.67E-54, Salary, RIA = 35%, p = 9.857E-35 were the most influential attributes for Y1, Y2 and Y3 respondents respectively. Results also show that despite the fact that Gender had a significant p-value of 0.0052 for Y2 and p = 0.0017 for Y3, both had comparatively low RIA, RIA = 12% for Y2 and RIA = 9% for Y3. Therefore, it may be argued that the influence of gender on employability remained relatively inconsiderable for all the respondents' experience categories for the combined job categories.

Table 4. 18: Summary for the Multiple Regression Analysis by Experience of Respondents for the Combined Job Categories

	Less than 5 Years		6 - 10 Years		Above 10 Years	
Df	5, 954		5, 1850		5, 2298	
F	26.6331		39.1051		85.6847	
Significance	2.9463E-25		2.7732E-38		9.1093E-83	
Within Attributes	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**	**Coefficient**	**p-Value**
Masters	0.2454	0.0887	-0.0345	0.7726	0.2248	**0.0272**
> MK500,000	-0.0454	0.7525	1.2780	**5.172E-26**	1.2717	**9.857E-35**
Male	0.205	0.1549	0.3341	**0.0052**	0.3203	**0.0017**
> 5 Years	1.6104	**2.272E-27**	0.9892	**2.147E-16**	1.6172	**4.67E-54**
> 35 Years	-0.2521	0.0803	-0.2435	**0.04140**	0.2214	**0.0297**
Across Attributes	**RIA**	**p-Value**	**RIA**	**p-Value**	**RIA**	**p-Value**
Qualification	10%	0.0887	1%	0.7726	6%	**0.0272**
Salary	2%	0.7525	**44%**	**5.172E-26**	**35%**	**9.857E-35**
Gender	9%	0.1549	12%	**0.0052**	9%	**0.0017**
Experience	**68%**	**2.272E-27**	**34%**	**2.147E-16**	**44%**	**4.67E-54**
Age	**11%**	0.0803	8%	**0.0414**	6%	**0.0297**

4.4.6 Discussion of Results by Experience of Respondents

There were three groups of respondents according to their number of years of experience in the construction industry, 0-5 years of experience (Y1), 6 – 10 years of experience (Y2) and those with over 10 years of experience (Y3). The anticipation was that those with more years of experience, under the assumption that they would be older, would prefer employing applicants who had more years to those with less experience, likewise those with less years of experience and probably younger would prefer applicants with less years of experience to those with more years of experience. However, results show that in terms of experience of respondents, the influence of gender on employability was not substantial, there was no observable bias towards a particular gender group. With regard to experience as an attribute the results do relate to the findings of Taylor and Walker (1994) who argued that there is substantial evidence that

employers judge older employees as loyal and reliable which are positive attributes as there was bias towards those with more years of experience (above five years in this case). However, the results do not relate to the findings of Chiu et al (2001) who argued that older employees possess negative attributes such as inflexibility, resistance to training and also resistance to adoption of new things as evidenced by the fact that there was bias towards those with more years of experience.

4.5 Multiple Regression Results for All Job Categories

Table 4.19 shows a summary for the multiple regression analysis for all job categories. Results for all the job categories combined show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,5114) = 128.0426$, $p < 3.7752E\text{-}128$. Further, results for combined data also suggest that males were more likely to be considered for all the posts than female prospective employees, $\beta = 0.3037$, $p = 1.2763E\text{-}05$. The likelihood of employment for males was significant with $p < 0.05$. However, Gender was not the most important attribute for the combined job categories scenario, RIA = 11%. Experience, RIA = 48%, $p = 1.6685E\text{-}85$ and Salary, RIA = 36%, $p = 2.1150E\text{-}48$ were the most influential attributes. Results also show that despite the fact that Gender had a significant p-value of 1.2763E-05, Gender had a comparatively low RIA of 11%. Therefore, it may be argued that the influence of Gender on employability of all the job categories was not substantial.

Table 4. 19: Summary for the Multiple Regression Analysis for All Job Categories

	Combined All Job categories			
df	5, 5114			
F	128.0426			
Significance	3.7752E-128			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	0.1347	Qualification	5%	**0.05274**
> MK500,000	1.0270	Salary	**36%**	**2.1150E-48**
Male	0.3037	Gender	11%	**1.2763E-05**
> 5 Years	1.3883	Experience	**48%**	**1.6685E-85**
> 35 Years	-0.0359	Age	1%	0.6052

4.6 Multiple Regression Results for All Job Categories without Age Attribute

Table 4.20 shows a summary for the multiple regression analysis for all job categories with Age attribute excluded. Results show that Age was the attribute that had the least influence on employability of all the job categories hence it was excluded from the analysis to determine whether its exclusion would affect the influence of Gender on employability. Results for all the job categories without the Age attribute show that likelihood of employment was significantly influenced by some attributes employed in the study, $F(5,5115) = 160.0094$, $p < 3.199E\text{-}129$. Further, results for combined data without the Age attribute also suggest that males were more likely to be considered for all the posts than female prospective employees, $\beta = 0.3037$, $p = 1.2745E\text{-}05$. The likelihood of employment for males was significant with $p < 0.05$. However, Gender was not the most important attribute for the combined job categories scenario without the Age attribute, RIA = 11%. Experience, RIA = 49%, $p = 1.6225E\text{-}85$ and Salary, RIA = 36%, $p = 2.0825E\text{-}48$ were the most influential attributes. Results also show that despite the fact that Gender had a significant p-value of 1.274E-05, Gender had a comparatively low RIA of 11%. Therefore, it may be argued that despite excluding Age attribute from the analysis, the influence of Gender on employability of all the job categories remained relatively not substantial.

Table 4. 20: Summary for the Multiple Regression Analysis for Combined All Job Categories without Age Attribute

	All Job categories without Age attribute			
df	5, 5115			
F	160.0094			
Significance	3.1993E-129			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
Masters	0.1347	Qualification	5%	0.0527
> MK500,000	1.0270	Salary	**36%**	**2.0825E-48**
Male	0.3037	Gender	11%	**1.2745E-05**
> 5 Years	1.3883	Experience	**49%**	**1.6225E-85**

4.7 Multiple Regression Results for all Job Categories without Age and Qualification Attributes

Table 4.21 shows a summary for the multiple regression analysis for all job categories with age and Qualification attributes excluded. Results show that without the Age attribute, Qualification attribute also had the least influence on employability of all the job categories hence both Age and Qualification attributes were excluded from the analysis to determine whether their exclusion would substantially affect the influence of Gender on employability of all the job categories. Results for all the job categories without the Age and Qualification attributes show that likelihood of employment was significantly influenced by attributes employed in the study, $F(5,5116) = 211.9802$, $p < 1.3124E\text{-}129$. Further, results for combined data also suggest that males were more likely to be considered for all the posts than female prospective employees, $\beta = 0.3037$, $p = 1.2745E\text{-}05$. The likelihood of employment for males was significant with $p < 0.05$. However, Gender was not the most important attribute for the combined job categories scenario, RIA = 11%. Experience, RIA = 51%, $p = 1.7903E\text{-}85$ and Salary, RIA = 38%, $p = 2.2027E\text{-}48$ were the most influential attributes. Therefore, the exclusion of Age and Qualification attributes did not substantially affect the influence of Gender on employability but rather augmented RIA for Experience and Salary attributes. Further, results also show that despite the fact that Gender had a significant p-value of 1.2813E-05, Gender had a comparatively low RIA of 11%. Therefore, it may be argued that despite excluding Age and Qualification attributes from the analysis, the influence of Gender on employability of all the job categories remained relatively inconsiderable.

Table 4. 21: Summary for the Multiple Regression Analysis for All Job Categories without Age and Qualification Attributes

	All Job categories without Age and Qualification attributes			
df	5, 5116			
F	211.9802			
Significance	1.3124E-129			
Within Attributes	**Coefficient**	**Across Attributes**	**RIA**	**p-Value**
> MK500,000	1.0270	Salary	**38%**	**2.2027E-48**
Male	0.30375	Gender	11%	**1.2813E-05**
> 5 Years	1.3883	Experience	**51%**	**1.7903E-85**

4.7.1 Discussion of Results for Combined Job Categories

When all job categories were combined, the expectation was that results by gender and experience of respondents would be affected in that gender would then have a significant influence on employability, however, it remained unsubstantial. Much as results show that gender's influence on employability remained unsubstantial, results show that gender had positive coefficients (β) throughout and in some instances, it had significant p-values, p-values of less than 0.05 therefore it can be argued that gender had an influence on employability in "very remote background".

As for Qualification, there were two levels of qualification in the study, Bachelor's Degree and Master's Degree. The expectation was that employment decision would be influenced by higher qualification. However, results show that qualification was not an influential attribute as prospective employers mainly based their decisions on salary that the prospective employee would ask for and years of experience. Qualification did not positively or negatively contribute to the influence of gender on employability. These results do not relate to the study of Elliot et al. (2001) who found out that the increase in women's qualification levels was very crucial in influencing attainment of higher levels of employment. Also, the results do not relate to the study of Puhakka et al. (2010) who argued that employability is directly connected to skills. However, the results relate to the findings of Brown (2003) who argued that it is not guaranteed that the better ones credentials are the better the job they will get because in the absence of permanent job opportunities, applicants were forced to exploit their educational qualifications in order to access permanent employment Brown (2003) hence argued that the level of qualification in not always directly proportional to employability nor remuneration but that the relationship between the attributes may be distorted by employment opportunities shrinkage.

In terms of Age, there were two levels, prospective employees below 35 years and those above 35. The expectation was that employment would be biased towards those above 35 years with the assumption that they would be mature and responsible in addition to substantial work experience as well as that they might have acquired higher qualification. Nevertheless, results show that Age did not contribute to the influence of gender on employability in anyway as it was the least influential attribute. The results do not relate to the finding of Duncan and Loretto (2004) who argued that among the middle aged, those between 25 and 44, higher proportion of men

experienced age discrimination as compared to women. And also, across the age range of 25 – 44, age discrimination of men was less variable than that of women but across all the age groups, women suffered age discrimination the most. However, results in this study might have shown that Age was not an influential attribute because the age limits presented were within the employment age in Malawi.

4.8 Comparison across Analyses of Job Categories, Respondents' Experience and Gender

Results in Table 4.22 show that data from respondents with "6 – 10 years" and "more than 10 years" contributed more to a combined significance of preference for prospective male employment than from respondents with less than five years work experience. Further both female and male respondents contributed to a combined significance of preference for male employment. All groups of experienced and both groups of gender contributed to a combined significance of preference for prospective employees with more than five years' experience. In fact, experience has the highest RIA for categories of analysis followed by "prospective remuneration" whose combined significance of preference was noticeably from data from respondents with "6 – 10 years" and "more than 10 years", and both respondent genders. For qualification, the value of a postgraduate qualification was eminent among respondents with more than 10 years' experience and male respondents. Actually female respondents preferred a prospective employee with a Bachelor's Degree to one with a Masters.

Table 4. 22: Comparison across Analyses of Job Categories, Respondents' Experience and Gender

	Job Categories	**Experience**			**Gender**	
Within Attributes	**Combined**	**0 – 5 Years**	**6 – 10 Years**	**10 Years +**	**Female**	**Male**
Masters	**0.1347**	0.2454	-0.0345	**0.2248**	-0.2615	**0.2581**
> MK500,000	**1.0270**	-0.0454	**1.2780**	**1.2717**	**0.9194**	**1.0606**
Male	**0.3037**	0.205	**0.3341**	**0.3203**	**0.3306**	**0.2953**
> 5 Years	**1.3883**	**1.6104**	**0.9892**	**1.6171**	**1.4457**	**1.3704**
> 35 Years	-0.0359	-0.2521	**-0.2435**	**0.2214**	-0.1760	0.0077

Note: p-Values for coefficients in bold were less than 0.05

In summary, results show that the influence of gender on employability in Road Construction sector in Malawi is relatively inconsiderable. Employers or those in employment decision making positions do not exhibit a substantial preference of one group of gender over the other during recruitment process. Employers' decisions in the Road Construction sector are mainly being influenced by job applicants' work experience and the remuneration package that the applicants ask for. Therefore, it can be concluded that gender does not substantially affect employability in the Road Construction sector in Malawi.

CHAPTER 5

CONCLUSION

5.1 Preamble

The construction industry is of vital importance in any nation's socio and economic development. It is a sector of the economy that basically transforms various resources into constructed economic and social infrastructure and facilities. The various activities that are undertaken in the sector are very crucial in intensifying and maintaining the nation's economic development. Roads construction is one of the major activities that are undertaken in the construction industry. Construction of roads provide employment opportunities which require both skilled and unskilled labour. Malawi government has given high priority to construction and maintenance of roads by increasing investment in roads construction. It was therefore envisaged that increase in investment in road infrastructure would lead to increase in the number of road projects which would naturally be associated with increase in employment opportunities in roads construction. However, it was not known if these increased employment opportunities in roads construction would proportionally be offered and seized between different gender groups.

Through literature, it was found out that there have been several studies investigating gender and discrimination in the labour market. The common approach in the studies investigating discrimination in the labour market has been through wage decomposition where the difference in earnings between women and men with equal skills and knowledge is considered to be discrimination; and also through the differences in personality traits between men and women where some personality traits have been believed to influence the employers' decisions. This study therefore aimed at taking the investigation of gender discrimination in the labour market, specifically in road construction, a step further by investigating the influence of prospective employees attributes on employers' hiring decisions. The study therefore sought to understand Decision Theory models and propositions. It was argued that practically, the employment process is a blend of several decision making models and theories. Therefore, in this study, an investigation of pragmatic case studies of employment processes and attributes that influence employment was done to understand relationships between employability and attributes that affect decision making. In addition, the isolated attributes also informed the data collection tool for the study.

5.2 Objectives

The main objective of the study was to determine the effect of gender on employability in roads construction in Malawi. Categorisation of key job positions and their associated employment attributes in roads construction, construction of full-factorial experimental designs for combinations of identified attributes for prospective employees for each job position, ranking of preferred options by those in hiring-decision making positions, and analysis of the influence of each attribute on employability in roads construction facilitated the attainment of the main objective of the study.

5.3 Attributes Influencing Employment Decisions

The study was premised on the assumption that if gender influences employability in roads construction in Malawi, then there is some form of discrimination at play. From the case studies that were reviewed, it was evident that there are various forms of discrimination in employment cycle. It was seen that there is discrimination by gender during employment hiring where both men and women are discriminated against due to job stereotypes. Also, it was established that gender differential treatment during hiring is motivated by employers bias towards one gender and not specifically personality traits associated with productivity. It was also shown that women are confined to low-paid, insecure and unstable jobs not only because they lack relevant qualifications but also because of job stereotypes where employers are bias towards hiring males as they consider women to be less capable to handle certain jobs. In addition, it was also established that educational qualifications do not provide direct access to better employment more especially to women who even after acquiring better qualifications still end up in secondary jobs in which they prove to be overqualified. Further, it was argued that the level of qualification in not always directly proportional to employability or remuneration but that the relationship between the attributes may be distorted by employment opportunities shrinkage. The review also showed that discrimination by age in employment exists and it is older workers who suffer it more than any other age group. And amongst the older workers, it is women who are discriminated by age the most. Finally, it was also shown that racial discrimination in employment still exists. However, it could not be concluded that it is racial discrimination which is the absolute cause of racial differences, differences in wages, hiring, occupation and employment as there could be other factors motivating these. Finally, it was therefore concluded that there is no single factor that can be pinpointed as the sole motivation of discrimination in

employment. Some factors are playing a direct role while others are playing an indirect role in motivating discrimination in employment. Nevertheless, it could be employers in hiring decision that may be playing a big role in propagation of employment discrimination owing to their tastes and preferences. Prior to hiring, it may be almost impossible for an employer to tell if an individual may be able to successfully carry out their assigned tasks. However, the employer may consider attributes that the prospective employee may have which might be associated with past good and successful employees. Five attributes that were isolated for the study included qualification, gender, age, experience and prospective salary.

5.4 Methodology

The study was conducted in the whole spectrum of road construction sector in Malawi. The background of the study revealed that road construction sector in Malawi is comprised of the governing body, which is Roads Authority and construction firms, therefore, the target study area was contracting and consulting firms. Road construction contractors and consultants (both design and supervising) were determined to be the main focus of the study because they are directly involved in the execution of road projects in Malawi. Job categories were determined by identifying key positions and roles in contracting and consulting firms. The key positions identified were collapsed into four positions. Final job positions included Site Engineer, Materials Engineer, Measurement Engineer and Safety Health and Environmental Officer.

Each attribute used in the study had two levels, upper and lower except for gender which had male and female. A full factorial experimental design for each job position was then constructed. This was achieved by creating cards or choice sets from all the possible combinations of job positions and attributes. The respondents were requested to rate each option on a scale of 0 – 10 where 10 would be the most preferred combination and 0 the least preferred such that in analysis the most preferred attribute had a high utility score.

The targeted respondents were managers or those in employment making decisions. The study had a targeted number of managers, therefore, purposive sampling was employed. The study had 80 respondents who were envisaged enough to do an analysis. The analysis focused at how people make decisions as in what drives people to choose one product over another. The data collected was analysed using Excel's multiple regression function.

5.5 Results

Results of the study indicated that gender does not substantially affect employability in the Road Construction sector in Malawi. Employers or those in employment decision making positions do not exhibit a substantial preference of one group of gender over the other during recruitment process. Employers' decisions in the Road Construction sector are mainly being influenced by job applicants' work experience and the remuneration package that the applicants ask for. Further results showed that Age and Qualification had the very little influence on employability among the five attributes of all the job categories. Excluding Age and Qualification attributes from the analysis did not alter the influence of Gender on employability.

5.6 Recommendations

Basing on the conclusion above, the following policy recommendations are made:

1 Since it was concluded that employers do not exhibit bias towards one gender over the other, it means that the road construction industry does not disproportionally favour men but the numbers are controlled by the available qualified job applicants on the market hence women should be encouraged to enrol for non-traditional programmes such as Civil Engineering and other Construction related programmes in order to join the industry.

2 Employers should take a deliberate move to recognise higher qualifications during recruitment process to encourage first degree holders to pursue further education in order to attain higher managerial skills.

5.7 Limitations and Further Studies

The following were limitations, conditions or shortcomings that influenced or placed restrictions on this study.

1 Attributes associated with employment that were identified were many and they included interview which refers to poise and how one answers questions during a job interview influence job appointment, salary, influence of religion and politics, experience, social status, gender, age, race and qualification. However, the study could not focus on social status, race and influence of religion and politics as these were considered to be very subjective and sensitive. And also, the study could not focus on job interview because it was considered that the procedure would be overwhelming.

2 The study did not make an analysis to establish whether gender influences on employability would be different between large and small construction firms. Therefore there is need for another study to make an analysis of effect of gender on employability for Industry Categories – small against big or local against international.

3 The study only looked at senior positions in roads construction in Malawi where minimum entry requirement is a Bachelor's degree in the relevant field therefore there is need for another study to look at the effect of gender on employability of other job positions mainly filled by unskilled labour.

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APPENDICES

Appendix A: Cover letter for blind questionnaires

Dear participant,

My name is Victoria Mhango and I am a Master of Science student in Infrastructure Development and Management at the University of Malawi, The Polytechnic. For my dissertation, I am examining the attributes that are most important in hiring decisions / hiring preferences to fill up positions for key personnel in roads construction in Malawi. Because you are in the construction industry and on a hiring decision making position, I am inviting you to participate in the research study by completing the attached surveys.

The questionnaire will not take too much of your time to complete. There is no compensation in responding nor is there any known risk. In order to ensure that all information remains confidential, please do not include your name anywhere on the questionnaire. If you choose to participate in the research, answer all questions as honestly as possible and return the completed questionnaire promptly – as an attachment to a reply to this email.

Thank you as you decide to assist me in my educational endeavours.

If you require additional information or have questions, contact me at the numbers listed below.

Sincerely,

Victoria Mhango.

0999 301 488 / 0888 845 074.

Appendix B: Cover letter for open questionnaires

Dear participant,

My name is Victoria Mhango and I am a Master of Science student in Infrastructure Development and Management at the University of Malawi, The Polytechnic. For my dissertation, I am examining effects of gender on employability in roads construction in Malawi when filling up key personnel positions. Because you are in the construction industry and on a hiring decision making position, I am inviting you to participate in the study by completing the attached surveys.

The questionnaire will not take too much of your time to complete. There is no compensation in responding nor is there any known risk. In order to ensure that all information remains confidential, please do not include your name anywhere on the questionnaire. If you choose to participate in the research, answer all questions as honestly as possible and return the completed questionnaire promptly – as an attachment to a reply to this email.

Thank you as you decide to assist me in my educational endeavours.

If you require additional information or have questions, contact me at the numbers listed below.

Sincerely,

Victoria Mhango.

0999 301 488 / 0888 845 074.

Appendix C: Blind Questionnaire for Site Engineer and Materials Engineer Categories

Questionnaire 1A

As part of my MSc in Infrastructure Development and Management dissertation at the University of Malawi, The Polytechnic, I am conducting a research that investigates the attributes that are most important in hiring decisions / hiring preferences in roads construction. I would appreciate if you could provide me with the necessary information by answering the questions below.

PART A – PERSONAL DETAILS

Gender: Female ☐ Male ☐

Experience in construction industry:

0 – 5 years ☐ 6 – 10 years ☐ 10 years above ☐

Position: ☐ **Years on current position** ☐

PART B

In this part of the questionnaire, please note that each option referred to as 'card' is an objectively ideal form of propositional truths of the combinations of attributes of prospective employees for a particular position stated.

Please, rate your preference on a scale of 0 – 10 where 10 is the highest. That is, if you were to employ someone for the position, rate the below candidates on a scale of 0 – 10 the likelihood of them being employed.

1.0 Site Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than	Female	More than 5	More than 35	

		K500,000.00		years	years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5	More than 35	

				years	years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	
2.0 Material Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	

6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	

23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	

Appendix D: Blind Questionnaire for Measurement Engineer and Safety, Health & Environmental Officer Categories

Questionnaire 1B

As part of my MSc in Infrastructure Development and Management dissertation at the University of Malawi, The Polytechnic, I am conducting a research that investigates the attributes that are most important in hiring decisions / hiring preferences in roads construction. I would appreciate if you could provide me with the necessary information by completing the table below.

PART A – PERSONAL DETAILS

Gender: Female ☐ Male ☐

Experience in construction industry:

0 – 5 years ☐ 6 – 10 years ☐ 10 years above ☐

Position: _____ **Years on current position**: _____

PART B

In this part of the questionnaire, please note that each option referred to as 'card' is an objectively ideal form of propositional truths of the combinations of attributes of prospective employees for a particular position stated.

Please, rate your preference on a scale of 0 – 10 where 10 is the highest. That is, if you were to employ someone for the position, rate the below candidates on a scale of 0 – 10 the likelihood of them being employed.

1.0 Measurement Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	

5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	

22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	
2.0 Safety Environmental and Health (SHE) Officer – Environmental Health						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than	Female	More than 5	More than 35	

		K500,000.00		years	years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5	More than 35	

				years	years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	

Appendix E: Open Questionnaire for Site Engineer and Materials Engineer Categories

Questionnaire 2A

As part of my MSc in Infrastructure Development and Management dissertation at the University of Malawi, The Polytechnic, I am conducting a research that investigates employability and gender in roads construction. I would appreciate if you could provide me with the necessary information by completing the table below.

PART A – PERSONAL DETAILS

Gender: Female ☐ Male ☐

Experience in construction industry:

0 – 5 years ☐ 6 – 10 years ☐ 10 years above ☐

Position: _____ **Years on current position:** _____

PART B

In this part of the questionnaire, please note that each option referred to as 'card' is an objectively ideal form of propositional truths of the combinations of attributes of prospective employees for a particular position stated.

Please, rate your preference on a scale of 0 – 10 where 10 is the highest. That is, if you were to employ someone for the position, rate the below candidates on a scale of 0 – 10 the likelihood of them being employed.

1.0 Site Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than	Male	Less than 5	Less than 35	

		K500,000.00		years	years	
5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than	Male	Less than 5	Less than 35	

		K500,000.00		years	years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than	Male	More than 5	Less than 35	

		K500,000.00		years	years	
2.0 Materials Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	

13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	

27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	

Appendix F: Open Questionnaire for Measurement Engineer and Safety, Health & Environmental Officer Categories

Questionnaire 2B

As part of my MSc in Infrastructure Development and Management dissertation at the University of Malawi, The Polytechnic, I am conducting a research that investigates employability and gender in roads construction. I would appreciate if you could provide me with the necessary information by completing the table below.

PART A – PERSONAL DETAILS

Gender: Female ☐ Male ☐

Experience in construction industry:

0 – 5 years ☐ 6 – 10 years ☐ 10 years above ☐

Position: _____ **Years on current position**: _____

PART B

In this part of the questionnaire, please note that each option referred to as 'card' is an objectively ideal form of propositional truths of the combinations of attributes of prospective employees for a particular position stated.

Please, rate your preference on a scale of 0 – 10 where 10 is the highest. That is, if you were to employ someone for the position, rate the below candidates on a scale of 0 – 10 the likelihood of them being employed.

1.0 Measurement Engineer – Civil Engineering						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	

4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	

18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than K500,000.00	Male	Less than 5 years	More than 35 years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	

32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	
2.0 Safety Environmental and Health (SHE) Officer – Environmental Health						
Card No.	**Qualification**	**Salary**	**Gender**	**Experience**	**Age**	**Rate**
1	BSc	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
2	BSc	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
3	Masters	Less than K500,000.00	Female	Less than 5 years	Less than 35 years	
4	Masters	Less than K500,000.00	Male	Less than 5 years	Less than 35 years	
5	BSc	Less than K500,000.00	Female	More than 5 years	More than 35 years	
6	BSc	Less than K500,000.00	Male	More than 5 years	More than 35 years	
7	Masters	Less than K500,000.00	Female	More than 5 years	More than 35 years	
8	Masters	Less than K500,000.00	Male	More than 5 years	More than 35 years	
9	BSc	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
10	BSc	Less than K500,000.00	Male	Less than 5 years	More than 35 years	
11	Masters	Less than K500,000.00	Female	Less than 5 years	More than 35 years	
12	Masters	Less than	Male	Less than 5	More than 35	

		K500,000.00		years	years	
13	BSc	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
14	BSc	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
15	Masters	Less than K500,000.00	Female	More than 5 years	Less than 35 years	
16	Masters	Less than K500,000.00	Male	More than 5 years	Less than 35 years	
17	BSc	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
18	BSc	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
19	Masters	More than K500,000.00	Female	Less than 5 years	Less than 35 years	
20	Masters	More than K500,000.00	Male	Less than 5 years	Less than 35 years	
21	BSc	More than K500,000.00	Female	More than 5 years	More than 35 years	
22	BSc	More than K500,000.00	Male	More than 5 years	More than 35 years	
23	Masters	More than K500,000.00	Female	More than 5 years	More than 35 years	
24	Masters	More than K500,000.00	Male	More than 5 years	More than 35 years	
25	BSc	More than K500,000.00	Female	Less than 5 years	More than 35 years	
26	BSc	More than	Male	Less than 5	More than 35	

		K500,000.00		years	years	
27	Masters	More than K500,000.00	Female	Less than 5 years	More than 35 years	
28	Masters	More than K500,000.00	Male	Less than 5 years	More than 35 years	
29	BSc	More than K500,000.00	Female	More than 5 years	Less than 35 years	
30	BSc	More than K500,000.00	Male	More than 5 years	Less than 35 years	
31	Masters	More than K500,000.00	Female	More than 5 years	Less than 35 years	
32	Masters	More than K500,000.00	Male	More than 5 years	Less than 35 years	