

# [The evolution of the consumption patterns of the mauritian population](https://assignbuster.com/the-evolution-of-the-consumption-patterns-of-the-mauritian-population/)

This chapter provides an overview of the evolution of the consumption patterns of the Mauritian population. Next, it justifies the reasons for undertaking this research; the core of which is based upon representing the population as an inescapable ‘ victim’ of VAT. An outline of the research objectives of this study is also listed. And the subsequent section centers on the obvious negative effect of a VAT increase on the consumer.

## 1. 2 THE MAURITIAN POPULATION

The population for Island of Mauritius as at 31 December 2010 stood at 1, 283, 415 (Central Statistical Office, 2011). At the time of its independence, Mauritius suffered from high unemployment and a low standard of living but since the early 1980s, Mauritius has witnessed rapid economic growth.

This growth has concomitantly lead to an increase in disposable income for the average Mauritian, resulting in fundamental changes in consumption patterns. Along with economic growth, demographic patterns and changing lifestyles have also triggered changes in consumption.

Following these changes, Mauritius has experienced a general improvement in living standards over the past two decades and the 1. 2 million residents of Mauritius now have the standard of living of a middle-income developing country.

## 1. 3 RATIONALE OF THE PROJECT

Compared to income tax which is allocated to a group of working people, all consumers alike pay VAT on most goods and services they buy. This means that VAT is almost unavoidable and such a policy has considerable impact on the consumer buying patterns.

It is therefore essential to take note of the general consumption patterns of individuals with regards to VAT. Alas, little research has been carried out on this subject matter. But my endeavor is to make this study a threshold in the research of this field. ///Via regular market observation, I have spotted what appears to be a new opportunity in the marketplace. This concerns the buying behaviour of individuals and the likely impact of VAT on their consumption patterns. To investigate on this issue, I have chosen this subject to “ get your feet wet,” as the saying goes.

Consumption expenditure represent a better indicator of a taxpayer’s well being than does income.

http://books. google. mu/books? id= EslVtUiBKPYC&pg= PA226&dq= define+consumption&hl= en&ei= vLBGTZfSFsak8QP\_wuylCQ&sa= X&oi= book\_result&ct= result&resnum= 6&ved= 0CEAQ6AEwBTgU#v= onepage&q= define%20consumption&f= false

The complete lack of any such relationship – including its total lack among the three major countries highlighted in the charts (Japan, with no VAT or retail sales taxes in 1986 had the highest saving rate of any OECD country except Luxembourg) – indicates that a VAT is not an effective way to stimulate saving.

## RESEARCH OBJECTIVES

Once the need for research has been identified, the research objective has been formulated to funnel the research process.

The main objective of the proposed study is:

To determine the extent to which VAT impact on buying patterns of consumers

## PROBLEM STATEMENT

A problem statement is a concise description of variables that are known to be the potential causes of the problem. One of the key variables for this study is Inflation. It is viewed that there is a strong relationship between VAT and inflation because an increase in VAT rate will lead to high prices.

Rising prices for commodities are haunting the world economy but people in developing countries are being hit hardest. Since Mauritius is heavily dependent of imports, it is very vulnerable to external price shocks. ut people in developing countries are being hit hardest. In Mauritius, consumers are painfully and powerlessly containing the wrath of price hikes but that could become serious. Countries like Tunisia, Egypt or Algeria are experiencing riots, caused in part by the increasing prices of food.

Consumption is very sensitive to price increases and since VAT is a tax on consumption, this research is being undertaken with the main purpose of assessing the impact of VAT on consumption patterns.

Following this persistent rise in price of goods and services, i. e inflation, significant pressure is placed on the individual’s income, thereby encroaching on the individual’s purchasing power. This means that there is lower quantity of goods available in the consumer’s basket of goods.

## CHAPTER BREAKDOWN

This project will comprise of 5 chapters namely:

## CHAPTER 1

Chapter 1 will provide an overview of the Mauritian population, with emphasis on the evolution of their consumption patterns. In the next section, the rationale behind undertaking research on the general consumption patterns of individuals with regards to VAT will be justified. The formulated research objectives for this study will also be included in Chapter 1 to serve as guideposts throughout the research process. Finally, variables that impact on consumption patterns will be identified.

## CHAPTER 2 – LITERATURE REVIEW

The Literature Review is a body of text that aims to review the critical points of current knowledge and or methodological approaches on the topic or issue to be investigated.

## PART 1 – TAXATION

Part 1 will introduce the essential role of taxation as the main instrument of fiscal policy. This will be followed by a review of the different types of tax policies in Mauritius. It will also consider how sales tax has been replaced by VAT.

## PART 2 – CONSUMPTION PATTERNS

Writings about the impact of VAT on buying patterns of consumers will be cited. Besides, the factors that influence the general consumption patterns of Mauritians will be examined. And as the literature progresses, some definitions of the key terms will be presented.

## CHAPTER 3 – METHODOLOGY

Methodology is a set of procedures and techniques used to collect, analyze and present information.

Chapter 3 will thus demonstrate how the threefold research design namely exploratory, descriptive and causal will be applied to this research. Hypotheses will be developed to test the relationship between variables. The questionnaire will be the main instrument to gather preliminary information from respondents. The secondary data will be obtained from journal articles, books, newspaper articles and government agencies.

Sampling will also be a key component of Chapter 3 as it will determine the sample size that will represent the population. The simple random sampling will be used to select elements of the population.

## CHAPTER 4 – ANALYSIS OF FINDINGS

For the purpose of analysis, completed questionnaires will be edited and the responses will be input into statistical software SPSS 13. 0 for processing. Results will be displayed in the form of charts and tabulations.

## CHAPTER 5 – RECOMMENDATIONS

The information obtained from the analysis will help to recommend actions that could be taken by government and individuals.

Now I shall proceed to Chapter 2 Part 1, which will focus on taxation.

## CHAPTER 2 – PART 1 – TAXATION

## INTRODUCTION

This chapter will introduce the essential role of taxation as the main instrument of fiscal policy. This will be followed by a review of the different types of tax policies in Mauritius – with focus on Value Added Tax (VAT). It will also consider the replacement of sales tax by VAT and will include goods that are either taxable, zero rated or exempted. Finally, the benefits and criticisms of VAT will be pointed out.

## TAXATION

Fiscal policy relates to the rate of taxation and the level of government spending (Nafziger, 2006 p. 465). Seligman define a tax as “ a compulsory contribution from a person to the government to defray the expenses incurred in the common interest of all, without reference to special benefit conferred” (Khanna and Jain, 2009 p. 379).

Revenues of the central government include taxes and other compulsory transfers imposed by central government units, property income derived from the ownership of assets, sales of goods and services, social contributions, interest, fines, penalties and forfeits and voluntary transfers received from nongovernment (IMF, 2009 p. 12). However, as specified by the World Bank (2007, p. 237), taxes represent the most important source of government revenue. This can be supported from figures of the Ministry of Finance (2010) which shows that Total Tax Revenue for the year 2010 amounts to around Rs 53, 3 billion.

## CLASSIFICATION OF TAXATION

In Mauritius, the Ministry of Finance (2010) has grouped revenues collected from taxes into (1) Income, profits and capital gains; (2) Property; (3) Goods and services; (4) International trade and transactions; (5) other taxes. The format for the classification of tax has been adapted as far as possible as required by the World Bank (2007, p. 237). A detailed list of revenue classification is provided at Annex…

There are two broad categories of taxation: direct and indirect taxes (McLeary, 1999 p. 54), upon which the various groups of taxes can be classified. According to Fernando (2009, p. 413), some examples of direct taxation include income tax, corporation tax (on companies’ profits), capital gains tax (on the profits of sales of certain assets) and wealth tax (on ownership or property or wealth). On the other hand, for Lipsey and Harbury (1992, p. 228), indirect taxes include VAT (on the value added on sales on goods and services), excise duties (on petrol, alcoholic drinks and tobacco) and customs duties (on imported goods).

## DIRECT TAXES

A direct tax is a tax levied directly on an individual or organisation (Anderton, 2006 p. 528).

In Mauritius, direct taxes fall under Taxes on Income, Profits and Gains, with the main items being:

Income Tax – Individuals

Income Tax – Companies & Corporate Bodies

Tax Deduction at Source

National Residential Property Tax (NRPT)

It is to be noted that in the Budget 2011 (p. 74), NRPT has been abolished. As announced by the Minister of Finance: “…I am abolishing the NRPT (National Residential Property Tax) with effect as from 1st January 2010.”

According Ng Ping Cheun, the current government would forgo some Rs 900 million by abolishing the NRPT (l’Express, 2010).

## INDIRECT TAXES

Indirect taxes are taxes levied on goods and services at production or at final sale and are thereby passed onto the final buyer through higher prices (Diulio, 1998 p. 24). The

United Nations (2005 p. xxiv) is on the same ground that indirect taxes increase the prices of the goods and services sold. As such, the Colwyn Committee Report (1927) acknowledged that the burden of taxation is borne as intended, i. e indirect taxes are borne by the consumer. Palacios et al (2008 p. 99) thus added that tax burden is measured by the decline in real purchasing power.

In Mauritius, items that are classified as indirect tax fall under Taxes on Goods and Services and International Trade and Transactions. This can be justified by Profeta and Scabrosetti (2010 p. 125), who stated that indirect taxes include taxes on goods and services and taxes on international trade and transactions.

From the perspective of economic efficiency, Wang [no date] claims that indirect taxation could be more preferable than direct taxation in raising revenue for governments. Hickey acknowledged the increasing importance that indirect taxes seem to be playing in the revenue-gathering strategies of many countries around the world (KPMG Corporate and Indirect Tax Rate Survey 2007).

Similarly, the indirect taxation system in Mauritius plays the dominant role of raising Government revenue. This can be supported by figures from the table … It can be observed that Taxes on Goods and Services constitute the main source of revenue (approximately Rs 33. 6 billion – of which revenue from VAT amounts to 20, 75 billion rupees for the year 2010).

## VALUE ADDED TAX (VAT)

VAT is a tax on goods and services (Board of Investment, 2010 p. 10). The amount of tax paid is added to the cost of the item (Scott, 2003). In Schenk and Oldman (2007 p. 23) view, VAT is used to describe a type of multistage sales tax that is collected in chunks at each stage of production and distribution or the rendition of services in proportion to the value added by each tax paying firm. VAT is different from the sales tax in that it is

collected at every stage of production and distribution, not just at the point of final sale (OECD, 2007).

VAT was introduced in Mauritius as from September 7, 1998 in replacement to the sales tax on goods (Ministry of Finance, IMF 2001 p. 56). The enabling law being the Value Added Tax Act 1998 (Price Waterhouse Coopers, 2007 p. 1), and the rate of VAT charged at 10 per cent. On 1 July 2001, the standard rate was raised to 12%, and then, as of 7 January 2002, to 15% (Encyclopedia of the Nations, 2007).

Subject to the Value Added Tax Act (2010 p. 13), VAT shall be charged at the rate of 15% as specified in the Fourth Schedule. With the new tax policy, Mauritius will join the league of nations with the lowest tax rate and most fairly spread tax burden in the world (Sithanen, 2006 p. 3). See table of VAT rates.

However, as Wales and Reaich (2004) noted, an increase in VAT will raise prices so people cut consumption. Indeed, as reported by BBC (2010), recently VAT in UK has been increased in the coalition government’s first Budget with the standard rate rising from 17. 5% to 20%; meaning that many of the things will become more expensive.

## TAXABLE, ZERO RATED AND EXEMPTED GOODS

VAT shall be charged on any supply of goods or services made in Mauritius, where it is a taxable supply made by a taxable person in the course or furtherance of any business carried on by him. (Value Added Tax Act 2010). VAT applies to all supplies of goods and services except those that are specifically chargeable at the lower or zero rate, or are exempt from VAT (Coombs, 2009 p. 1).

Subject to the Value Added Tax Act (2010, p. 13), where the supply goods or services is zero-rated, no VAT shall be charged on the supply; and accordingly the rate at which VAT is treated as charged on the supply shall be nil. A supply of goods or services is zero-rated by virtue of this section if the goods or services are of a description specified in the Fifth Schedule. KPMG Corporate and Indirect Tax Rate Survey 2010 (p. 50) presents some of items on which the rate of 0 percent applies to, for example exports of goods, sugar, wheat flour, books, the supply of electricity, water, international transport of passengers and goods, and supplies of services to non-residents.

Subject to the Value Added Tax Act (2010), goods or services shall be exempted as specified in the First Schedule. Refer to Annex… for the list of goods exempted. Lessambo (2009 p. 35) listed certain goods and services are exempt from VAT: basic foodstuffs, medical supplies and services, education, rent of accommodation.

## SOME BENEFITS OF VAT

All governments raise taxes for public spending. As such Governments have become increasingly interested in recent years in using taxes on consumption, such as sales tax and value added tax (VAT) to finance a larger share of this spending (OECD, 2007) as VAT are very powerful revenue generators (IMF, 2000; Boyes and Melvin, 2008 p. 286).

VAT improves a country’s balance of trade since exported goods and services are zero rated. This would otherwise increase selling prices and reduce competitiveness in the world market as Cope (1988 p. 162) observed. Kumar (1993 p. 249) equally agrees that VAT encourages exports and helps a country to maintain the relative competitiveness of its industries in the world market.

VAT acts as built-in check on the tax evasion. Since in the case of a VAT, the tax is divided into several parts, depending on the stages of production, the possibility to evade tax by as firm is reduced (Chand, 2008 p. 134) as each firm reports to the government the inputs it bought (Walter, 1997 p. 233). Put in other words, tax charged by one firm is reported as a deduction by the firms buying from it. As such, VAT is likely to make firms more careful not to evade because VAT involves cross audit of the invoices (Jain et al, 2006 p. 36).

## SOME DRAWBACKS OF VAT

According to Crossley et al (2009), VAT is a regressive form of taxation – meaning that poorer households pay proportionately more in VAT than do richer households.

McGee (2007) argued that VAT is coercive as it involves the taking of property without the owner’s consent. In addition, the tax is hidden and the people who ultimately pay it do not know precisely how much the tax is.

VAT increases the price of commodities as VAT would raise prices by the amount of tax (Lindholm, 1971)

## CHAPTER 2 – PART II – CONSUMPTION PATTERNS

## INTRODUCTION

To introduce this chapter, consumption and consumption patterns have been defined to provide a clear understanding of the concept. The next section will explain how consumption falls due to the imposition of a tax, in particular VAT. This chapter will then present the basket of goods that reflects the general consumption pattern of households. Finally, factors influencing consumption will be raised.

## DEFINITION OF CONSUMPTION PATTERNS

Boulanger [no date, p. 2] defined consumption as any activity involving the selection, purchase, use and disposition of goods and services by individuals and groups to meet one or several needs or aspirations. He added that the definition is a synthesis of Common and Stagl (2005) definition of consumption as “ the use by human individuals of goods and services to satisfy some of their needs and wants…” and Campbell (1995) one as “ any activity involving the selection, purchase, use, maintenance, repair and disposition of any product or service…” Turvey (2004) provide a similar definition where he defines consumption as an activity in which persons acting either individually or collectively, use goods and services to satisfy their needs and wants.

Bauler (2008) defines a consumption pattern as that aspect of a lifestyle that relates to the nature and amount of the different goods and service that the households consider as adequate for fulfilling their needs. Briefly stated, if a lifestyle can be defined as the manner of living that reflect a household’s values and attitudes, a consumption pattern is the relation to goods and services that characterize that lifestyle.

## VAT AND CONSUMPTION

In their book, Jain and Khanna (2009, p. 372) mentioned that “ classical economists believed that taxation system should not effect economic activities like consumption, production and distribution. As against this, modern economists believe that taxation system influences main economic activities like consumption, production and distribution by influencing aggregate demand and supply.” They concluded that “ taxes have a significant effect on consumption. Because of taxation, purchasing power of the tax payer goes down. There are two reasons for it (a) direct taxes lead to fall in disposable income because these are paid out of income, (b) indirect taxes result in rise in prices. Tax-payer can purchase less amount of goods with the same income eon account of rise in prices.”

The word consumption is inherent in the concept of VAT. As Plunkett (2008) affirmed, VAT generally applies to goods bought for consumption within a given country. In fact, as termed by Ghatak (2003, p. 135), VAT is regarded as consumption-based taxes. Similarly, the European Commission (2000, p. 13) defines this tax as ‘ a general consumption tax, which is directly proportional to the price of goods and services. And it is through the prices of goods and services that VAT is a burden for the end consumer as Sopkova and Spisiakova (2007) noted. Abed further advance that the tax burden of VAT falls mainly on consumption.

As Boex et al (2006, p. 139) claimed, “ VAT does of course raise the price of consumer goods”. VAT would raise prices by the amount of the tax (Lindholm, 1971) but as portrayed by the VAT Consultancy (2010), as the price of a good rises, a higher proportion of the price will be paid over in VAT. In this way, VAT impacts on consumption as Davies [no date] explains that a 20% rise in price results in a 10% reduction in consumption

. This means that there is lower quantity of goods available in the consumer’s basket of goods.

The basket is an important determinant because its composition reflects the general consumption pattern of all types of households. It includes all important items on which consumption expenditure is significant, i. e. accounting for around 0. 1% or more of total household consumption expenditure (CSO). The commodities in the basket are classified according to the UN COICOP (Classification of Consumption Expenditure according to Purpose) with 12 divisions, 43 groups and 84 classes.

Food & non alcoholic beverages

Alcoholic beverages & tobacco

Clothing & footwear

Housing , water, electricity, gas & other fuels

Furnishing, household equipment & routine household maintenance

Health

Transport

Communication

Recreation & culture

Education

Restaurants & hotels

Miscellaneous goods & services

The Consumer Price Index (CPI) then compares what this basket costs at a given period relative to a base period (where the cost of the CPI basket is assigned a value of 100). CPI measures the cost of living as an index of the price of a fixed basket of purchased goods and services in different time periods (Nordhaus, 1999).

The Consumer Price Index stood at 124. 4 in December 2010 (CSO), which means that there has been an increase of 24% in the cost of the basket since the base year. Moreover, the Consumer Price Index registered a net increase of 7. 2 points from December 2009 to December 2010. This is an indication that the cost of living has risen significantly due to the high prices of commodities that form the basket of goods.

The main reason for this increase in the CPI can be explained by the

higher food prices mainly vegetables, milk, meat, fruits, sugar, fish, cooking oil and a variety of other food products; cigarettes and alcoholic beverages; ready-made clothing and footwear; electricity; bus and taxi fares; motor vehicles; and gasolene and diesel.

Following the rising prices of these commodities, the rate of inflation is expected to rise – as revealed by the figures which show that the headline inflation rate was 2. 9% for year 2010 compared to 2. 5% for year 2009. The headline inflation rate is calculated by comparing the average level of prices during a twelve month period with the average level during the corresponding previous twelve-month period.

## FACTORS INFLUENCING CONSUMPTION

Brown (2006) identifies three basic categories of factors that influence the consumer’s purchase decisions; namely personal, psychological and social factors. According to him, psychological factors include motivation, perception, skills and knowledge, positions, personality; while personal factors are referred the ones unique for each consumer. Horská and Sparke (2007) categorize personal factors into age, sex, place of domicile, occupational and economic conditions, personality and self consciousness. Vysekalová (2004) classify situational factors as being the physical environment of the purchase place and time influences.

Various authors have identified general relationships between factors such as income, social class, etc.. with respect to consumption. For instance, there is a direct relationship between consumption and disposable income, i. e as disposable income increases, so does consumption (McEachern, 2009). Similarly, social class is another determining factor that influence consumption as it is the consumers in the poor and the middle classes who are expected to reduce consumption. Other authors have also identified the relationship between the commodities in the basket with personal factors. For instance, for the category food & non alcoholic beverages, Harris and Blisard found that elderly groups (65-74 and 75 and older) spent almost ten percent of average weekly income on food.

## CHAPTER 3 – METHODOLOGY

## INTRODUCTION

The methodology that will be used to collect, analyze and present information will derive from the research process. Chapter 3 will thus demonstrate how the threefold research design namely exploratory, descriptive and causal will be applied to this research. Hypotheses will be developed to test the relationship between variables. The questionnaire will be the main instrument to gather preliminary information from respondents. The secondary data will be obtained from journal articles, books, newspaper articles and government agencies. Sampling will also be a key component of Chapter 3 as it will determine the sample size that will represent the population.

## THE RESEARCH PROCESS

The research process of Walonick (1993) comprises of 6 stages:

## REPORTING THE RESULTS

## DATA ANALYSIS

## PROBLEM RECOGNITION AND DEFINITION

## CREATING THE RESEARCH DESIGN

## SAMPLING

## DATA COLLECTION

## 1. PROBLEM RECOGNITION AND DEFINITION

The most crucial stage of a research process is to define the problem. This research is being undertaken to determine the extent to which VAT impact on buying and consumption patterns of consumers.

VAT is a fundamental part of most goods and services consumers buy. In fact, VAT is regarded as consumption-based taxes; and for the most part, the consumer won’t see the tax; but they will feel the pain in the form of higher prices – as consumption is very sensitive to price increase.

In view of the persistent rise in price of goods and services i. e inflation, significant pressure is placed on an individual’s income. As such, the burden that VAT weights on individuals results in a decline in purchasing power thereby affecting consumption. VAT hits everyone equally, but it has the heaviest impact on the poor and the middle classes and it is the consumers in these brackets who are expected to reduce consumption.

## 2. CREATING THE RESEARCH DESIGN

Research designs fall into three categories (Tanner and Raymond, 2010):

Descriptive

A descriptive research designdescriptive research designA study that involves gathering hard numbers, often via surveys, to describe or measure a phenomenon so as to answer the questions of who, what, where, when, and how. involves gathering hard numbers, often via surveys, to describe or measure a phenomenon. For this study, a survey will be conducted in the scope to gather information on perceptions relating to buying behavior and consumption patterns of VAT related goods and services.

Exploratory

An exploratory research design is one that is carried out to gather preliminary information before doing more thorough research. It uses unstructured techniques to clarify the exact nature of the problem to be solved. An informal interview was conducted with two well known economists (Mr Eric Ng Ping Cheun and Mr Chandan Jankee), and the heads of the Institute for Consumer Protection and Association des Consommateurs de L’Ile Maurice (Mr Yousouf Jhugroo and Mr Jayen Chellum),

Causal

Causal research designcausal research designA type of research design that examines cause-and-effect relationships to allow researchers to answer “ what if” types of questions. examines cause-and-effect relationships – i. e how one variable affects another; for example how a rise in price can cause a reduction in consumption.

## Research Questions

How does VAT raise the price of a good or service?

How does VAT affect consumption?

Is VAT widening the poverty gap?

What are the factors influencing consumption?

## Hypothesis

A hypothesis can be defined as a tentative prediction or explanation of the relationship between two or more variables (Al-Riyami, 2008). The hypothesis that has been formulated for this study is based on the findings of the literature review whereby various authors have established a relationship between income and consumption.

H0 : There is no significant relationship between income and consumption of taxable

goods and services

H1 : There is a significant relationship between income and consumption of taxable

goods and services

The probability of relationship between variables will enable to accept or reject H0. The rule of thumb is to Accept H0 if P > 0. 05 and Reject H0 if P < 0. 05

## 3. SAMPLING

The IBS Center for Management Research presented the sampling process as consisting of 6 steps:

## Step 1: Defining the target population

The population of the Republic of Mauritius as at end of 2010 stood at 1, 283, 415 (CSO, 2011). The target population for this study concerns individuals of the age group of 20 years to 60 years and above, as they form the bulk of the population (the CSO reported that in 2010, the population aged 15-64 years and that aged 65 years and over comprised 71. 1% and 7. 3% respectively of the total population).

It has also been observed that those in this age group contribute substantially to taxes on consumption. As Willmore (2003 p. 2) cited “ the old age pensioner has throughout the years paid taxes on commodities he has consumed as everybody else has (Chadien, 1957). The total population in this age group totals to 895, 613 (see table annex…). Since the population is too large, it is difficult to attempt to survey all of its members. As such, a sample can be used to represent the population.

## Step 2: Specifying the sampling unit

Supermarkets where buyers will be interviewed form the sampling unit. The supermarkets chosen are well-known for their name (e. g Kaddy Plus) while others for their low prices (Lolo supermarket, Dream Price Supermarket). For geographical representativeness, supermarkets have been chosen in each district.

## Geographical district

## Supermarkets

Port Louis

Kaddy Plus

Pamplemousses

Lolo Supermarket

Riviere du Rempart

Moka

Black River

London Way

Savanne

Dream Price

Grand Port

Flacq

Winners

Plaine Wilhems

Value Maxx, Tang, Aberdeen

## Step 3: Selecting the Sampling Method

The sampling method used for this survey is by way of Stratified Random Sampling – where the population is divided into two stratas, namely age groups and gender.

Population by age group and gender

## Age

## Group

## Male

## Female

## No. of male in the sample

## No. of female in the sample

20 – 29

99, 958

97, 994

[99, 958/895, 613] x 108 = 12

30 – 39

99, 783

101, 880

40 – 49

97, 470

98, 171

50 – 59

77, 443

79, 951

60-64

23, 450

26, 639

65+

38, 216

54, 658

## Step 4: Determination of sample size

Martin and Bateson (1986) indicate that to a point, the more data collected the better, since statistical power is improved by increasing the sampl