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DEPARTMENT OF ECONOMICS

FACTORS THAT INFLUENCE ALCOHOL CONSUMPTION AMONG UNIVERSITY STUDENTS: A CASE STUDY OF MIDLANDS STATE UNIVERSITY

BY

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This dissertation is submitted in partial fulfillment of the requirements of the Bachelor of Commerce Economics Honours Degree in the Department of Economics at Midlands State University, Gweru:

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SUPERVISOR'S APPROVAL FORM

The undersigned certify that they have supervised Kudzai Jonathan Rushwaya's dissertation entitled:
Factors That Influence Alcohol Consumption Among University Students: A Case Study of Midlands
State University.

SIGNATURE

CHAPTER 1 …………………………………………...

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CHAPTER 5 ………………………………………….

APPROVAL FORM

The undersigned certify that they have supervised, read and recommend for the acceptance, a research project entitled: Factors That Influence Alcohol Consumption Among University Students: A Case Study of Midlands State University. This was submitted by Rushwaya Kudzai Jonathan in partial fulfilment of the requirements for the Bachelor of Commerce Honours Degree in Economics (Midlands State University).

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DECLARATION

I, Rushwaya Kudzai Jonathan, do hereby declare that this research report represents my own work, and that it has never been previously submitted for a degree to this or any other university.

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Supervisor's signature   Date

DEDICATIONS

I dedicate this project to paternal and maternal grandparents, the late Mr and Mrs J C Rushwaya and Mr and Mrs Gadaga for having set a sterling example for their grandchildren. To my parents, for all the great advice and wisdom you have passed on to me throughout the years as well for all the sacrifices you made to make sure that I become the best that I could be.

ACKNOWLEDGEMENTS

ABSTRACT

The use and abuse of alcohol has been high among Zimbabweans in general compared to other African countries and this has trickled down to university students in Zimbabwe .This study investigates on the factors that influence alcohol consumption of university students paying attention to the Midlands State University. Primary data was used to carry out this research and a probit regression model was used to carrying out the regression. STATA software was used to make the estimations. Empirics show that factors such gender, the number of friends who consume alcohol, the smoking status of the individual and family influences increase the probability of a young person consuming alcohol. To reduce the prevalence of alcohol consumption among university students, universities should roll out education campaigns to their students informing them of the health and social consequences of alcohol use and the effects of alcohol abuse. The findings of this research showed that smokers are more likely to consume alcohol than none smokers and as a result of this finding, it would be recommended that further studies be carried out on the impact that smoking has on drug use by university students. The findings also showed that gender was an insignificant variable, bearing this in mind it would be recommended that further studies be carried out to establish gender no longer is a significant variable bearing in mind the findings brought forward by Chambwe et al (1983) that showed that female university students in Zimbabwe were less likely to consume alcohol than their male counterparts.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The production of alcohol, the distribution of alcohol and its consumption production has created employment opportunities for many and has generated funds and revenues for governments. In Zimbabwe alcohol along with the alcohol beverage industry contribute significantly in the economy of Zimbabwe through the creation of jobs and retail opportunities to many as well as providing tax revenue to the government. With this in mind, public health measures to reduce harmful use of alcohol. This may sometimes perceived to conflict with other objectives such as the promotion of free trade and consumer choice and can even be viewed as harmful to the economic interests of retailers and lead to a reduction in government revenues. This presents government with the challenge of finding an appropriate balance between the promotion of alcohol use in order to boost income related to alcohol consumption and protection of population health and negative effects such as alcohol induced road accidents.

1.1 Background

According to Keller and Vaillant (2010), alcohol is the most commonly used drug in the world which is mainly due to the fact that alcohol consumption is legal and socially acceptable in most countries. There are several reasons why people consume alcohol such as enjoyment, relaxation and sociability with most drinkers falling in the category of moderate drinkers. Berger *et al* (1999) suggested that those who consumed more than one alcoholic drink a week had a reduced overall risk of stroke compared to those who had less than one drink a week. However, severe or frequent alcohol use is associated with negative effects on the short-term as well as long-term health conditions of an individual. According to World Health Organisation's Global Status Report on Young People and Alcohol (2001) the global burden of disease from alcohol exceeds that of tobacco because the consequences of alcohol use lead to death and disability as well as motor vehicle accidents, drowning and interpersonal violence among young people. Even though, the proportion of heavy alcohol users and abusers may be considered to be small, the effect that these individuals have society is noticeable and cannot be ignored.

Previously, the World Health Organization (WHO) estimated that there were 2 billion people who consumed alcoholic beverages and 76.3 million people with diagnosable alcohol use disorders (WHO, 2004). In 2012, about 3.3 million deaths, or 5.9% of all global deaths, were attributable to alcohol consumption. In the same year, 5.1% of the global burden of disease and injury, were attributable to alcohol consumption (WHO 2014). Research has also shown that the volume of alcohol and the pattern of the drinking have been shown to determine the health outcomes (WHO, 2004) which results in the existence of a causal relationship between alcohol consumption and more than 60 types of disease and injury. Excessive alcohol use is also believed to lead to a significant number of medical conditions oesophageal cancer, liver cancer, epileptic seizures and cirrhosis of the liver as well as social ills such as homicide, and preventable motor vehicle accidents worldwide (WHO,2002).

According to Ferreira-Borges *et al* (2017), around one third of all the alcohol consumed in Africa is "unrecorded" (1.8 Litres per capita, per year). This is because often times, alcohol consumed would have been home-brewed through artisanal production and or traditional methods of brewing beer. Alcohol consumption is seen as a cultural and societal norm in many African societies resulting in alcohol consumption becoming part of the social activities in the society. However the negative impact of alcohol consumption in society and the role it plays in adding to a country's burden of disease is questioned often enough in African countries. Traditionally in men consume alcohol than women in Africa, however in recent years the gap between men and women in heavy alcohol consumption has been decreasing. This was likely caused by changes in the roles of women in the African societies, targeted marketing and increased availability of alcohol (Ferreira-Borges, *et al* 2017). According to the World Health Organisation (WHO) alcohol per capita consumption (APC) in the WHO African Region in 2010 6 litres was of pure alcohol, with southern Africa countries like South Africa and Namibia recording the highest consumption levels and the lowest consumption being recorded in North and sub-Saharan Africa countries like Niger, Senegal or Guinea which have large Islamic populations which have very high rate of abstention.

In 2010, Zimbabwe's adult alcohol per capita consumption was 5.7 litres of pure alcohol which was an increase from 5.08 litres of pure alcohol that was recorded in 2004 where Zimbabwe ranked 12th in Africa where the average alcohol per capita consumption was 4 litres for other African countries (WHO, Alcohol and Health Global Status Report 2014) .

Figure 1
ZIMBABWE

Recorded adult per capita consumption (age 15+)
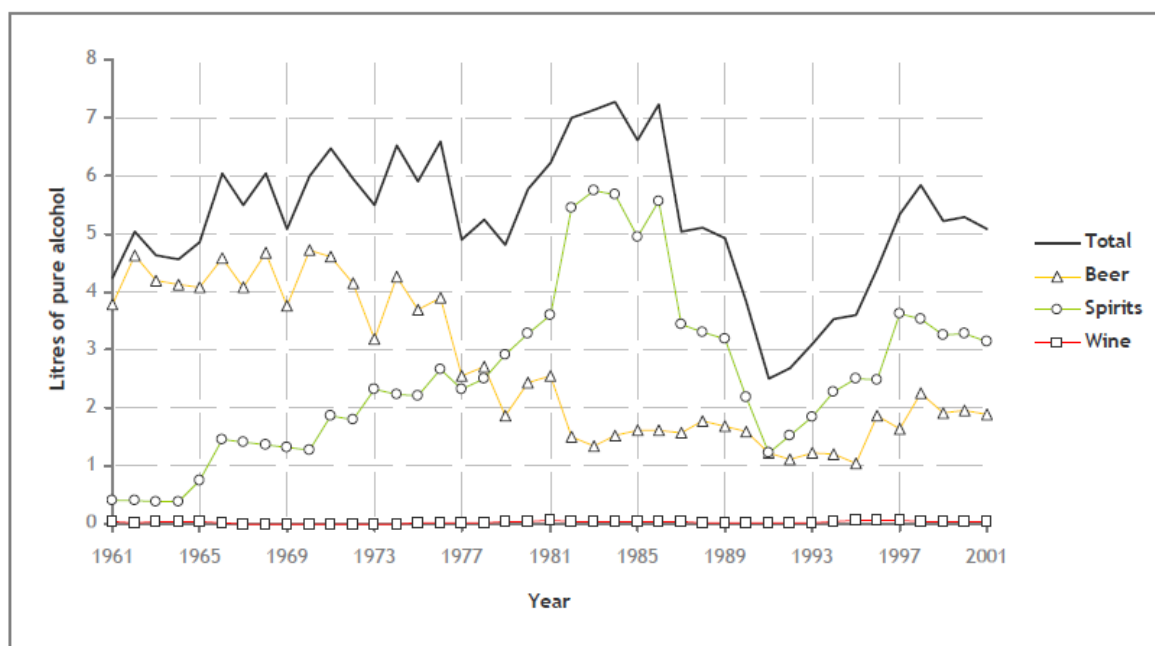
Sources: FAO (Food and Agriculture Organization of the United Nations), World Drink Trends 2003

The data above shows trends of Zimbabwe's Adult per capita consumption of pure alcohol since 1961 up to 2003 and although the trend declined sharply between 1986 to 1991 it has since started to steadily increase to about 5.1litres of pure alcohol in 2003, which then increased to 5.7 litres in 2010. Further, a report titled "Drug Use, Abuse and Alcholism in Zimbabwe" published in 2002 by Cubbins et al proposed that alcohol abuse and alcoholism would grow to become Zimbabwe's biggest social issue by the year 2020.

Alcohol dependence in Zimbabwe in 2010 was found to be 2.2% compared to 1.4% for WHO Africa region. Similarly, the prevalence of alcohol related disorders in Zimbabwe in 2010 was 5.2% compared to WHO Africa region's 3.3% for the same period as shown in the table below.

Prevalence of alcohol use disorders and alcohol dependence (%) 2010

	Alcohol use disorders	Alcohol dependence
Males	9.0	3.8
Females	1.6	0.8

Both sexes	5.2	2.2
WHO African Region	3.3	1.4

Table 1 Prevalence of alcohol use disorders and alcohol dependence (%) in Zimbabwe 2010

The WHO, Alcohol and Health Global Status Report 2014 also presented statistics on the health consequences of alcohol in Zimbabwe paying particular attention to mortality and morbidity as presented in the table below.

Health Consequences: Mortality and Morbidity

	ASDR (males)	ASDR (females)	AAF (%) (males	AAF (%) (females)
Liver cirrhosis, males/ females	40.8	16.9	51.0	40.4
Road traffic accidents, males/females	18.4	5.9	47.7	3.6

Table 2 Health Consequences: Mortality and Morbidity in Zimbabwe

The results show that adverse health consequences are higher among males than females in Zimbabwe resulting in liver cirrhosis being more prevalent among males than females. The results also point towards alcohol being one of the leading factors in road traffic accidents among males in Zimbabwe. Alcohol consumption was also attributed to have been one of the leading causes of road traffic accidents in Zimbabwe during the 2012 festive season where according to Zimbabwe Republic Police statistics over 170 people died and over 730 were injured in road traffic accidents.

The World Bank estimated Sub-Saharan Africa's population to be about 973 million people in 2014 with 30% of adults consuming alcohol. The World Bank also estimates that 43% of the people living in the region being below the age of 14 years old which makes the African continent a key area for growth for the growth of the alcohol beverage industry given the change in African societies views on who should consume alcohol. Evidence of this potential for growth in alcohol consumption in the region can be seen in Zimbabwe where in 2011, the Delta Corporation, Zimbabwe's largest beverages manufacturer recorded a 800% increase in beer sales over the course of the year as was report by the Herald on the 7th of February 2013 in an article titled "Zimbabweans must sober up" by Kaseke A. Previously in African societies, alcohol was a drink reserved for elders, who were in most cases males, however as

times and societies have evolved alcohol has become more available to everyone in the African societies regardless of their social standing, age and sex. As a result for this potential for growth in demand for alcoholic beverages in Africa, SAB Miller and AB InBev, the two largest beer producers in the world who also own majority of the breweries in Africa merging in 2016.

According to a survey carried out by the National Institute on Alcohol Abuse and Alcoholism, almost 60 % of college students in the United States of America between the ages 18–22 drank alcohol in the past month, and almost 2 out of 3 of them engaged in binge drinking during that same timeframe which points to a worrying culture of alcohol abuse by university students in the United States of America. The National Institute on Alcohol Abuse and Alcoholism further estimates that "about 1,825 college students between the ages of 18 and 24 die from alcohol-related unintentional injuries, including motor-vehicle crashes along with about 696,000 students between the ages of 18 and 24 are assaulted by another student who has been drinking and about 97,000 students between the ages of 18 and 24 report experiencing alcohol-related sexual assault or date rape." Results obtained by Young and Klerk (2008), showed that nearly 50% of students at Rhodes University in South Africa were engaged in unsafe alcohol use. Young and Klerk (2010) later repeated their study at Rhodes University and found that students who lived in residences recorded a prevalence rate of 59% for unsafe alcohol consumption. Kyei and Ramagona (2013), found that 49% of university students engaged in unsafe alcohol use which points to a worrying trend in the consumption of alcohol by university students in South Africa.

Unfortunately, Zimbabwean universities have not been spared from the trend of increasing alcohol and drug abuse. This can be noted from several reports in the local media such as a newspaper article written by Agere H in The Sunday Mail dated 2 November 2014 titled "Drug epidemic hits MSU" which point towards a growing culture of alcohol and drug abuse at Midlands State University with another newspaper article written by Musiiwa M in The Chronicle dated 15 September 2015 titled "Booze binge kills MSU student" which details an incident which resulted in the death of a Midlands State University student after a binge drinking episode. The Midlands State University students have also suffered from a bad public rapport in which they are said to indulge in risky sexual activities and propelling the prevalence of HIV and AIDS in the Midlands province as well as other sexually transmitted infections and were also singled out to the reason for the increase in the Midlands province's

HIV Aand AIDS prevalence rates from 20% in 2014 to 23% in an article published in The Herald dated 14 March 2015 by Musiiwa M titled "MSU students spread HIV". These media reports then prompted researchers Nkoma and Bhumure to investigate alcohol use and abuse by Great Zimbabwe Universty first year students which then found that alcohol was the preffered drug by Great Zimbabwe University first year students.

1.2 Statement of the Problem

The growth of the alcoholic beverages industry in Africa coupled with the growing culture of alcohol use among university students will likely result in a situation where alcoholism and alcohol abuse among university students. In light of the several consequences relating to alcoholism and alcohol abuse by university students highlighted in the background, it then provides a foundation to determine the factors that influence alcohol consumption given the known consequences on the drinker's health and academic performance along with the drinker's social behaviours.

1.3 Objectives of the study

- To outline and study the determinants of demand of alcohol among university students.
- To examine the reasons for alcohol use among university students.
- To examine the effect that the student's income has on the amount of alcohol consumed by students.

1.4 Significance of the Study

In a study carried out by Nkoma and Bhumure (2014) on alcohol use/abuse among first year students at Great Zimbabwe University after having been motivated by several media claims of drug abuse at Midlands State University which posed a cause for concern as one of the Midlands State University's campuses is about 120 kilometres away from a Great Zimbabwe University campus. Nkoma and Bhumures' results established that alcohol was the drug of choice for most students and that majority of the university students start consuming alcohol between the age of 19 and 22 and in this age band there exists a significant association alcohol consumption and gender with male students in this age band having higher prevalence of alcohol consumption. However, their results also show that gender ceases to have a significant association with alcohol consumption in the 24-26 age band. The study carried out by Nkoma and Bhumure neglects the effect that the amount of money that the

student has to their disposal. It is expected that students with higher amounts of money to their disposal or higher incomes are likely to consume more alcohol than those students who have lower levels of income. Bearing this in mind, this study looks to explore the effect that the amount of disposable income that the student a student possesses has on the probability for the student to consume alcohol. The Nkoma and Bhumure study also fails to show the effect that religion has on the amount of alcohol that university students consume as well as the impact that smoking and and family influences have.

1.5 Hypothesis

In line with the theme of the study, the following research hypothesis are outlined which are going to be evaluated by making use of econometric analysis.

- H_0: Factors such as income, gender, friends, family and smoking have a positive influence on alcohol consumption by university students.

- H_1: Factors such as income, gender, friends, family and smoking do not have a positive influence on alcohol consumption by university students.

1.6 Scope of the Study

The research will be limited to Midlands State University students because at present the Midlands State University has been singled out in media several reports as the only university in Zimbabwe that is facing drug and alcohol abuse problems. The study will use students from various faculties at the Midlands State University cross all levels of the respective degree programs offered in these faculties in order to build an accurate depiction of the students' alcohol consumption trends and the factors that influence the consumption of alcohol among university students. The study will use quantitative data obtained from a questionnaire that is specifically designed to capture the information required for this research.

1.7 Limitations of the Study

One of the challenges is that in Zimbabwe and most African countries in general, information relating to alcohol consumption is rare to find and in most cases is unrecorded which makes it difficult to accurately define trends over time and makes the data questionable. Therefore access to such information is a challenge. The study only focuses on students from one university and as such, one can not draw up conclusions for all the university students in the country based on this research.

1.8 Organisation of the Rest of the Study

This research aims to examine the factors that influence alcohol consumption among university students, being a case of Midlands State University. The study will comprise of five chapters. Chapter Two's focus will be on the theoretical and empirical literature review. Chapter Three will cover the research methodology, model specification, justification of variables and diagnostic tests to be carried out. Chapter Four will discuss the study results and presentation of the results along with the analysis of these results and also their interpretation. Summary of study, policy recommendations and conclusions from data analysis are in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A review of necessary theoretical and empirical literature is made in this section of the research. To adequately examine and analyse the literature as provided, this chapter is spilt into two categories, namely the theoretical and empirical literature review.

2.1 Theoretical Literature review

This section reviews the theories and theoretical models that have been used in part to determine the factors that influence consumption of addictive substances such as alcohol and tobacco. These theories include the theory of myopic addiction and the theory of rational addiction.

2.1.1 The Theory of Myopic Addiction

To better understand the consumption behaviours of addictive goods economists, suggested the myopic approach and the rational addiction model. The theory of myopic addiction suggests that the individual's current consumption is based on their past consumption but however the consumer will not be fully aware of the consequences and risks associated with their current consumption (Chaloupka *et al*., 2010). In terms of alcohol, the theory of myopic addiction would suggest that the individual's current alcohol consumption would depend on their previous consumption of alcohol, which would mean that individuals who consumed high amounts of alcohol in one period would be more likely to consume more alcohol than individuals who consumed less alcohol in previous periods. With regards to this research, the theory of myopic addiction would suggest that Midlands State University students' alcohol consumption depends on their past consumption as well as the fact that there may exist some level of ignorance to the consequences and risks related to their alcohol consumption which in turn results in their repeated consumption of alcohol.

Chaloupka *et al* (2010) further states that, he fact that the myopic addiction assumes that the consumer is not fully cognisant of the addictiveness of the good. This would suggest that some of the university students who consume alcohol may be addicted to alcohol but due to the existence of myopia not be aware of the fact that they are addicted as they would view their consumption to be normal. The existence of myopia further leads to the violation of the basic model of consumer behaviour. Walters (1974) defines consumer behaviour as the

process of how consumers choose how, what, when, where and from whom to purchase goods and services from. The existence of addition would

2.1.2 The Theory of Rational Addiction
The theory of rational addiction suggests that individuals are aware of the future consequences of his/her present actions and take these into account when they in their present consumption and current utility derived (Becker & Murphy, 1988). The theory of rational addiction also makes the assumption that the utility derived from consuming an addictive good depends on previous consumption of that good, current consumption of that good and future consumption of that good.

In relation to alcohol consumption, the theory of rational addiction would indicate that an individual's previous alcohol consumption will be a good estimator of their current level of consumption. Based on the theory of rational addiction, it would imply that university students who consumed large amounts of alcohol in a previous period are likely to consume similar amounts of alcohol in the present. Secondly, an individual's alcohol tolerance will serve as an individual's reflection of past experiences with alcohol such that those individuals with high alcohol tolerances would most likely consume alcohol more frequently and at higher quantities than those individuals who have low alcohol tolerances. Lastly, it is assumed that when the consumer makes the decision to consume alcohol they would have taken all the future consequences into consideration including the facts relating to the long term effects of alcohol abuse and excessive alcohol consumption.

2.2 Empirical Literature Review
A comparison made in the early 1980s between Zimbabwean and British university students found that fewer Zimbabweans (particularly females) drink, but those who do drink more and drink to intoxication more frequently (Chambwe *et al* 1983). Based on Chambwe's results it would be expected that female university students in Zimbabwe consume less alcohol than their male colleagues.

Findings from a research carried out by Eide & Acuda (1996) showed that university students with more western attitudes, perspectives and preferences were more probable to drink more than those who adhered to Zimbabwean customs and traditional views which reserved alcohol consumption for the male elders and as a drink to be consumed during special ceremonies and occassions. In addition to Eide & Acuda's findings in 1996, Eide *et al* (1998) further analysed the previous data and found that students who came from families that

higher levels of family wealth were more likely to have a global culture orientation than those from financially disadvantaged backgrounds. This is in turn pointed towards students who came from wealthy families consuming more alcohol than students who came from financially disadvantaged families.

Results from a study carried out by Brown *et al* (2001) which investigated the role of religion in predicting adolescent alcohol use and problem drinking using separate hierarchical regression analyses indicated than religious youths are likely to consume less alcohol than none religious youths. Regular participation in religion by youths would most likely result in religious youths developing higher levels of respect for rules, regulations and boundaries that are outlined by their religion which in most cases would not permit for the consumption of alcohol. This would imply that students who participated in religion are less likely to consume alcohol than students who do not participate in religion. The study also found the existence racial differences in the propensity to consume allow, indicating that white adolescents were more likely to consume alcohol than black adolescents because white adolescents had less of a regard for religion than black adolescents. Attending religious services was also found to be the most significant indicator of alcohol use for black adolescents, the less the black adolescents attended religious services the more likely they were to consume alcohol. However, religious fundamentalism was found to be most important for white adolescents.

According to Lundborg P (2002) having parents that are willing to provide alcoholic beverages to their children leads to higher alcohol consumption in adolescents. In order to analyse the individual's drinking behaviours, Lundborg made use of a probit regression model. The results from the probit regression show that having parents who were willing to supply alcohol, showed a significant positive effect on participation in consumption previous month at the 5% level of significance and a weak positive effect on binge drinking at the 10% level of significance. These results imply that students who come from families where the parents who permitted their children to consume alcohol and were willing to supply their children with alcoholic beverages would result in an increased likelihood for the child to consume alcohol.

 Perkins (2002) found that good academic performance is associated with lower alcohol consumption and higher alcohol consumption is associated with poorer academic performance among college students in the USA. Based on Perkins' findings, it is expected

that students who express greater satisfaction with their academic performance are likely to consume less alcohol than students who express dissatisfaction with their academic performance.

Lundorg (2006) found that the binge drinking tendencies of one's peers' increases the probability of the adolescent participating in binge drinking. In this study Lundborg made use of a two stage probit model in this analysis. The choice of friends reflects personality of the adolescent or the personality he/she wishes to have as the adolescent can choose who they want to befriend unlike with family members where they do not have a choice. This results in the individual's friends having very large influence on the individual's decisions as their friends can either be someone they idolise or someone who offers them support and and advice. Bearing this in mind, it is expected that the number of friends that an individual has who consume alcohol is likely to have a positive influence on the individual's decision to consume alcohol.

Ali and Dwyer (2009) found that there exists a significant correlation between alcohol consumption of an adolescent and their peers drinking habits. Ali and Dwyer's definition of peers included the adolescent's friends and classmates. It was found that a 10% increase in the number of classmates who consume alcohol resulted in a 4 percentage point increase in the likelihood of the adolescent to consume alcohol. Factors that were found to be significant include the number of friends who consume alcohol as well as the number of family members that consumed alcohol. This further implied that having a large number of friends who consume alcohol and having family members who consume alcohol will result in increased probability of the university student consuming alcohol.

In a study carried out in the United States of America by Carpenter and Dobkin (2009) on the effect of alcohol consumption on mortality, it was found that at attainment of legal drinking age, which is 21 in the United States of America, increases the college student's alcohol consumption. Further, the student's number of drinking days increased by 21% once they attained the legal age of alcohol consumption. Carpenter and Dobkin's results were obtained through the use of a local linear regression model.

McVicar and Polanski (2010) further reemphasised the effects that having friends who drink on the alcohol usage of adolescents. Using a Linear Probability Model (LPM) and Probit regression models for male and female students separately, McVicar and Polanski found that having at least some friends that drink will increase the probability of an adolescent drinking

by 51% for females and 66% for males. The model used by McVicar and Polanski was specified as follows:

$$Prob\ (Y_i = 1) = \ \beta_0 + \beta_1 S_i + \beta_2 X_i + \beta_3 X_i^s + \varepsilon$$

Where *Yi*=1 represented at least some consumption of alcohol, cannabis or tobacco in the last 30 days by the individual *i*. *Yi*=0 represented no consumption. The variable *Si* represented the number of classmates of the individual that consumed alcohol, tobacco and cannabis in. The variable *Xi* was used to measure a number of observed characteristics for individual *i* which included having an older sibling that engages in the relevant behaviour, parents' education level, whether the respondents considered themselves as having coming from a poor family and the amount of money they have to spend and the respondent's satisfaction with their academic performance. The variable X_i^s was used to denote the averages of the same list of characteristics averaged over all other members of the class. McVicar and Polanski's results also pointed at the use of tobacco and or cannabis as another significant factor that influence alcohol consumption by adolescents as well as their friends' and peers' tobacco and cannabis use.

Several studies have been conducted in Africa on the effect of alcohol usage on adolescents by several scholars including Nkoma and Bhumure (2014) who studied alcohol use and abuse among Great Zimbabwe University students consumption. Nkoma and Bhumure utilised bar graphs and chi-square tests in their data analysis and their results showed that majority of the university students start consuming alcohol between the age of 19 and 22 and in this age band there exists a significant association alcohol consumption and sex with male students in this age band having higher prevalence of alcohol consumption. However, their results also yielded that there was an insignificant relationship between sex and alcohol consumption in the 23 to 26 age band. The study also identified reduced parental supervision as one of the leading factors that influenced alcohol consumption among university students at the Great Zimbabwe University.

2.3 Conclusion

Based from the empirical findings, it can be concluded that factors that influence alcohol consumption are the individual's gender, peer influences, age of initiation to alcohol consumption, religious status and smoking status among other factors. Chapter three will

outline the research methodology and analytical tools that will be used in this research as well as the model to be used for the research along with specification of that model.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter details the research methodology and analytical tools that will be utilised in this research. The chapter will present the model used in the research along with the specification of the model, the justification of variables in the model, the type of data and its characteristics, sampling technique to be employed and the diagnostic tests to be carried out.

3.1 Model Specification

For the purposes of this study, the model used by McVicar and Polanski (2010) will be adapted in the following form:

$$Prob\ (Y_i = 1) = \beta_0 + \beta_1 Frns + \beta_2 Gndr + \beta_3 Incm + \beta_4 Fam + \beta_5 Smkn + \beta_6 Rlgn + \mu$$

Where β_0 represents the intercept, β_i (where i = 1, 2...6) are parameters to be estimated, and μ represents the stochastic error term.

- Y represented the dichotomous dependent variable which is binary in its nature. Y will be equal to 1 if the respondent consumes at least some alcohol and 0 if otherwise.

- Frns was the number of friends the respondent has who consume alcohol.

- Gndr referred to the respondent's gender which is a dummy variable which will be equal to 1 if the respondent is male and 0 if otherwise.

- Incm represented the amount of money which the respondent has to their disposal which includes, wages, rental income from properties, allowances and or pocket money over the duration of a month measured in monetary terms the respondent receives every month

- Fam was the number of the respondent's family members who consume alcohol and will be a continuous variable.

- Smkn represented whether the respondent smokes and for the purpose of this study will be a dummy variable which will take the form of 1 if the respondent smokes and 0 if otherwise.

- Rlgn was the respondent's religious status and will be considered to be a dummy variable which will take the form of 1 if the respondent participates in any form of religion and 0 if otherwise.

3.2 Justification of Variables

3.2.1 Friends (Frns)

According to McVicar and Polanski (2010), having at least some friends who drink increases the likelihood of the individual drinking by 51% for females and 66% for males. The 2004 WHO Global Status Report on Alcohol and Young People points to a 1989 survey that was carried out by Meursing and Morojele (1989) on young people between the ages of 11 and 22 in Lesotho which showed that a young person alcohol consumption is positively affected by the individual's friends' drinking patterns and other factors such as age, sex and family income. Leteka (2003) found that most young people drink to please their friends and in order for them to fit in and to satisfy their need to belong. Piehler *et al* (2012) suggested that interactions amongst peers may lead to increased anxiety in adolescents who have low self-esteem, and alcohol the use of alcohol may be perhaps to reduce inhibitions and to facilitate easier interactions with friends and peers. Therefore, it was expected that respondents who have a higher number of friends who consume alcohol are more likely to consume alcohol than those who a smaller number of friends who consume alcohol. Bearing this in mind, the variable friends, was expected to have a positive sign.

3.2.2 Gender (Gndr)

Results from a study carried out by Pengpid, *et al* (2013) showed that alcohol use was higher among male students than female students, which implies that male students are more likely to consume alcohol than female students. Therefore, it was expected that male university students have a higher probability of consuming alcohol than female students which resulted in the variable gender being expected to have a positive sign.

3.2.3 Income (Incm)

For the purpose of this study, the amount of money the student has to their disposal, wages, and allowances and or pocket money will be considered to be the students' income. It is a continuous variable and will be measured in terms of United States Dollars per month. McVicar and Polanski (2010) proposed that students who had less income were more likely to consume less alcohol than students who have higher income. Additionally, Lundborg (2002) suggested that students who came from single-parent households were less likely to consume large amounts of alcohol because they are likely to have lower incomes compared to students that come from two parent households. According to Collis *et al* (2006) alcohol is a normal good and as such has a positive relationship with income. Therefore, students with higher incomes have are expected to have a higher probability to consume alcohol than those

with lower incomes. Income was measured using a questionnaire where the respondents will be asked to state their monthly income/ pocket money and whether or not they make any additional income and if so how much. This led to the expectation that the variable income would have a positive sign.

3.2.4 Family (Fam)

Several authors such as Cotton (1979) and McGue (1994) have proposed that having a family history of alcoholism is a risk factor for future alcoholism for the individual. Further, Newbury-Birch *et al* (2009) found that having a record of alcohol problems in the family history increases the risk that the young person will also suffer from alcohol addiction later on in the young person's life. Individuals who come from families that do not condone alcohol consumption are less likely to consume alcohol compared to individuals who come from families that condone alcohol consumption. Therefore, it was expected that individuals who have a greater number of family members who consume alcohol will be more likely to consume alcohol than those who do not have family members who consume alcohol. Income was expected to have a positive sign.

3.2.5 Smoking (Smkn)
Hoffman (2001) established the existence of co-occurrence between alcohol use and smoking which suggests that individuals who smoke are very likely to also drink alcohol. Dee and Evans (2003) estimated that teen smokers compared to non-smokers are by 39-50 percentage points more likely to participate in drinking. Consequently, Hanna *et al* (2001) established the existence of a positive relationship between early onset smoking and the probability to drink alcohol, thus it is expected that smokers are more likely to consume alcohol compared to non-smokers. The smoking status of the respondents was determined through the use of a questionnaire where the respondents will be asked if they smoke. The variable was measured using a binary dummy variable in which will represent 1 if the respondent smokes and 0 if otherwise. The variable smoking was therefore expected to have a positive sign, as literature points to a co-occurrence of smoking and alcohol use.

3.2.6 Religion (Rlgn)
Alcohol consumption by religious youth is most likely lower due to higher respect for rules and stronger boundaries in the family compared to non-believers or less religious (Brown *et al*, 2001). This is because religious respondents are more likely to have a higher respect and regard for rules and regulations that are outlined by their religion and of which most religions

do not permit the consumption of alcohol. Therefore it was expected that the variable would have a negative sign. The religious status of the respondents will be determined through the use of a questionnaire where the respondents will be asked whether they practice any religion. The variable will then be measured using a binary dummy variable where 1 will represent participation of the respondent in religion and 0 otherwise.

3.3 Data Type and Sources

In order to capture some of the qualitative aspect of this research, the research made use of primary data. The use of primary data has the advantage of being able to allow for the researcher to collect data that is targeted and specific to their research. The field of research where data that was used in this research was obtained from was the Midlands State University which has a student population of 22 687. According to the Kerjcie and Morgan table for determining sample size, a sample size of 377 was taken for a population of 22 687 according to figures obtained the Midlands State University registration office. The sample of 377 students was given questionnaires which they were required to complete. The questionnaire used is found on Appendix A

In order to reduce sampling errors and increase efficiency, the study will employ the stratified random sampling technique. Using this sampling this sampling technique weights will be attached to each faculty at MSU based on the percentage that each faculty contributes to the total population at MSU to minimise the chances of the occurrences of sampling biases and to attain an almost equal representation of the Midlands State University student body. The population of each faculty, the percentage that faculty's population contributes to the total student population and the number of respondents required from each faculty for this research are shown in the table below

Faculty	Population	Percentage of Total Population	Number of Respondents
Arts	3109	13.70	52
Commerce	7712	33.99	128
Education	2306	10.16	38
Law	296	1.30	5
Medicine	18	0.08	0
Mining Sciences	176	0.78	3
Natural Resource	939	4.14	16

Management			
Science and Technology	2277	10.04	38
Social Sciences	5854	25.80	97
Total	22687	100	377

Table 3 Data Collection Strata

3.4 Diagnostic Tests

These refer to statistical tests or assessments will be carried out are carried on statistical data to determine the relevance and reliability of the data used in the research. It will also include testing for econometric problems that might be associated with the data and model used iin the research. The diagnostic tests that will be carried out on in this research are multicolinearity and heteroscedasticty.

3.4.1 Multicollinearity

Gujarti (2004) defines mulitcollinearity as the existence of a linear relationship between some or all of the explanatory variables in the regression model. Multicollinearity arises from sampling over a limited range of regressors. If the size of the R^2 is greater than 0.8 it means there is a multicollinearity problem similarly if it is less than 0.8 it means there is no such a problem. The hypothesis is therefore stated as follows:

H_0: There is no multicollinearity ($R^2 < 0.8$)

H_1: There is multicollinearity ($R^2 \geq 0.8$)

3.4.2 Heteroscedasticity

Heteroscedasticity is a situation where the error variance does not remain constant for different times and different samples as a result of violating one of the assumptions of the classical linear regression model (Gujarati 2004). Therefore, the test for heteroscedasticity is conducted to examine the spread of the variance within the variables used. If the variables have constant variance they are said to be homoscedastic while if the variance is not constant the model is said to suffer from heteroscedasticity. In order to test for heteroscedasticity, the research will adopt the Breusch Pagan/ Cook-Weisberg test, if the P-value of chi2 is found to

be greater than 0.05 we do not reject the null hypothesis. Thus the hypothesis will be stated as follows:

H_0: Variables have constant variance (homoscedastic)

H_1: Variables have no constant variance (heteroscedasticity)

3.5 Conclusion

This chapter has detailed the research methodology to be used in this research highlighting the procedures the researcher will adopt in order to carry out the above mentioned diagnostic tests. Results from the regression analysis outlined in chapter three will be presented in chapter four along with the results from the outlined diagnostic tests along with an interpretation of the obtained results.

CHAPTER FOUR

RESULTS PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter seeks to reveal the econometric results from the factors that influence alcohol consumption among university student. In this chapter the interpretation of the results are going to be given. The results in this chapter are based on Stata 11 econometric package.

4.1 Diagnostic Test Results

4.1.1 Summary Statistics

The summary statistics give a summary of the data that was captured into the STATA 13 software highlighting the mean, standard deviation, minimum value and maximum value of each variable that was recorded. The summary statistics are presented below and are also found in Appendix C.

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Y	376	.6569149	.475322	0	1
Gender	376	.5824468	.4938128	0	1
Friends	376	15.81117	11.20995	0	50
Family	376	2.912234	2.836008	0	15
Income	376	146.6356	187.7713	30	2500
Smoking	376	.3803191	.4861121	0	1
Religion	376	.6595745	.4744837	0	1

Table 4 Summary Statistics

The table above shows that of the 376 observations in the study, 66% of the respondents consumed alcoholic beverages with a standard deviation of 0.4753722. The results also showed that 59% of the respondents were male. The average number of friends who consumed alcohol for individual who participated in the study was 16 friends with the highest number of friends who consumed alcohol for a single respondent was 50. The average number of family members who consumed alcohol was 3 and the highest recorded number of friends who consume alcohol recorded was 15. The average income recorded was $147 with the lowest recorded income being $30 and the highest recorded income being $2500. From

the 376 respondent, the results revealed that 38% were smokers and 66% participated in at least some form of religion.

4.1.2 Multicollinearity

The test for multicollinearity is carried out to determine if there is any linear relationship between the explanatory variables. The existence of multicollinearity will be observed if pairwise R^2 is greater than 0.8, if however R^2 is less than 0.8 the explanatory variables multicollinearity does not exist.

Table 5 Correlation Matrix

	Gndr	Frnds	Fam	Incm	Smkn	Rlgn
Gndr	1.0000					
Frnds	0.3258	1.0000				
Fam	0.2480	0.5579	1.0000			
Incm	0.1556	0.2349	0.2474	1.0000		
Smkn	0.3300	0.5075	0.3821	0.1193	1.0000	
Rlgn	-0.2213	-0.412	-0.3592	-0.2634	-0.5240	1.0000

Source: STATA 11

The results presented above shown, the variables do not suffer from multicollinearity. This means they have no linear relationship. The results from the multicolinearity test as obtained from STATA are presented in Appendix D. This is because there is no variable that has a critical value that is greater than 0.8 which is shows the presence of multicollinearity. Thus we do not reject the null hypothesis.

4.1.2 Heteroscedasticity

The test for heteroscedasticity carried out to determine if the variables used in the model do not violate the Classical Linear Regression Model (CLRM) assumption of homoscedasticity which assumes constant variance among variables.

Breusch-Pagan/ Cook- Weisberg Test for Heteroscedasticity

chi2(1)	7.34

Prob > chi2	0.0067

Table 6 Breusch-Pagan/ Cook - Weisberg Test for Heteroscedasticity Source: STATA 11

The results presented in the table show that the model suffers from heteroscedasticity. This is because the p-value of chi2 of 0.0067 is less than 0.05 which presents the heteroscedasticity problem. This means that we reject the null hypothesis that the variables have constant variance and conclude that the variables are heteroscedastic. The results obtained from the test for heteroscedasticity in STATA care located in appendix E. To overcome the challenge of heteroscedasticity, the researcher adopted cluster-robust estimators for standard errors which according to Nichols and Schaffer (2007), can be used to eliminate the effects of heteroscedasticity in regression analysis.

4.2 Regression Results

Probit regression results

Variable y	Coefficient	Standard error	Z	P-value
Gndr	.1190888	.3018647	0.39	0.693
Frnds	.1960084	.0294031	6.67	0.000
Fam	.1506564	.065426	2.30	0.021
Incm	.0019161	.0016189	1.18	0.237
Smkn	2.046108	.502248	4.07	0.000
Rlgn	-.9278406	.3355409	-2.77	0.006
_cons	-2.054299	4.237222	4.85	0.000

Table 7 Logistical Regression Results Source: STATA 13

Number of obs   =   376

Wald chi^2 (6)   =   59.76

Prob > chi^2 =   0.0000

Log pseudolikelihood = -30.869259

Pseudo R^2 =   0.8723

Therefore, the estimate model can be specified as;
$$Y = -2.054299 + .1190888\ Gndr + .1960084 Frnds + .1506564 Fam + .0019161 Incm + 2.0461068 Smkn - 9.278406 Rlgn + \mu$$
The results obtained from the regression analysis in STATA can be found in appendix F.

4.2.1 Interpretation of Results of the Logistical Model

Table 3 shows, the following interpretations relates to the individual coefficients of variables used in this model, Pseudo R^2 as well as the log likelihood.

4.2.1.1 Pseudo R^2

The pseudo R^2 is a measure of the goodness of fit. However, according to Gujarati (2004), when the researcher is using a binary dependent variable, the Pseudo R^2 does not give a meaningful representation of the goodness of fit. Due to the fact that the study utilises a binary dependent variable, the Pseudo R^2 will not be considered.

4.2.1.2 Log likelihood Ratio

According to Gujarati (2004), a negative constant shows impossibility of an event happening when all the explanatory variables are held at zero. In relation to the factors that influence alcohol consumption among university students it represents the impossibility of deciding to consume alcohol by a university student when all the explanatory variables are held at zero. If the p-value is 1 we reject the null hypothesis. The hypothesis for likelihood ratio is stated as follows:

H_0: All slope coefficients are simultaneously equal to zero.

H_1: All slope coefficients are not simultaneously equal to zero.

The independent variables have a significant effect on the factors that influence alcohol consumption among university students as the LR statistic is -30.869259, whose p-value is 0.0000. This leads to the researcher rejecting the null hypothesis and concluding that all slope coefficients are not simultaneously equal to zero.

4.2.1.3 Gender (Gndr)

This represented the respondent's gender respondent and was a dummy variable which took the value of 1 if the respondent was male and 0 if otherwise. The variable was found to be positive but insignificant at the 5% level of significance. The results obtained are partially in line with the results presented by Nkoma and Bhumure (2014) who found that there was a significant relationship between gender and alcohol consumption in the 19-22 age band but there was an insignificant relationship between gender and alcohol consumption in the 23-26 age band.

4.2.1.4 Friends (Frnds)

This refers to the number of the respondent's friends consume alcoholic beverages. The variable was found to be positive and significant at the 5% level of significance which means that as the number of the respondent's friends who consume alcohol increases, the probability of the respondent's probability to consume alcohol also increases. Results found by McVicar and Polanski (2010) also support the notion that having friends who consume alcohol increases the individual's likelihood to consume alcohol. Meursing and Morojele (1989) found that in Lesotho a young person's alcohol consumption is positively affected by the individual's friends. .

4.2.1.5 Family (Fam)

This represented the number of family members that the respondent has who consume alcohol. Empirical studies such as Cotton (1979) and McGue (1994) found that having a family history of alcohol use and alcoholism increase the risk of alcoholism for the individual. Based on this, the research expected to find that respondents who have higher numbers of family members who consume alcohol are more likely to consume alcohol than those who have fewer numbers of family members who consume alcohol. The results obtained by the researcher matched the researcher's expectations as the variable was found to be both positive and significant at the 5% level of significance which was in line with findings obtained by Cotton (1979), McGue(1994) and Newbury-birch *et al* (2009).

4.2.1.6 Income (Incm)

McVicar and Polanski (2010) found that students who had less income were more likely to consume less alcohol than students who have higher income. Additionally, Lundborg (2002) suggested that students who came from single-parent households were less likely to consume large amounts of alcohol because they are likely to have lower incomes compared to students that come from two parent households. According to Collis et al (2006) alcohol is a normal good and as such has a positive relationship with income. However, the results obtained by the researcher found that income was positive as was expected and supported by literature but insignificant at the 5% level of significance.

4.2.1.7 Smoking (Smkn)

The variable was found to be positive and significant at the 5% level of significance which was in line with previous empirical findings by Hoffman (2001) as well as Dee and Evans

(2003). The results obtained by the researcher matched the researcher's expectations that smoking would have a positive effect on the probability of the respondent consuming alcohol

4.2.1.8 Religion (Rlgn)
The variable was found to be negative and significant at the 5% level of significance which shows that religious individuals are less likely to consume alcohol which is in line with results obtained by Brown *et al's* (2001) that alcohol consumption by religious youth is most likely lower due to higher respect for rules and stronger boundaries in the family compared to non-believers or less religious

4.3 Estimated Results from Stata after Computing Marginal Effects
Marginal Effects After Probit y= Pr(y)

					= .9772547
Variable	dy/dx	Standard error	Z	P-value	Mean
Gndr*	.0065672	.01658	0.40	0.692	0.582447
Frnds	.0105808	.00517	2.05	0.041	15.8112
Fam	.0081326	.00543	1.50	0.134	2.91223
Incm	.0001034	.00001	1.08	0.281	146.636
Smkn *	.1103283	.04036	2.73	0.006	0.380319
Rlgn*	-.0415689	.02209	-1.88	0.060	0.659574

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Table 8 Marginal Effects Source: STATA11

The results from the estimation of the marginal effects as obtained from STATA are found in appendix G

4.3.1 Interpretation of Results from Marginal Effects

4.3.1.1 Friends (Frnds)
The results show that having an additional friend who consumes alcohol increases the probability of the respondent drinking alcohol by 11%. This means that individuals who have a high number of friends who consume alcohol are more likely to consume alcohol than individuals who have less friends who consume alcohol.

4.3.1.2 Family (Fam)
The results obtain suggest that having a family member who consumes alcohol increase the respondent's probability to consume alcohol by 8%. This means that the higher the number of

family member that consume alcohol that the respondent has, the higher the chances of the respondent consuming alcohol.

4.3.1.3 Smoking (Smkn)

Based on the results obtained, smoking increases the respondent's probability to consume alcohol by 11%. This means that respondents who smoke are more probable to consume alcohol than those who do not.

4.3.1.6 Religion (Rlgn)

The results obtained show that participation in religion decreases the respondent's probability to consume alcohol by 4% which implies that religious individuals are less likely to consume alcohol than none religious individuals.

4.4 Conclusion

The findings from the research showed that variables like friends, family, smoking and religion were significant in determining the factors that influence alcohol consumption among university students at the Midlands State University. However, gender and income were found insignificant.. These results are going to help the researcher to come up with the basis for policy recommendations which are going to be presented in the next chapter.

CHAPTER 5

CONCLUSIONS AND POLICY RECOMMENDATIONS

5.0 Introduction

This chapter gives a brief summary of the finding, along with policy recommendations. This chapter will also give the final conclusions about the factors that influence alcohol consumption among university students at the Midlands State University along with areas for further studies is going to give the overall conclusion about the determinants of demand for private tutoring and also highlighting areas of further study.

5.1 Summary of the Study

This study was focused on factors that influence alcohol consumption among university students paying attention to the Midlands State University using a probit regression model. The findings of this study were based on information that was provided by the respondents in the field of study. The results of the study also conform mostly to results obtained in the empirical literature.

It was observed that the variable friends was significant and positive which is supported by findings by McVicar and Polanski (2010) as well as findings by Piehler *et al* (2012) which suggest that having friends who consume alcohol increases the individual's probability to consume alcohol. This may be due to the fact that most people tend to befriend people who have similar interest to theirs and this leads to individuals who consume alcohol having more friends who consume alcohol.

Investigations by Cotton (1979), McGue (1994) and Newbury-birch *et al* suggest that having family members who consume alcohol increases the individual's chances of consuming alcohol which was supported by results obtained in this research.

Results obtained in this research supported the findings by Hoffman (2001), Dee and Evans (2003) and Hanna *et al* (2001) who found that smoking increases the respondent's probability to consume alcoholic beverages. This is likely due to the fact that most smokers also consume alcoholic beverages.

Religious individuals were found to be less likely to consume an alcoholic beverage which supports results obtained by Brown *et al* (2001). This is likely due to the fact that most religions do not permit consumption of alcohol so it would be expected that religious individuals are less likely to consume alcohol.

5.2 Conclusion

Factors that were found to be significant in influencing alcohol consumption among university students were friends, smoking and family which agree with the findings that have been brought forward by many researchers.

The research found that university students who have friends who drink alcohol are more likely to consume alcohol than individuals who do not have friends who consume alcohol. Results from the marginal effects also showed that having an additional friend who consumes alcohol results in an 11% increase in the probability to consume alcohol for the respondent. This is because an individual may at times act in ways to please their friends and by so doing they end up engaging in the activities that their friends engage in such as drinking alcohol. The friends that an individual has in most cases tend to show the individual's personalities and character traits, this is because in most instances people befriend people who have similar interests, beliefs and behaviours to theirs which would imply that students who do not consume alcohol are more likely to have friends who also abstain from consuming alcohol.

The number of family members that the university student has who consume alcohol was found to be a significant variable in the factors that influence alcohol consumption by university students. This is because the individual's family is where the individual initially gets their beliefs from at an early age and the family plays a crucial role in nurturing the individual's beliefs throughout the individual's life. This would imply that if the individual's family has a negative view on alcohol consumption and abstains from the consumption of alcohol, the individual is likely to also have negative opinions and views on consumption of alcohol and would also likely abstain from the consumption of alcohol. As a result this, individuals who have higher numbers of family members that consume alcohol are more likely to consume alcohol than those individuals who have less or no family members who consume alcohol.

The smoking status if the individual wad also found to be a significant variable in the factors that influence alcohol consumption among university students. Results from the marginal effects showed that smoking increases the likelihood of the individual consuming alcohol by

11%. This is likely due to an existed of a co-occurrence between alcohol use and smoking as the results obtained by Hoffman (2001) suggest. This implies that individuals are more likely to consume alcohol than individuals who do not smoke which results in individuals who smoke being more likely to consume alcohol.

The religious status of the respondent was also found to be a significant variable in the research. The results obtained showed that individuals who participated in religion were less likely to participate in the consumption of alcohol. This is likely due to the fact that most religious individuals have high respect and regard for the rules and regulations that are stipulated by their religion. In most cases, most religions in Zimbabwe and their denominations do not encourage and or permit the consumption of alcohol by their members. This ultimately results in a significant amount of the individuals who are serious and devoted to their religion consuming less alcohol than those individuals who may not be as serious with religion and individuals who do not participate in any religion.

5.3 Policy Recommendations

Given that the number of friends that consume alcohol was a significant variable, it would be recommended that the university further extend its current peer education campaigns and include more material on alcohol consumption, use, addiction, health benefits and health risks. The peer education campaigns should also pay particular attention to the effect that friends and their drinking habits have on the likelihood of the individual to consume alcohol.

The number of family members who consume alcohol was also found to be a significant variable. In order to prevent excess alcohol use and alcohol consumption, it would be recommended that Alcohol, Narcotics and Tobacco (ANT) training be rolled out country wide, inclusive of universities and tertiary education institutions throughout Zimbabwe. It would be recommended that ANT training programs focus on the impact that family influences have on the probability of an individual consuming alcohol along with the health benefits and consequences associated with alcohol consumption. This is because the university students are going to be in the future, heads of households and have their own families and providing them with ANT training focusing on the effects that family influences have on the probability of the individual consuming alcohol. ANT training can also be used to highlight the effects that smoking has on the individual's health and can lead to the adoption and co-use of other drugs and addictive substances such as alcohol and cannabis.

The findings of this research showed that religion had a negative influence in the likelihood of an individual to consume alcohol as religious individuals were less likely to consume alcohol. Bearing this in mind, it would be recommended that churches extend teachings on alcohol use and abuse to the communities at large and to universities through their societies that are found within the universities. The aim behind this would be to increase awareness around the consequences of alcohol use on one's health and social life.

5.4 Suggestions for Further Research

The findings of this research showed that smokers are more likely to consume alcohol than none smokers and as a result of this finding, it would be recommended that further studies be carried out on the impact that smoking has on drug use by university students. The findings also showed that gender was an insignificant variable, bearing this in mind it would be recommended that further studies be carried out to establish gender no longer is a significant variable bearing in mind the findings brought forward by Chambwe *et al* (1983) that showed that female university students in Zimbabwe were less likely to consume alcohol than their male counterparts.

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Appendix A

Questionnaire

Midlands State University

Established 2000

I am an Economics student at Midlands State University carrying out a research entitled, "Factors that influence alcohol consumption among university students: A case study of Midlands State University. My accomplishment of this goal depends on your participation, so l therefore kindly ask you to respond by ticking the relevant spaces where necessary or write the reason where also necessary in the space provided. The information that is gathered in this research is going to be used for academic purpose only and you are therefore assured that your responses are going to be treated as private and confidential. Therefore, any other use of this questionnaire or collected information other than academic purpose is considered to be a violation of the sole purpose of this tool.

RESPONDENT INFORMATION

1. What is your Gender?   Male …………   Female……….

2. What is your age? ……….

3. Do you consume alcoholic beverages?   Yes ……………   No……….

4. If your answer to 3 was yes, how often would you estimate that you have had an alcoholic beverage in the last 30 days? ………………………

5. How old were you when you started consuming alcoholic beverages? ....

6. How many of your friends consume alcoholic beverages? …………………………….

7. How many members of your immediate family consume alcoholic beverages?
………..

8. What is your monthly income/income from resources/ pocket money?
…………………………..

9. Do you smoke? Yes……….. No……….

10. Do you practise any form of religion? Yes…….. No………

11. If your answer to 10 was yes, how often would you estimate that you attend religious services in a 30 day period? ....

12. Does your religion allow for the consumption of alcoholic beverages/ Yes……….
No………...

13. How would you rate your academic performance

Poor……… Average……..Good……. Very Good……… Excellent………..

14. What are the reasons for this performance?
………………………………………………………………………………………
………………………………………………………….

****

Thank you for completing this questionnaire

GOD BLESS YOU!!!!!

Appendix B
Data Set

Obs	y	Gndr	frnds	fam	incm	smkn	Rlgn
1	0	0	1	0	70	0	1
2	1	1	15	0	40	0	1
3	1	1	20	2	90	1	1
4	0	0	0	0	60	0	0
5	0	0	0	0	50	0	1
6	1	1	22	4	100	0	1
7	1	1	25	5	250	1	0
8	1	1	30	5	120	1	1
9	1	0	22	3	150	1	1
10	1	1	8	5	140	1	1
11	1	1	16	5	90	0	1
12	0	0	0	0	80	0	1
13	1	1	28	6	90	0	0
14	1	1	29	7	300	1	0
15	1	1	22	5	110	1	0
16	0	1	1	0	70	0	1
17	1	1	19	5	120	1	1
18	0	1	3	0	150	0	1
19	1	1	19	10	120	0	1
20	1	1	25	7	140	1	0
21	1	1	24	4	80	0	0
22	1	1	35	5	100	0	0
23	0	0	0	0	150	0	1
24	1	1	18	5	70	1	1
25	1	1	17	7	50	1	1
26	0	1	2	0	150	0	1
27	1	1	19	6	70	0	0
28	0	1	3	1	30	0	1
29	1	1	12	6	80	1	0
30	1	1	23	4	100	1	1

31	1	1	14	3	150	1	1
32	1	1	20	4	40	1	1
33	1	1	20	5	300	1	1
34	1	0	16	2	80	0	1
35	1	0	15	5	100	0	1
36	1	0	25	4	70	1	1
37	1	1	20	3	2500	0	0
38	1	1	24	5	50	0	1
39	1	1	18	4	350	1	1
40	0	0	0	0	95	0	1
41	0	0	1	1	100	0	1
42	1	1	17	4	350	1	1
43	1	0	25	9	200	0	1
44	0	0	0	0	100	0	1
45	1	1	8	5	150	0	0
46	1	1	13	4	150	0	1
47	1	1	23	6	200	1	0
48	1	0	16	4	125	0	1
49	1	1	30	7	150	0	1
50	1	1	50	5	100	1	1
51	1	0	17	0	120	0	1
52	1	0	24	0	140	0	1
53	1	1	20	5	80	0	0
54	1	0	40	0	130	0	1
55	0	1	2	0	100	0	1
56	0	1	1	0	100	0	1
57	1	0	14	1	200	0	1
58	1	1	24	2	140	1	0
59	1	1	30	5	130	0	1
60	1	0	25	5	170	1	1
61	1	1	35	3	80	1	0
62	1	1	25	8	100	1	0
63	1	1	26	5	100	0	1
64	0	1	0	0	50	0	1
65	0	0	1	0	40	0	1
66	0	0	6	1	60	0	0
67	1	1	20	5	100	0	1
68	1	0	18	1	90	0	1
69	1	1	20	5	1300	1	0
70	1	0	18	0	60	0	0
71	0	1	2	0	120	0	1
72	1	1	25	4	180	0	0
73	0	0	2	0	60	0	1
74	1	1	22	2	90	1	0

75	1	0	16	6	100	0	1
76	1	0	25	9	100	0	1
77	1	0	19	2	120	0	1
78	0	0	2	0	60	0	1
79	1	1	27	3	35	0	0
80	0	1	2	0	60	0	1
81	1	1	25	0	90	0	1
82	1	0	20	5	200	1	0
83	1	1	25	3	100	1	0
84	0	1	3	0	40	0	1
85	1	1	16	3	100	1	0
86	1	0	24	1	100	0	1
87	1	1	20	3	400	1	0
88	0	0	2	0	30	0	1
89	1	0	7	5	80	0	1
90	0	0	3	1	50	0	1
91	0	1	0	0	40	0	1
92	1	1	25	4	150	1	1
93	0	0	0	4	40	0	1
94	0	1	2	1	40	0	1
95	0	0	0	0	50	0	1
96	1	1	25	3	100	1	1
97	0	0	0	3	50	1	1
98	1	0	30	3	100	1	0
99	1	1	17	3	250	1	0
100	1	1	25	0	210	1	1
101	1	1	50	6	150	1	1
102	1	0	16	5	180	1	0
103	1	1	24	4	150	1	1
104	0	0	0	0	80	0	1
105	1	1	26	5	180	1	0
106	1	0	19	6	150	1	1
107	1	1	21	7	160	1	1
108	1	1	45	7	250	1	0
109	1	1	26	4	200	0	1
110	1	1	30	10	200	1	0
111	1	1	39	5	180	1	1
112	1	1	15	6	120	0	1
113	1	0	19	5	120	0	1
114	0	1	2	1	65	0	1
115	1	1	25	5	150	1	0
116	0	0	0	0	80	0	1
117	1	0	19	6	200	0	1
118	0	1	3	0	30	0	1

119	1	1	20	10	400	1	0
120	1	0	24	4	200	1	0
121	1	1	22	8	350	0	0
122	0	1	6	0	100	0	1
123	1	1	24	1	65	0	1
124	1	1	34	5	250	0	0
125	0	0	3	0	50	0	1
126	1	0	22	4	120	0	1
127	0	1	1	0	100	0	1
128	1	1	9	5	50	1	0
129	0	1	0	1	30	0	1
130	1	1	26	6	100	0	1
131	1	1	25	5	150	0	1
132	1	0	28	4	150	1	1
133	0	1	3	0	60	0	1
134	1	1	10	4	200	1	0
135	1	1	26	3	200	0	0
136	1	1	21	2	90	0	1
137	0	1	2	2	100	0	1
138	1	1	25	3	300	1	0
139	0	1	2	1	100	0	1
140	0	0	0	1	90	0	1
141	0	0	3	15	100	0	1
142	1	1	24	1	300	1	0
143	0	0	2	1	300	0	1
144	0	0	0	1	150	0	1
145	0	1	1	1	100	0	1
146	0	0	0	1	60	0	1
147	1	1	17	3	150	1	0
148	1	0	26	1	300	0	0
149	1	1	19	3	150	1	0
150	1	1	26	3	150	1	0
151	1	0	15	4	100	1	0
152	1	1	24	7	150	0	1
153	1	1	20	15	752	0	1
154	0	0	3	0	50	0	1
155	1	1	25	4	100	0	1
156	0	0	0	0	60	0	0
157	1	0	25	6	100	1	0
158	0	0	1	3	63	0	1
159	0	0	0	0	100	0	1
160	1	1	16	2	180	1	0
161	1	1	26	6	100	0	1
162	1	0	18	2	150	0	0

163	1	1	17	0	100	1	0
164	0	0	0	0	100	0	1
165	1	1	22	5	70	0	1
166	1	0	27	2	120	0	1
167	1	1	25	2	160	1	0
168	0	0	2	5	40	0	1
169	1	1	26	8	100	0	1
170	1	1	33	6	100	1	0
171	1	1	24	2	75	0	0
172	0	0	0	1	50	0	1
173	0	1	1	0	60	0	1
174	1	0	16	6	150	1	0
175	1	1	23	10	400	0	1
176	1	1	25	5	250	1	0
177	0	0	1	0	30	0	1
178	1	0	25	1	300	1	0
179	0	0	2	2	45	0	1
180	1	0	26	2	150	0	0
181	1	1	33	1	200	0	1
182	0	0	0	0	250	0	1
183	1	1	18	4	300	1	0
184	1	1	24	5	180	1	0
185	0	0	0	0	80	0	1
186	1	0	25	2	150	1	1
187	1	1	26	6	100	0	1
188	0	0	2	0	120	0	1
189	1	1	28	1	150	1	0
190	0	0	0	1	65	0	1
191	0	1	1	1	80	0	1
192	1	1	20	7	200	1	0
193	0	0	0	0	55	0	1
194	0	1	5	2	60	0	1
195	0	0	0	0	60	0	1
196	1	1	25	1	80	0	1
197	0	0	3	0	70	0	1
198	0	0	24	0	70	0	1
199	1	1	26	1	100	1	1
200	0	1	1	0	60	0	1
201	1	1	19	1	200	1	0
202	1	1	14	1	150	0	0
203	1	1	22	2	200	0	0
204	0	0	10	0	70	0	1
205	0	1	1	0	250	0	1
206	1	0	19	2	70	1	0

207	1	1	23	5	180	1	0
208	0	0	1	0	45	0	1
209	1	1	25	5	200	1	0
210	1	0	26	7	120	1	0
211	1	0	28	15	80	0	0
212	0	0	19	4	80	0	1
213	0	1	3	0	60	0	1
214	0	1	0	0	110	0	1
215	1	1	27	6	250	1	0
216	0	0	0	3	50	0	1
217	1	1	25	6	400	1	0
218	1	1	19	6	200	0	1
219	1	1	19	3	200	1	0
220	1	0	30	1	150	0	1
221	0	1	2	1	60	0	1
222	1	1	20	3	180	1	0
223	1	0	16	2	90	1	0
224	1	1	25	5	210	1	0
225	0	0	12	0	50	0	1
226	0	0	2	0	50	0	1
227	1	1	22	6	150	0	0
228	0	0	1	2	60	0	1
229	1	0	20	1	130	0	1
230	0	0	1	0	70	0	1
231	1	1	22	10	200	1	0
232	1	1	26	5	180	1	0
233	0	0	7	2	60	0	1
234	1	1	19	5	100	1	1
235	1	0	18	6	150	1	0
236	1	1	19	6	250	1	0
237	0	0	0	3	50	0	1
238	1	1	27	4	100	1	0
239	1	0	24	6	100	0	1
240	1	1	20	5	300	0	1
241	1	1	17	3	100	0	0
242	0	0	4	0	40	0	0
243	0	0	5	1	100	0	1
244	1	1	22	3	150	1	0
245	0	0	1	0	60	0	1
246	1	0	16	7	200	0	1
247	0	1	1	0	70	0	1
248	1	0	35	8	150	1	0
249	1	0	26	2	100	1	0
250	0	0	3	0	70	0	1

251	0	1	2	0	60	0	1
252	0	0	2	0	70	0	1
253	1	0	29	11	300	1	0
254	0	0	4	0	50	0	1
255	0	0	1	0	65	0	1
256	1	0	25	5	1300	1	0
257	1	0	19	2	100	0	1
258	1	1	26	5	900	1	0
259	0	0	2	1	65	0	1
260	0	0	0	0	60	0	1
261	1	1	23	1	180	0	1
262	1	0	18	2	120	0	1
263	0	1	13	0	65	0	1
264	1	1	25	3	150	1	0
265	0	0	1	0	80	0	1
266	1	0	26	1	200	0	1
267	0	1	3	0	30	0	1
268	1	1	19	10	400	1	0
269	1	0	28	4	200	1	0
270	1	1	29	8	350	0	0
271	0	1	1	0	100	0	1
272	1	1	40	1	65	0	1
273	1	1	19	4	100	0	1
274	1	0	0	0	90	0	1
275	1	1	29	5	1300	1	0
276	1	0	18	2	60	0	0
277	0	1	2	2	120	0	1
278	1	1	25	4	180	0	0
279	0	0	2	0	60	0	1
280	1	1	16	2	90	1	0
281	1	1	22	1	100	0	1
282	1	0	19	9	100	0	1
283	0	1	4	1	80	0	1
284	1	1	26	7	200	1	0
285	0	0	0	0	55	0	1
286	0	1	4	2	60	0	1
287	0	0	0	0	60	0	1
288	1	1	26	1	80	0	1
289	0	0	2	0	70	0	1
290	0	0	12	0	70	0	1
291	1	1	17	1	100	1	1
292	0	1	1	0	60	0	1
293	0	0	0	0	60	0	0
294	0	0	0	0	50	0	1

295	1	1	19	1	100	0	1
296	1	1	25	3	250	1	1
297	1	1	18	2	120	1	1
298	1	1	19	6	250	1	0
299	0	0	12	3	50	0	1
300	1	1	17	4	100	1	0
301	1	0	24	6	100	0	1
302	1	1	30	5	300	0	1
303	1	0	26	3	180	1	0
304	1	1	28	4	150	1	1
305	0	0	0	2	80	0	1
306	1	1	24	5	180	1	0
307	1	0	29	6	150	1	1
308	1	1	21	7	160	1	1
309	1	1	45	7	250	1	1
310	1	1	26	1	200	0	1
311	1	1	30	10	200	1	0
312	1	1	39	2	180	1	1
313	1	1	15	8	120	0	1
314	1	1	13	2	150	1	1
315	1	1	22	1	40	1	1
316	1	1	20	3	300	1	1
317	1	0	13	0	80	0	1
318	1	0	26	2	100	0	1
319	1	0	25	2	70	1	1
320	0	0	0	0	70	0	1
321	0	1	0	0	250	0	1
322	1	0	29	2	70	1	0
323	1	1	23	5	180	1	0
324	0	0	20	0	45	0	1
325	1	1	25	5	200	1	0
326	1	0	28	8	110	0	0
327	1	1	19	2	100	1	0
328	1	1	24	6	150	1	0
329	0	0	2	0	80	0	1
330	0	1	0	0	70	0	1
331	1	1	22	5	120	1	1
332	1	1	27	6	150	0	1
333	0	0	4	1	100	0	1
334	1	0	26	8	140	1	0
335	1	1	34	6	90	1	0
336	1	1	19	4	200	1	1
337	1	0	17	1	100	0	1
338	0	1	18	0	80	0	1

339	0	0	3	0	65	0	1
340	1	1	27	3	90	1	0
341	0	1	4	1	70	0	1
342	1	1	24	4	160	1	0
343	0	0	6	2	800	0	1
344	1	1	19	3	60	1	0
345	0	1	2	0	60	0	1
346	1	1	26	5	150	1	0
347	1	1	25	5	160	1	0
348	0	1	3	0	70	0	1
349	1	1	23	2	500	1	0
350	1	0	19	0	200	0	1
351	1	1	26	4	100	1	1
352	0	0	1	0	100	0	0
353	1	0	8	1	100	1	1
354	1	1	19	0	120	1	1
355	1	0	15	1	150	0	1
356	0	0	0	0	40	0	1
357	0	0	3	0	45	0	1
358	1	1	25	2	90	1	0
359	1	1	20	1	150	0	1
360	0	0	4	1	70	0	1
361	1	1	25	1	100	1	1
362	1	1	30	4	150	0	0
363	1	0	19	0	90	0	1
364	1	0	24	0	90	0	1
365	0	1	1	1	80	0	1
366	1	1	14	4	100	1	0
367	0	0	2	0	50	0	1
368	1	1	18	5	200	1	0
369	1	0	16	1	100	0	1
370	1	0	22	2	100	0	0
371	1	0	16	0	100	0	1
372	1	1	17	3	120	1	1
373	0	1	3	0	60	0	1
374	1	1	10	2	100	1	1
375	0	0	5	0	70	0	1
376	1	1	26	5	100	1	0

Appendix C

Summary

Command used in Stata13 , summarize

```
. summarize
```

Variable	Obs	Mean	Std. Dev.	Min	Max
y	376	.6569149	.4753722	0	1
gndr	376	.5824468	.4938128	0	1
frnds	376	15.81117	11.20995	0	50
fam	376	2.912234	2.836008	0	15
incm	376	146.6356	187.7713	30	2500
smkn	376	.3803191	.4861121	0	1
rlgn	376	.6595745	.4744837	0	1

Appendix D
Multicollinearity

Command used in Stata 13, corr gndr frnds fam incm smkn rlgn

```
. corr gndr frnds fam incm smkn rlgn
(obs=376)
```

	gndr	frnds	fam	incm	smkn	rlgn
gndr	1.0000					
frnds	0.3258	1.0000				
fam	0.2480	0.5579	1.0000			
incm	0.1556	0.2349	0.2474	1.0000		
smkn	0.3300	0.5075	0.3821	0.1993	1.0000	
rlgn	-0.2213	-0.4112	-0.3592	-0.2634	-0.5240	1.0000

Appendix E
Heteroskedasticity

Command used in Stata, .hettest

```
. hettest
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
      Ho: Constant variance
      Variables: fitted values of y

      chi2(1)   =   7.34
      Prob > chi2 =   0.0067

Appendix F
Probit regression

Command used in Stata probit y gndr frnds fam incm smkn rlgn, vce (robust)

```
. probit y gndr frnds fam incm smkn rlgn, vce (robust)

Iteration 0:   log pseudolikelihood =  -241.7908
Iteration 1:   log pseudolikelihood = -44.261753
Iteration 2:   log pseudolikelihood = -36.490892
Iteration 3:   log pseudolikelihood = -31.008757
Iteration 4:   log pseudolikelihood = -30.870008
Iteration 5:   log pseudolikelihood = -30.869259
Iteration 6:   log pseudolikelihood = -30.869259
```

Probit regression				Number of obs	=	376
				Wald chi2(6)	=	59.79
				Prob > chi2	=	0.0000
Log pseudolikelihood = -30.869259				Pseudo R2	=	0.8723

y	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
gndr	.1190888	.3018647	0.39	0.693	-.4725551	.7107327
frnds	.1960084	.0294031	6.67	0.000	.1383793	.2536375
fam	.1506564	.065426	2.30	0.021	.0224239	.278889
incm	.0019161	.0016189	1.18	0.237	-.0012569	.005089
smkn	2.046108	.502248	4.07	0.000	1.06172	3.030496
rlgn	-.9278406	.3355409	-2.77	0.006	-1.585489	-.2701926
_cons	-2.054299	.4237222	-4.85	0.000	-2.884779	-1.223818

Appendix G
Marginal Effects

Command used in Stata .mfx

```
. mfx

Marginal effects after probit
      y  = Pr(y) (predict)
         =   .9772547
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
gndr*	.0065672	.01658	0.40	0.692	-.025922	.039057	.582447
frnds	.0105808	.00517	2.05	0.041	.000448	.020713	15.8112
fam	.0081326	.00543	1.50	0.134	-.002516	.018781	2.91223
incm	.0001034	.0001	1.08	0.281	-.000085	.000292	146.636
smkn*	.1103283	.04036	2.73	0.006	.031216	.18944	.380319
rlgn*	-.0415689	.02209	-1.88	0.060	-.084861	.001723	.659574

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Match Overview

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