The Effects of Hyperinflation on the Zimbabwean Construction Industry

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The data used in the compilation of this treatise was taken from both primary and secondary sources. The secondary sources used in this treatise, as well as the help acquired, have been duly acknowledged.

I certify that this treatise is my own work and that it has not been plagiarized or submitted to another university before.

_________________________  _________________________
Admire Moyo                 Date
DEDICATION

This treatise is dedicated to the Moyo and White families for their unending love and support.
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ABSTRACT

Less than two decades ago, Zimbabwe was a symbol for the rest of the world of what Africa could become (Dell, 2005). DiSilvio (2007) contends that independent Zimbabwe was an economic success on route to attaining status of the most “developed country” in Africa. Contrary to expectations, by 2003 the Zimbabwean economy was shrinking faster than any other economy in the world at 18% per year (Richardson, 2005). Reports indicate that the Zimbabwean economy is in crisis and has since been set back by more than 50 years (Matikinye, 2005). This phenomenon necessitated the need for an investigation to ascertain its cause in Zimbabwe. As a result, the research identifies and presents hyperinflation as the root cause of the crisis in Zimbabwe and illustrates the validity of this assertion with a focus on the Zimbabwean construction industry. As part of the research inquiry, a review of related literature was conducted. The literature review illustrated the generic effects of hyperinflation as well as the effects of this phenomenon in action in Zimbabwe. The literature study was followed by a questionnaire survey. The questionnaire was completed by 23 contractors and 7 clients from a census of contractors and clients in Zimbabwe. The questionnaire consisted of a number of variables, which the respondents were asked to rate vis-à-vis the effects of hyperinflation in the construction industry. In summary, the questionnaire sought to determine the causes of hyperinflation in Zimbabwe, its specific effects on the construction industry and how respondents thought the phenomenon could be mitigated so as to revive the Zimbabwean construction industry. The techniques of re-scaling, in conjunction with descriptive and inferential statistics, ranking and quadrant analysis were applied to the data. Results from these analyses revealed a high degree of agreement among respondents vis-à-vis the effects of hyperinflation on the Zimbabwean construction industry. The interpretation of the results further revealed that hyperinflation has undoubtedly led to the collapse of the Zimbabwean construction industry. In conclusion, the research, applying the interpretations of
the survey findings, prescribes a number of ways in which the Zimbabwean construction sector may be resurrected. Among the recommended prescriptions, there are a number of debatable issues that arise that the researcher proposes should be subject to future study.

**Keywords:** Effect, Hyperinflation, Construction Industry
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• In Chapter Two, various forms of literature are reviewed appertaining to the following areas of interest with regards to the research: Construction Industry, Inflation, Investors, Labour and Materials, and Fossil Fuels. Furthermore, pertinent issues relating to these subjects areas are dealt with under various sub-headings in a cascading approach.

• In Chapter Three, the methodology and general procedures used in the survey are explained. This includes data collection procedures; populations used; questionnaire design and the data analysis.

• In Chapter Four, the results of the survey are indicated and basic discussions of the findings conducted.

• Chapter Five contains the interpretations of the results.

• Chapter Six highlights a summary of the survey results and the conclusions reached.

• Recommendations for future research are also made.

• Thereafter the References and Appendixes in the form of the questionnaire, cover letter, reminder letter and sample size are presented.


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1.1 CHAPTER ONE

“To prohibit a great people, however, from making all that they can, of every part of their own produce, or from employing their stock and industry in the way that they judge most advantageous to themselves, is a manifest violation of the most sacred rights of mankind”, Smith as cited in Small (2000)

1.1.1 Introduction to the Problem and its Setting

All national administrations, despite having peculiar political identities, seek to achieve generic economic goals (Myers, 2004). Myers (2004) suggests that there are five dominant economic objectives, which are: a sustained rate of economic growth, price stability, full employment, a positive trade balance with foreign partners and effective protection of the environment. Of these objectives, economic growth is the most fundamental objective in the economic success of a nation (Myers, 2004). Oyediran (2006) however contends that price stability is the principal economic goal in any economy. Similarly Wood (2005) and Weber (2007) state that price stability is the overriding objective of monetary policy since its objective is to keep inflation low and stable. Cognisant of the apparent lack of consensus on which one goal is principal, it is evident that both goals are fundamental to the development of a nation. The following section of this chapter will give a brief overview of Zimbabwe’s position vis-à-vis the latter and former goals thereby identifying the problem and environmental setting.

1.1.2 The Zimbabwean Setting

Clemens and Moss (2005) state that economic growth is imperative if development is to be achieved. At the time of independence in 1980, Zimbabwe had a much more developed economy than most of its sub-Saharan counterparts (DiSilvio, 2007). At the time, Zimbabwe had an average growth rate of 4.3% per annum making the country the envy of sub-Saharan Africa during the so-called “Lost decade” of Africa (Dore, Hawkins, Kanyeze, Makina, Ndlela and Simpson, 2008). Dell (2005) concurs
and states that Zimbabwe had a vibrant and diversified economy at the time. Dell (2005) instructively states that “Zimbabwe was a land of great hope and optimism in Africa”. Coupled to these developments, Zimbabwe had the most developed capital market in all of Africa, second only to South Africa (DiSilvio, 2007). As such, Zimbabwe was a symbol for the rest of the world of what Africa could become (Dell, 2005). These achievements lead to the conclusion that independent Zimbabwe was a success (DiSilvio, 2007). As such, Zimbabwe was on the path of attaining status of the most “developed country” in Africa (DiSilvio, 2007).

Twenty years on since independence, and contrary to expectations, Chitauro (2000) declares that Zimbabwe is still a developing country. DiSilvio (2007) asserts that Zimbabwe is in effect experiencing a decline in development. Likewise, Coltard (2008) states that Zimbabwe’s economy has collapsed and is currently in a free fall. Dell (2005) gives a similar bleak overview of the economic state in Zimbabwe. An excerpt from Dell (2005) reads as follows:

“I know of no other example in the world of an economy that, in times of peace, has contracted so precipitously in the course of six years…a problem with deep, deep roots exists…”

Dore et al (2008) assent and state that Zimbabwe is in an economic conundrum, the roots of which are linked to the crash of the Zimbabwean dollar in 1997.

A quantitative analysis of the situation in Zimbabwe reveals that the real Gross Domestic Product (GDP) fell by almost 30% from 1997 to 2003 and continued to fall through 2004 and 2005 (Dell, 2005). The figure overleaf shows Zimbabwe’s real GDP growth (percentage) from 1995-2004.
A similar back-dated assessment in real terms (since the onset of the deepening economic crises) indicates that GDP in Zimbabwe has suffered a decline from 0% (1990 prices) downward to as much as -7.4% in 2000 and -10.4% in 2003, and averaging -5.9% thereafter (Dore et al, 2008).

Surprisingly, this turn of events in Zimbabwe is occurring when African countries are beginning to achieve reasonable growth rates (Dore et al, 2008). The figure overleaf validates this assertion by juxtaposing Zimbabwe’s GDP per capita against that of other African nations. An abridgment of these indicators shows how by 2003, the Zimbabwean economy was shrinking faster than any other economy in the world at 18% per year (Richardson, 2005). In the pro tem and vice versa Zimbabwe’s crisis has deepened to levels that have set the country back more than 50 years (Matikinye, 2005).
Deductive reasoning suggests that there is an economic problem in Zimbabwe. The research posits that the problem is that Zimbabwe, “once the jewel of Africa” (Richardson, 2005), is experiencing an economic crisis that is matted to one or more of the economic objectives specified by Myers (2004). As such, the research postulates that Zimbabwe is not achieving sustained economic growth that is set against a background of price instability, and this has ultimately led to the continual collapse of the economy as evidenced by the decline in GDP (quantitative data).

1.1.3 The Cause of Zimbabwe’s Problem

Copious reasons have been branded as being the latent cause of Zimbabwe’s economic collapse; some of the most popular reasons are listed below:

- According to President Mugabe, a number of droughts have led to Zimbabwe’s economic collapse (Richardson, 2005);

- President Mugabe’s policies are to blame for the economic collapse in Zimbabwe (Higgins, 2008);
Richardson (2005) states that disregard for the rule of law and property rights has led to Zimbabwe’s economic collapse;

The Zimbabwean government is to blame because of its economically catastrophic measures (Bloch, 2007), and

Erratic government policies are to blame for Zimbabwe’s economic collapse (Coltard, 2008).

Generally, the Zimbabwean government’s official position has been that any economic difficulties are a result of either drought or sabotage by its enemies (Clemens et al, 2005). Richardson (2005) states that the government has blamed the economic collapse on western conspiracies and racism. Similarly, on several occasions President Mugabe has stated that a stratagem against him by the West is responsible for Zimbabwe’s woes (Wines, 2007a). The Zimbabwe Reserve Bank governor, Gideon Gono (2009), however disagrees, and states that “Zimbabweans are preoccupied with the blame game”. Gono (2009) further suggests that “Zimbabweans are under a high level of mental imprisonment such that they can never pin responsibility or search for solutions to their troubles from within themselves but would rather point at others”. However and paradoxically, Gono (2009), as pressure for his removal has mounted following the collapse of the economy, has in turn blamed sanctions, banks, the Zimbabwe Stock Exchange, black-market currency dealers, as well as insurance companies for wreaking havoc on the economy (Nyarota, 2009a).

Mutambara, the Deputy Prime Minister of Zimbabwe, partially agrees with President Mugabe regarding the effect of sanctions in Zimbabwe but presents an altogether new, attention-grabbing, alternate origin of the sanctions. Mutambara (as cited in Nyarota, 2009b) argues that “the worst types of sanctions Zimbabweans have are sanctions the country imposes on its self”. Mutambara (as cited in Nyarota, 2009b) further states that these self-imposed sanctions are in the form of:
1. Corruption;

2. Misgovernance;

3. Fraudulent elections, and


Mutambara (as cited in Nyarota, 2009b) concludes that, “Zimbabweans have to remove those sanctions that they control and have imposed upon themselves as charity begins at home” in order for the country to reinvent itself again. Similarly, Gono (2009) states that as a nation, “Zimbabwe is vulnerable to many poisonous and divisive missiles and preoccupations, ranging from self-discouragement to self-pity; from hopelessness to self doubt…” The figure below shows Zimbabwe’s Annual GDP from 1980 to 2007 relative to the suggested causes of the problem as stated by President Mugabe and the Zimbabwean government. The data in the figure below is at odds with the views expressed by Mugabe and the government.

![Figure 1.2: Zimbabwe GDP versus Drought and Land Reform (Wilcox, 2008)](image)

Finance Minister Hebert Murerwa (2006) presents a surrogate view as to the cause of the problem in Zimbabwe. Murerwa (2006) states that, even though Zimbabwe faces a number of challenges such as:

- Corruption;
• Declining savings and investment;
• Inadequate foreign exchange - affecting import capacity;
• Erratic fuel supplies, and
• Interruptions to electricity supply.

Inflation remains Zimbabwe’s biggest challenge. Correspondingly, Gono (2005), states that no other variable has generated such widespread debate and controversy as inflation in Zimbabwe. As a result, even though numerous reasons have been accentuated as the potential cause of Zimbabwe’s problem, the Zimbabwean government in 2003 declared in a maiden Monetary Statement (and subsequent Budget statements) that inflation is the number one foe, the root cause of Zimbabwe’s crisis (Gono, 2005).

Wijewardena (2007) supports this line of thought and states that from an economic point of view, “inflation is the unrivalled public enemy number one”. Wijewardena (2007) argues that inflation is the highest ranked public enemy because inflation hurts everyone alike: bankers, businessmen, workers, consumers and so forth. Gono (2007) states that inflation in Zimbabwe is akin to an economic Human Immune-Deficiency Syndrome (HIV) pandemic, extending the severity and extent of Zimbabwe’s inflation (number one enemy). Hanke (2008a) further validates this assertion by stating that hyperinflation is the trademark of Zimbabwe’s economic collapse. According to Hanke (2008b), Zimbabwe now lies in second place in the world hyperinflation record books. The table overleaf indicates this ranking.
Table 1.0: Highest inflation rates in history

<table>
<thead>
<tr>
<th>Country</th>
<th>Month Inflation Peak</th>
<th>Peak Monthly Rate %</th>
<th>Equivalent Daily Rate %</th>
<th>Time required for prices to double</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>July 1946</td>
<td>13 quadrillion</td>
<td>195</td>
<td>15.6 hours</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>October 2008</td>
<td>80 billion</td>
<td>98</td>
<td>24.7 hours</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>January 1994</td>
<td>313 million</td>
<td>65</td>
<td>1.4 days</td>
</tr>
<tr>
<td>Germany</td>
<td>October 1923</td>
<td>29,500</td>
<td>21</td>
<td>3.7 days</td>
</tr>
<tr>
<td>Greece</td>
<td>November 1944</td>
<td>11,300</td>
<td>17</td>
<td>4.5 days</td>
</tr>
<tr>
<td>China</td>
<td>May 1949</td>
<td>4,210</td>
<td>13.4</td>
<td>5.6 days</td>
</tr>
</tbody>
</table>

Source: Hanke (2008c)

The invariable singling out of inflation, by the Zimbabwean government and its representatives, scholars and the greater social order, as the foremost and collective cause of Zimbabwe's economic collapse (characterised by a lack of economic growth) compared to other causes, such as those identified by Coltard (2008), Higgins (2008), Richardson (2005), Bloch (2007) and Mugabe as cited in Richardson (2005), lead to the conception of the research notion to investigate the “effects of hyperinflation in Zimbabwe”. The secondary motivation for investigating the “effects of hyperinflation in Zimbabwe” emanates from explanations presented by prominent depictions of price stability (identified earlier as a major economic objective). According to Akerlof, Dickens, and Perry (2000), ‘price stability’ is “inflation so low that it ceases to be a factor in influencing decisions”. Greenspan (as cited in Akerlof et al, 2000) concurs and states that price stability is a situation in which households and businesses in making their reserves and investment resolutions can safely ignore the possibility of continual, general price fluctuations. It follows therefore from these definitions that low inflation equates to price stability and, through deductive reasoning, the Zimbabwean government and its representatives, scholars and the public at large are blaming price instability (high inflation) for the country’s woes. These implications suggest, though not overtly, that there is a direct relationship between price stability (low inflation) and economic growth (vice versa). As such, from an economic perspective, an investigation is warranted to ascertain
Chapter One

whether such a relationship exists and if so whether it has indeed resulted in the current situation in Zimbabwe.

However, an investigation of these effects on the Zimbabwean economy as a whole is an impracticable task in scope given the time and resource constraints at hand. As such, there is a need to limit the investigation’s scope to one particular segment industry or subset of the economy in Zimbabwe in order to ensure manageability and comprehensive coverage of the critical investigation areas. The subset of the economy to be investigated is the Construction Industry. The section below explains why this particular industry was selected.

1.1.4 The Construction Industry

Solis-Fernandez (2006) states that the capacity of the construction industry is revealed in the use of different distinct resources and skill bases for different building types and different construction sectors (civil, building, industrial, manufacturing, housing, medical, etc.). Solis-Fernandez (2006) maintains that these construction sectors are in fact different ‘industries’. The construction sector should not be treated as an industry that has a demarcated boundary, specific technical skills or specific resources (Solis-Fernandez 2006). Myers (2004) agrees and states that there are many sectors associated with the construction industry. Myers (2004) also states that construction indirectly affects and supports activities in the financial, manufacturing, wholesale, retail, residential, and service sectors. The general philosophy that the construction industry is an all-encompassing, multi-faceted sector comprising a sample of various industries makes it an ideal model for studying the “effects of hyperinflation on the Zimbabwean Construction Industry” with the objective of applying the results of these effects on the greater economy. Numerous scholars reinforce this line of thought in diverse ways. Myers (2004) endorses this avowal by stating that there is a relationship between the level of construction activity and a country’s development. In this regard, according to Myers (2004) an investigation of the effects of inflation vis-à-vis construction is
representative of an investigation of the broader economy. Moreover, the vibrancy of
the construction sector is considered a good indicator of the ‘health status’ of a
nation or city’s economy (Mbiba and Ndubiwa, 2006). Similarly, the United Nations
Conference on Trade and Development (2009) suggests that the level of
infrastructure development is an indicator of the economic development in any
country.

Complementary to the above stated arguments, the Chartered Institute of Builders
(2008), states that edifice and economic progress are indissoluble. Construction
represents one of the largest economic sectors in any country and is relatively the
‘motor’ that drives the overall economy (Charted Institute of Builders, 2008: Myers,
2004). A.R. Khan (2008) also infers that the construction industry often impels
economic growth chiefly in developing countries (such as Zimbabwe). Finally, an
alternative consequential argument emanates from A.R. Khan (2008) who states that
construction has strong linkages with many economic activities and whatever
happens to the industry has direct or indirect spiral effects on other industries and
ultimately the wealth of a country.
1.5 Objectives

This research intends to address three issues, which are fundamental to the understanding of the collapse of the Zimbabwean construction industry and its ultimate resurrection. The first is to determine the cause of hyperinflation in Zimbabwe. The second is to investigate the relationship between hyperinflation and the collapse of the Zimbabwean construction industry. The third is to determine if hyperinflation is responsible for the collapse of the Zimbabwean construction industry.

1.6 Statement of the Problem

The study will investigate whether hyperinflation in Zimbabwe has led to the lack of a stable national currency accompanied by shortages of investors, labour, material and fossil fuel energy resources, which have led to the collapse of the construction industry.

1.7 Sub-Problems

Sub-problem 1:
Zimbabwe lacks a stable national currency.

Sub-problem 2:
Zimbabwe is experiencing hyperinflation.

Sub-problem 3:
Zimbabwe has a shortage of investors.

Sub-problem 4:
Zimbabwe has a shortage of labour.

Sub-problem 5:
The Zimbabwean construction industry is experiencing material and fossil fuel shortages.

Sub-Problem 6:
The Zimbabwean Construction Industry has collapsed.
1.8 Hypotheses

Hypothesis 1:
Hyperinflation has resulted in the lack of a stable national currency.

Hypothesis 2:
The unchecked money supply of Zimbabwean dollars is causing hyperinflation.

Hypothesis 3:
Hyperinflation has resulted in high interest rates leading to investor shortage.

Hypothesis 4:
Hyperinflation is forcing labour to emigrate.

Hypothesis 5:
Hyperinflation is causing foreign currency shortages leading to material and fossil fuel energy supply shortages.

Hypothesis 6:
Hyperinflation is the root cause of the Zimbabwean Construction Industry collapse.

1.8.1 Delimitation

- Data used will be from the late nineties to date.
- Only data with a bearing on the construction sector is used.
- Relevant data, which may contain political overtones, will be considered.
- The research target population consists of contractors and construction industry clients in Zimbabwe only.
- The study commenced at the peak of Zimbabwe’s hyperinflation and ended prior to the introduction of the South African Rand and United States dollar as legal tender (Kairiza, 2009). As such, the contents of the study, the recommendations and conclusions deduced apply to, and are limited to the hyperinflation era only.

1.8.2 Definition of Terms

- **Collapse**: A sudden, dramatic drop in economic activity, market prices, or condition (Lehmann, 2008).
• **Construction Industry**: This is an industry that consists of general building construction and general engineering construction (Bennet, 2003).

• **Deflation**: A sustained decrease in the general price level in an economy associated with a severe economic crisis (Noyer, 2009).

• **Economy**: Activities related to the production and distribution of goods and services in a particular geographic region (Myers, 2004).

• **Fiscal Deficit**: A process where the government’s expenditure exceeds its revenue (Harriott, 2000).

• **Fiat Money**: Money that is created out of nothing and without work that is used worldwide (Parks, 2002).

• **Foreign Direct Investment**: A long-term investment reflecting a lasting interest and control of an entity in one economy that is foreign to the direct investor (Viezzoli, 2006).

• **GDP**: The featured measure of an economy’s output (Gutierrez, Glassman, Landefeld and Marcuss, 2007). GDP gives information on the size of an economy, and indicates how it is performing (Callen, 2008).

• **Hyperinflation**: An extremely high rate of inflation, often exceeding several hundred or several thousand percent, that causes a country’s money to become practically worthless (Hanke, 2008a).

• **Inflation Dynamics**: The observation of the rate of inflation in the same economy over many years (Oyediran, 2006).

• **Multiplier**: Additional activity and employment in other industries resulting from increased production in a particular type of industry (Hack, 2005).

• **Real GDP**: The sum of private consumption, government consumption, private fixed investment, government fixed investment, increase in stock or inventory, exports of goods and services less imports of goods and services, and statistical discrepancies (Ra and Rhee, 2005).

• **Seignorage**: Government revenue earned from its monopoly to print money (Tödter and Manzke, 2007).
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- **Theory**: General principles of any science or field (Koskela, 2000).
- **Zimbabwe**: A landlocked developing country characterised by (United Nations Conference on Trade and development, 2009):
  1. A poor physical infrastructure;
  2. Weak institutional and productive capacities;
  3. Small domestic markets;
  4. Remoteness from world markets, and
  5. A high vulnerability to external shocks.

1.9 **Assumptions**

- *Ceteris paribus* is assumed where the relationship between price and quantity is observed throughout the research, that is, only the price of the good changes (not money income, the prices of other goods, the consumer’s preferences, etc), Mirowski and Hands (2006).

- Functional relationships are deterministic.

- Stakeholders in the construction sector, that is, contractors and clients are mainly profit driven.

- People, though motivated by an assortment of factors, are predominantly motivated by money as a means of exchange.

- People are the most critical asset of the construction industry.

- Zimbabwean contractors and construction clients (operating in Zimbabwe and selected regions of South Africa) are the major source of Zimbabwean construction industry data.

- The term “good” is deemed to have the same meaning as the term “service” where applicable.
1.9.1 The Importance of the Study

Research on inflation and its determinants in Zimbabwe has been limited (Kovanen, 2004). This research is therefore vital, as it seeks to add to this currently limited pool of knowledge.

Likewise, Zimbabwe is not developing. This indicates the existence of a crisis. A crisis can be solved by prospect or inevitability where a crisis after some time no longer appears to be a crisis, or by proficiency, that is by knowing the answer from previous experience, or by format, that is by knowing tools and skills to simplify the crisis (Martinez, 2008). Evidence suggests that the crisis in Zimbabwe is escalating with time, in the midst of Zimbabwe becoming the first country in the 21st century to hyper inflate and serving as a first rate case in point (Hanke, 2008d), indicating that the crisis may hardly be solved with time, prospect or inevitability. It is therefore imperative to undertake this study to enable the understanding of the crisis and perhaps foster the founding of tools or expertise to help solve the crisis in Zimbabwe and elsewhere where a similar crisis may develop. Such a scientific process will ensure the avoidance of seemingly illogical trial and error lines of thought that may prove costly and ineffective. Specious lines of thought may incite rather than suppress a crisis.

Inflation also results in distortions, slower business growth and loss of purchasing power of money, among other problems, in any economy, all of which are unrelated to any desirable economic goal (Mboweni, 2008). Zimbabwe will benefit the most from such a study if methods to mitigate the country’s inflation are established and the nation’s economic goals redirected to wealth creation and income distribution. In addition, the Southern African Development Community’s (SADC) main objectives are to achieve developmental and economic growth while alleviating poverty and enhancing the standard and quality of life of the people of the Southern African region (Mwanawasa, 2008). Dell (2005) indicates that the situation in Zimbabwe has
potential to harm the SADC region as the country is currently divorced from these objectives. It is important therefore to undertake a study so as to understand the cause of the problem and hence aid in the realignment of Zimbabwe’s objectives with those of SADC. Data suggests that inflation, which leads to hyperinflation, seems to be a chronic ill that at one point or the other affects all developing countries, particularly those in Africa. Countries such as Uganda, Angola, Malawi, Zambia and currently Zimbabwe have battled to keep inflation to single digit levels. A popular maxim denotes that prevention is better than cure, therefore this research is important for the countries in the SADC region that have so far managed to keep inflation levels to single or double digit levels to learn from Zimbabwe’s predicament, thereby affording these nations ample knowledge and foresight to guard against making the same mistakes that resulted in Zimbabwe’s hyperinflation.
2.1 THE REVIEW OF THE RELATED LITERATURE

“The difficulties and challenges facing the construction industry in developing countries are present alongside a general situation of economic stress...institutional weaknesses and a general inability to deal with the key issue; there is also evidence that the problems have become greater in extent and severity in recent years” (Ofori, 2001).

2.1.1 Introduction

The aim of this section is to examine the relevant literature regarding the structure, size, scope and importance of the construction industry and its significance to national economies, principally that of Zimbabwe. Moreover, the research draws on a variety of domains that probe into the milieu of construction economics with an emphasis on forecasting paradigms that provide input into determining consumer behaviour (contractors and clients) with regards to inflation. Other focal points include areas such as construction industry markets, construction goods, demand and supply of construction goods, and the quantity theory of money in opposition to the demand and supply affiliation. The section winds up with a synopsis of the Zimbabwean construction industry with regards to the aforementioned matters.

2.1.2 The Construction Industry

Construction is an activity that is concerned with building change (Solis-Fernandez, 2006). The construction industry makes its “change” through the production of projects (Marchini-Blancho, 2004). Broadly, the construction industry is a complex sector of any national economy, involving a broad range of stakeholders incorporating wide linkages with other areas of activity such as manufacturing and the use of materials, energy, finance, labour and equipment, Hillebrandt (as cited in A.R. Khan, 2008). By and large, the construction industry includes manufacturing of building products, equipment and components, and the various professional services provided by architects, surveyors, engineers and property managers (Myers, 2004).
On the other hand, Stern and Teljeur (2002) stipulate that construction consists of two elements, which are infrastructure and building. Stern and Teljeur (2002) contend that the former comprises of roads and bridges while the latter refers to residential and non-residential structures such as houses and offices. Altman and Mayer (2003) present a diverse line of reasoning and argue that there is no standard way of defining the construction industry; hence, it is more appropriate to refer to it as “construction and building”, where expenditure includes three categories that are:

- Construction, which comprises all infrastructure expenditure;
- Building which includes non-residential buildings such as shopping malls, office; buildings, manufacturing plants, and
- Residential buildings.

2.1.3 The Nature and Form of the Construction Industry

Construction is a multimillion-dollar (United States) industry worldwide, amounting to between 5 and 7% of GDP in most countries (Kenny, 2007). In addition, construction accounts for a significant part of global gross capital formation – a little under one-third, as such, the sector’s role in economic development is irrefutable more so since housing, roads, utility networks, schools and clinics are altogether built assets (Kenny, 2007). In developing countries, the construction sector can contribute as much as 20% to GDP because it accounts for a significant amount of investment during a country’s development as construction ensues; factories, offices, infrastructure and houses are required and construction yield as a percentage of GDP reaches a peak (Myers, 2004). The Chartered Institute of Builders (2008) state that from a fiscal view, construction is an important investment area since investment in the industry can boost an economy. Furthermore, the CIOB (2008), state that construction is also a good wealth transferring mechanism, transferring wealth from the rich to the poor. On the other hand, the construction industry plays an essential role in the socio-economic development of a country (A.R. Khan, 2008). A.R. Khan (2008) also states that the activities of the construction industry have
great significance to the achievement of national socio-economic development goals of providing:

- Infrastructure;
- Sanctuary and employment including hospitals, schools, townships, offices, houses, and
- Urban infrastructure (including water supply, sewerage, drainage); highways, roads, ports, railways, airports; power systems, irrigation and agriculture systems, and telecommunications.

Per se, the construction sector deals with all economic activities directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, and land improvements of an engineering nature (A.R. Khan, 2008). Supplementary to the aforementioned, construction also generates employment and incomes for people and therefore the effects of changes in the construction industry on the economy occur at all levels and affect all aspects of life (Chen, 1998). Ordinarily, any changes in an industry as large as construction have a momentous effect on the rest of the economy (Seely, 1997). To all intents and purposes, construction also acts as a regulator of the economy and has an important role in the development of productive capacities (Myers, 2004). Therefore on its own accord it is imperative for the construction industry to be nurtured for the healthy growth of the economy (A.R. Khan, 2008). A nurtured construction industry results in an increased volume of infrastructure stocks and an improved quality of infrastructure services that has a positive impact on long-run growth and a negative impact on income inequality (Calderon and Serven, 2008). Drewer (1997) corroborates with this assertion and states that there are measurable and predictable causal relationships between the main aggregates of construction activity and indicators of economic growth. It is also imperative to understand the fundamentals of construction delivery. Kashiwagi, Sullivan, Greenwood, Kovell, and Egbu (2007) state that construction delivery operates on a price-basis that is determined by demand and supply which in turn determine the multiplier effect.
2.1.4 The Multiplier Concept

Research has shown that the interdependence between the construction sector and other economic sectors is not static but changes as the nation’s economy grows and develops (Bon, as cited in A.R. Khan, 2008). A.R. Khan (2008) deduces that construction provides a growth impetus to other sectors through backward and forward linkages. As such, when economies grow, construction output grows at a faster rate vice versa (Hua, as cited in A.R. Khan, 2008). It follows that, in spite of the construction industry’s many traits, a number of authors on the subject constantly refer to the “multiplier effect” (CIOB, 2008; Myers 2004), a process that explains the link between construction and economic growth. A multiplier is the number by which an initial injection into an economy must be multiplied to find the eventual change in national income; mathematically it is the reciprocal of the marginal propensity to leak (Myers, 2004). Alternatively, multipliers refer to the level of additional economic activity generated by a source industry (Hack, 2005).

2.1.5 The Construction Industry Multiplier

The multiplier effect is the most fundamental construction industry trait (Myers, 2004). Plainly put, the construction industry multiplier is a process whereby more housing and construction investment leads to increases in job generation and sales for allied industries of the construction sector (Uys, 2006). In the same way, the multiplier effect may be used to pump-prime a nation whose expenditure is inadequate to maintain full employment. Generally, if government invests a certain amount in construction it is probable that this will cause expenditure and output to rise by the same amount leading to the need for more construction, which in turn provokes successive rounds of government expenditure (Myers, 2004). The multiplier effect indicates how, “a booming construction industry has spin-off effects on the larger economy as it fuels activity in many other sectors of the economy” (Adolwa, 2002:20).

So far the research has given a concise depiction of the construction industry, and the industry’s importance to any nation’s economy, coupled with a highlight of one of the construction industry’s fundamental characteristics (Multiplier Effect). The
following sections will attempt to give an insight into the activities that stimulate the construction cycle that gives rise to the aforementioned attributes of the construction industry following generic economics paradigms. In this regard, the next section starts off with a brief overview of the construction industry market.

2.1.6 The Market

There is no straightforward definition of a market (Girmscheid and Brockmann, 2003). A market is an economical (not physical) place of transactions where prices are formed through the interaction of supply and demand for a good (Cooke, as cited in Girmscheid et al, 2003). On the other hand, the industrial organization theory approaches the term market from a good’s perspective and as a result defines markets as a bundle of characteristics such as quality, location, time, availability, consumers’ information, etc. and then differentiates markets according to a limited subset of characteristics of these goods (Tirole, 2000). In the United States of America (USA), the 5% rule is used to determine the existence or non-existence of a market. In the USA, the supposition is that if all suppliers raise their prices for one good by 5% and then profits increase, there exists a market for this good (Girmscheid and Brockmann, 2003). A more pragmatic alternative for establishing the presence of a “market” is to look where consumers buy certain goods or where certain suppliers offer their goods (Girmscheid and Brockmann, 2003; Myers, 2004). It is worthwhile to note that the defining difference between markets is the degree of formality from one market to the next (Myers, 2004). In addition, the recurrent feature of any market is the exchange of information about factors such as prices and quantity among other factors (Myers, 2004).

2.1.7 The Construction Industry Market

The construction sector consists of a number of markets (Myers, 2004). Notably there are a number of building materials, housing and professional services markets in the industry (Myers, 2004). Vis-à-vis the homogeneity of the construction product, there
are suggestions, both \textit{a priori} and experientially that the markets predominantly satisfy the conditions for the perfectly competitive market (Runeson, 2000). The competitive market can be defined as “a process by which buyers and sellers in an attempt to pursue their own interests, try to outdo, outwit, outdistance, and outmanoeuvre other people, in the process market rivals are induced to reveal what, at the limit they are willing to do, not just what they would likely to do under the circumstances”, McKenzie and Tullock as cited in (Small, 2000:110). The following section looks at the relationships that exist within the market, such as the price-quantity and buyer-seller relationships while also indicating the various types of construction goods available within the market.

\section*{2.1.8 Relevance of Prices and Price Stability in Construction}

In a market a “good” is labelled as something of value that belongs to the person who produced it, since it leads to amplification in efficacy (Small, 2000). As such, the producer warrants a reward in the market relative to the contribution efficacy (Small, 2000). This is where prices factor in, as prices determine the value of the efficacy (Blanchette, 2005). As such, construction industry prices are a useful indicator of economic activity (Huyssteen, Heerden, Perkins, Gyimah, 2002). Poole and Wheelock (2007) assert that firm prices are mandatory for industry to realize sustained investment. This avowal relates to the construction industry as rising construction prices create uncertainty in the tender process, which leads to higher construction outlays, which inevitably lead to the deferment, or in some cases cessation of, construction projects (McMillan, 2007).

\section*{2.1.9 Pricing in the Construction Industry}

In the construction industry prices are estimated in advance (Runeson, 2000). The generic technique of obtaining prices for goods is the tender system (Runeson, 2000). As such, the cost of construction projects is inexact and cannot be known with any degree of certainty (Runeson, 2000). Runeson (2000) further speculates that the
difference between the tender price and the actual cost of projects (triggered by the
inexactness in pricing during tendering) has resulted in uncertainty in the
construction industry.

2.1.10 Construction Goods and Buyer-Seller Relationships

Construction goods are dissimilar to other goods (Ruddock, 2008). An exceptional
case in point of this aspect is that construction goods are both *ex-ante* and *ex-post*
intangible (Ruddock, 2008). The table below shows a summary of these good types.
With regards to buyer-seller relationships, Ehrbar (2002) asserts that buyers and
sellers transact only to further individual interests. In a similar manner, construction
industry players guided by price markers sell performance potential (in the form of
inexact prices) in the market, for individual benefit (Girmscheid and Brockmann,
2003).

**Table 2.1.0: Construction Goods**

<table>
<thead>
<tr>
<th>Type of Quality</th>
<th>Type of Goods</th>
<th>Contract Goods</th>
<th>Contract Goods</th>
<th>Contract Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex-ante Search</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ex-post Search</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Experience</td>
<td>Maybe</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Credence</td>
<td>Maybe</td>
<td>Maybe</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Construction Industry Example</td>
<td>Ready-Mixed Concrete</td>
<td>Relationship Contracting</td>
<td>Buildings and Infrastructure</td>
<td>Project Management</td>
</tr>
</tbody>
</table>

*Source: Ruddock (2008)*
The construction industry is also peculiar in that the buyer is never certain about what they want to purchase (Williamson, as cited in Girmscheid and Brockmann, 2003). Turin as cited in Myers (2004), in harmony with Williamson, states that the construction industry buyer-seller relationships are based on “as if” assumptions. “It is ‘as if’ the client knew what he wanted when he instructed the building from a designer; it is “as if” the designer was in a position to advise the client on the best value for money he could obtain in the market…”

2.1.11 Theory of Demand

Myers (2004) states that the ability to make profits precedes construction demand. As such, construction activity stems from derived demand (Myers, 2004). The rationale of demand theory is to give an explanation to client market behaviour in general (Mirowski et al, 2006). Demand is the quantity of a good or service that clients are willing and able to purchase during a specified period under a given set of conditions (Dash, 2004). There exists a basic functional relationship between quantity \( q_i \) and price \( p_i \) of good \( i \) defined by \( q_i = D(p_i) \) where \( D \) is the demand for good \( i \) (Mirowski et al, 2006). On the other hand, the multifaceted demand function contains a number of variables besides the price of good \( i \) as follows:

\[
Qx = f(Px, Ax, Dx, Ox, Ic, Yc, Tc, Ec, Py, Ay, Dy, Oy, G, N, W)
\]

Where:
- \( Qx \): Quantity demanded of product X, per period
- \( Px \): Price of product x
- \( Ax \): Advertising expenditures for product x
- \( Dx \): Design/style/quality-cost of product x
- \( Ox \): Outlets, Distribution
- \( Ic \): Incomes of consumers or customers or clientele
- \( Yc \): Consumer expenditures on related goods
- \( Tc \): Tastes
- \( Ec \): Expectations of consumers regarding future prices
- \( Py \): Prices related goods
- \( Ay \): Advertising/promotion of related goods
- \( Dy \): Design or styles of related goods
- \( Oy \): Outlets of related goods
- \( G \): Government policy
- \( N \): Number of people in the economy
- \( W \): Weather conditions

Source: Dash (2004)
The demand function is essentially the result of a client choosing the most preferred good that maximizes benefit subject to income limitations (Mirowski et al, 2006). Mirowski et al (2006) contend that alterations to the price of a good result in a somewhat comparable alteration in the set of goods the consumer can pay for. Simply put, when the price of the good changes, the individual recalculates the optimal quantity of goods they can purchase for the new price (Mirowski et al, 2006). This, very concisely, is the theory of demand. As such, the construction industry circuitously adheres to the theory of demand amid the conjecture that buildings are not constructed, repaired, rented or altered because they give satisfaction, but rather because they can be used to produce goods that can be sold at a profit (Myers, 2004).

2.1.12 The Law of Demand

Clients derive contentment as a result of consuming a good (White, Yasin and Choundry, 2009). White et al (2009) assert that as prices rise the contentment falls, therefore consumption falls as prices rise and vice versa (White et al, 2009). Following this line of thought the law of demand states that “At higher prices, a lower quantity will be demanded than at lower prices (and vice versa), ceteris paribus” (Myers, 2004:15).

2.1.13 Theory of Supply

Converse to the theory of demand, the theory of supply states that as sellers want to maximize profits, a higher price would encourage existing suppliers to expand output due to more profit per unit earned (White et al, 2009). A rise in price in turn attracts more firms into the industry whereas a lower price causes existing firms to leave the industry or to contract production of their goods due to lower profit per unit (White et al, 2009). The table overleaf shows the typical parties involved in the supply of construction goods.
Table 2.1.1: Parties traditionally supplying a Construction Project

<table>
<thead>
<tr>
<th>Parties involved in supply</th>
<th>Type of goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architects and Designers</td>
<td>Provide specialist advice concerning specialist services</td>
</tr>
<tr>
<td>Project Managers</td>
<td>Liaises between the client and the project team</td>
</tr>
<tr>
<td>Cost Consultants</td>
<td>Prepares Bills of quantities, cost plans, etc.</td>
</tr>
<tr>
<td>Main Contractor</td>
<td>Manages work on site</td>
</tr>
<tr>
<td>Sub Contractor</td>
<td>Supplies specialist skills</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Provide building materials and related components</td>
</tr>
</tbody>
</table>


2.1.14 The Role of Money in Demand and Supply

With regards to the subject of demand and supply theory, a number of authors insinuate that demand has to be effective, that is it has to be backed by money to occur (Adams and Periton, 2006). Ajuzie, Edoho, Kang, Uwakonye and Keleta (2008) concur and state that any form of trade depends upon money. Money as it were is a social convention in two respects, that is:

- Money is an abstract unit that establishes ideal prices for commodities, and
- Money is a practical means of exchange that approximates ideal prices as closely as possible (Lapavitsas, 2008).

Markedly, currency, the means by which prices are set, similar to construction goods, is subject to supply and demand (Basmann, Buchanan, Maasoumi and Slottje, 2005). This indicates that there is a market for goods as well as money (Barnes and Noble, 2009).

2.1.15 The Quantity Theory of Money, and the Demand and Supply Interlink

A common variable between the theories of demand and supply, and that of the quantity theory of money (QTM), is the price variable. Comparable to the theories of demand and supply, the quantity theory of money states that the quantity
demanded; in this instance the good “money” is determined by the price level (Barnes et al, 2009). If the price level is high and goods cost a significant amount of money, consumers will demand more money (Barnes et al, 2009). If, on the other hand, the price level is low and goods tend to cost less money, consumers will demand less money (Barnes et al, 2009). The figure below illustrates the value, quantity of money and price level relationship (Barnes et al, 2009).

![Figure 2.1.0: Value and Quantity of Money versus Price Relationship (Barnes et al, 2009)](image)

**Figure 2.1.0:** Value and Quantity of Money versus Price Relationship (Barnes et al, 2009)

The illustration above provided by Barnes et al (2009) indicates that when price levels are high, the quantity of money available is also high and the value of the money is low and vice versa. Scientifically put, the quantity theory of money (QTM) asserts that aggregate prices \( P \) and total money supply \( M \) are related according to the equation \( P = VM/Y \), where \( Y \) is real output and \( V \) is velocity of money (Wen, 2006). In conclusion, incorporating the theories of demand and supply with that of the quantity theory of money, it would suffice to infer that when price levels are high, the quantity of goods demanded is low, while the quantity of money available increases and its value decreases vice versa.
2.1.16 Applicability of Economic Theory in Construction

According to Koskela (2000), economic theory addresses two goals of science:

- Explanation, and
- Prediction.

Vis-à-vis the construction industry, Runeson (2000) provides empirical evidence that suggests that economic theory applies to the industry. Runeson (2000) further postulates that these theoretical frameworks explain what would normally seem unexplainable in the industry. Having concisely illustrated the workings of the construction industry, the following section will attempt to give a brief diagnosis of the Zimbabwean construction industry relative to these concepts discussed beforehand. The section will touch on:

- The importance of the Zimbabwean construction industry;
- The multiplier effect in Zimbabwe, and
- Demand and supply in the Zimbabwean construction industry.

2.1.17 Overview of the Zimbabwean Construction Industry

Gombera and Okoroh (1999) report that little is known of the Zimbabwean construction industry even though it has the second largest stock market investment in Africa, second only to South Africa. Three of the top five performing listed equities on the Zimbabwe Stock Exchange are construction companies (Mat Construct, 2005). The Zimbabwean construction industry is linked with building and allied industries such as cement, glass, steel, timber, asbestos, bricks and many others (Gombera et al, 1999). Mat Construct (2005) states that Zimbabwe has a well-established construction sector with most of the skills and resources required to undertake large-scale construction projects. As such, it is no surprise that the Zimbabwean construction industry represents the biggest institution of fixed capital (Gombera et al, 1999).
Major construction employers in Zimbabwe include contractors such as International Holdings, Costain, John Sisk and Sons and Gulliver Consolidated, while there is also a surfeit of informal contractors operating as sole agents (Mbiba et al, 2006).

**2.1.18 Importance of the Zimbabwean Construction Industry**

At the time of writing, Gombera et al (1999) reported that the construction industry in Zimbabwe employed more than 150,000 people who in turn had 1.3 million dependents. In addition, the construction industry is a contributor to the country's GDP (Gombera et al, 1999). The figure below shows that in 2002 the Zimbabwean construction industry contributed 3% toward GDP.

**Figure 2.1.1:** GDP by Sector (African Economic Outlook, 2004)

According to Gombera et al (1999), the Zimbabwean construction sector also helped to address Zimbabwe's unfavourable balance of payments.

**2.1.19 Major Limitations of the Zimbabwean Construction Industry**

Zimbabwe has limited financial resources available to complete its building infrastructure and strategic projects such as bridges, motorways, airports, and power stations and so foreign funds are required for such major capital investments (Gombera et al, 1999).
2.1.20 Current Demand and Supply of Construction Activity in Zimbabwe

Currently, the Zimbabwean construction industry is characterized by a lack of construction projects (Mbiba et al, 2006). Building plan values (approved) and projects completed over time are good measures of construction activity (Huyssteen, et al, 2002). In Zimbabwe these indicators reveal that the construction sector has collapsed (Mbiba et al, 2006). In addition, and as further evidence of the lack of construction projects in Zimbabwe, the government recently announced that millions of people in the country needed homes due to a lack of housing infrastructure (Bevege, 2009). Similar to major construction projects in infrastructure and housing, there has also been a decline in Zimbabwe’s office and industrial property markets (Chikwanda, 2007).

2.1.21 The Zimbabwean Construction Sector Crises

Contrary to Mbiba et al (2006) and Bevege (2009), Mat Construct (2005) contends that there is an acceptable amount of construction activity in Zimbabwe because of the bilateral agreements that exist between Zimbabwe and China, suggesting that there is no crisis. However, Mbiba et al (2006) argue otherwise and provide empirical evidence to that effect. Mbiba et al (2006) determine that major construction projects have indeed dried up leading to a switch towards minor repairs and alterations work, which, in a way, may explain the interpretation rendered by Mat Construct (2005). The figure overleaf is indicative of a collapsed sector; the figure shows negative sectoral real growth for the construction industry.
2.1.22 The Basis of the Zimbabwean Construction Sector Crises

Investors are withdrawing from investing in construction projects because of high inflation (Chikwanda, 2007). Nyanhi (2004) concurs and states that high inflation rates have negatively affected the construction of buildings. Tödter et al (2007) provide a metaphor that explains how inflation accomplishes this process: when placed in the sun, a cube of ice simply melts away. Tödter et al (2007) contend that inflation has a similar effect on the value of money and savings as the sun does on a cube of ice – it simply melts it away. Moving the ice cube into the shadow, like moderate and even low inflation, just slows the melting process whereas price stability freezes the value of money indefinitely (Tödter et al, 2007). As a result, it is not surprising that reports indicate that Zimbabwe’s infrastructure has collapsed because of inflation.

2.1.23 Impact of inflation on the Zimbabwean Construction Sector

It is challenging to build in an inflationary environment (Mutasa, 2005). This is because inflation primarily results in high costs of building materials such as cement, building sand, quarry stones, timber, roofing material, glass, iron and steel, plumbing and bricks (Gono, 2005). Because of this process, inflation restricts various construction industry capacities thereby leading to a reduction or collapse in construction activity from the bottom-up (Gono, 2005). Zimbabwe is currently
Chapter Two

experiencing this problem and as a result there is an evident decline in construction activity (Mbiba et al, 2006). Inflation in Zimbabwe is so dire that a loaf of bread costs many times more than an entire house cost a year or two ago (Rampell, 2008). The Joina Centre in Harare is a good case in point (Mutasa, 2005). The twenty-storey skyscraper project began at an initial cost of Z$1.1 billion but due to inflationary pressures ended up costing as much as Z$500 billion. The table below illustrates the incessant construction cost increases in Zimbabwe from 1995 to 2004 (Mbiba et al, 2006).

Table 2.1.2: Construction (Building) Cost Increases, 1995-2004 (Z$/M2)

<table>
<thead>
<tr>
<th>Year</th>
<th>Standard House</th>
<th>Standard Factory</th>
<th>Standard Office Block</th>
<th>Arithmetic Mean</th>
<th>Index 1995=100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2300</td>
<td>1300</td>
<td>2500</td>
<td>2033</td>
<td>100</td>
</tr>
<tr>
<td>1996</td>
<td>2650</td>
<td>1675</td>
<td>3000</td>
<td>2442</td>
<td>120</td>
</tr>
<tr>
<td>1997</td>
<td>3530</td>
<td>2270</td>
<td>4720</td>
<td>3507</td>
<td>172</td>
</tr>
<tr>
<td>1998</td>
<td>4950</td>
<td>3190</td>
<td>6620</td>
<td>4920</td>
<td>242</td>
</tr>
<tr>
<td>1999</td>
<td>8915</td>
<td>5760</td>
<td>12040</td>
<td>8905</td>
<td>438</td>
</tr>
<tr>
<td>2000</td>
<td>17025</td>
<td>10978</td>
<td>17275</td>
<td>15093</td>
<td>742</td>
</tr>
<tr>
<td>Mid-2001</td>
<td>29200</td>
<td>18000</td>
<td>30950</td>
<td>26050</td>
<td>1281</td>
</tr>
<tr>
<td>Mid-2002</td>
<td>56000</td>
<td>34000</td>
<td>59350</td>
<td>49783</td>
<td>2448</td>
</tr>
<tr>
<td>Mid-2003</td>
<td>800000</td>
<td>550000</td>
<td>750000</td>
<td>700000</td>
<td>34426</td>
</tr>
<tr>
<td>Feb 2004</td>
<td>1750000</td>
<td>1200000</td>
<td>1650000</td>
<td>1533333</td>
<td>75410</td>
</tr>
</tbody>
</table>


2.1.24 Inflation Consequence in Zimbabwe

Coupled to its impact on the cost of building, inflation has also resulted in increased transportation (to and from work) and operational costs in Zimbabwe, forcing many construction workers and their respective companies to stop operating (Mbiba et al, 2006). In order to survive, construction firms and construction workers have turned to neighbouring countries for work (Mbiba et al, 2006). Inflation has thus led to an exodus of construction firms and employees (Mbiba et al, 2006). Mat Construct (2005) acknowledges this assertion and suggests that Zimbabwean firms are obtaining contracts in the SADC region as a hedge against domestic hardships caused by inflation. Similarly, inflation has resulted in the exodus of highly qualified bricklayers, artisans, carpenters and so forth to other countries in the region, notably
Mozambique, South Africa and Botswana, leading to a skills shortage at home (Mbiba et al, 2006). Some ill-fated construction companies have even had to shut down (Mbiba et al, 2006). In conclusion, the South African Migration Project (2007) predicts that the Zimbabwean construction industry has collapsed because of inflation.

2.1.25 Summary

This chapter so far has documented the origins of the construction industry cycle as well as the importance of the industry and its goods to the national economy. In addition, the section illustrated how price interacts with demand, supply and the value of money relative to construction goods. It then proceeded to associate these observations to the Zimbabwean construction industry thereby revealing that construction prices in Zimbabwe are high, accompanied by low demand and supply for construction goods backed by a valueless currency as per the predictions of the economic paradigms discussed. The literature indicates that inflation is responsible for the high prices that have resulted in the collapse of the Zimbabwean construction industry since inflation results in incessant price increases that reduce demand for construction goods whilst increasing the amount of money demanded whilst simultaneously lowering its value. Although this evidence at face value seems irrefutable, it has been contested by some. As such, the following section will seek to elucidate on inflation and its primary results in a broader context.
2.2 INFLATION

“If there is anything in the world which ought to be stable it is money, the measure of everything which enters the channels of trade. What confusion would there not be in a state where weights and measures frequently changed? On what basis and with what assurance would one person deal with another, and which nations would come deal with people who lived in such disorder?” Francois LeBlanc as cited in Tödter et al, (2007)

2.2.1 Introduction

This section aims to identify the origin of inflation and its comparative hyperinflation. It documents the familiar effects that these two variables produce in detail. Considering the Quantity Theory of Money, the research will assess how inflation distorts prices, hence demand and supply as predicted in Section 2.1. In addition, the section will juxtapose Zimbabwe’s inflation relative to the optimal rate of inflation. Finally, it will depict the origins, effects, as well as the consequences of Zimbabwe’s hyperinflation as per the observations of various scholars that have commented on the subject matter.

2.2.2 Inflation Demystified

An immense number of nations in Africa have been inundated by high and persistent inflation (Krois, 2002). Inflation is essentially an economic ailment (Kannadhasan, 2004). Other commentators state that inflation is a very complex set of phenomena, which is difficult to define in precise terms (Oyediran, 2006). West Coast Asset Management (2009) dubs inflation as an “all-purpose bogeyman” that in small amounts comes with a healthy growing economy. Tödter et al (2007) define inflation in relation to its effects on money by stating that money is the yardstick with which economic transactions are measured and inflation is a factor that changes that yardstick and undermines the value of money.
Other scholars perceive inflation as a symptom of disequilibrium or an excess of demand over supply (Oyediran, 2006). On the other hand Valge (2006) states that inflation is a result of a lack of consensus on the part of society or government on fundamental issues. West (2000) defines inflation as a reduction in the purchasing power of a unit of currency, while Barnes et al (2009) state that inflation is an increase in the price level. Kannadhasan (2004) concurs and states that everyone is familiar with the term ‘inflation’ as rising prices which means the same thing as a fall in the value of money. Correspondingly, Gono (2005) states that inflation is the rate of growth of the general price levels of goods and services in an economy within a given period of time. Coleman (2007) however argues that defining inflation as the general increase in prices is wrong, as this is an effect of inflation rather than a definition of inflation. As such, Coleman (2007) defines inflation as the reduction of the value of money that must take place if an increase in money supply is demanded. On a similar note, Krois (2002) states that inflation is an expansion of the money supply brought about by easy money policies.

2.2.3 Inflation Thresholds

Analogous to ‘inflation’ there are no precise quantitative definitions that exist for ‘high inflation’, ‘hyperinflation’ or ‘chronic inflation’ (Krois, 2002). For the purposes of this study, ‘high inflation’ denotes average annual inflation rates above 40% (Hamann, 2001). Similarly, hyperinflation is defined as monthly inflation in excess of 50% (Krois, 2002). The term ‘chronic inflation’ which denotes high and persistent inflation, without providing an exact quantification of that inflation amount is understood to label countries which have been characterized by annual inflation rates in excess of the two-digit level for at least one decade (Krois, 2002). The term ‘moderate inflation’ denotes inflation rates which are high by industrial countries’ standards, but which remain below 25% (Krois, 2002).
2.2.4 Inflation Consensus

There is a general consensus among the public, economists and policymakers that inflation is bad for the economy (Billi and Kahn, 2008). Galland and Casey (2008a) however state that “inflation” covers two different concepts which ought to be kept separate. Galland and Casey (2008a) contend that these concepts are monetary inflation and price inflation respectively, whereby:

- Monetary inflation is when the supply of money increases faster than the supply of goods, increasing prices and lowering demand and the value of money, and
- Price inflation is an increase in the overall level of prices for goods which has a similar effect to monetary inflation.

The former and latter concept definitions of inflation astutely embody the inferences of the quantity theory of money and demand and supply interlink discussed in the previous section. These concept definitions further divulge that a change in the rate of money growth induces an equal change in the inflation rate (Wen, 2006). This particular inflation phenomenon prompted acclaimed economist Milton Friedman (as cited in Wen, 2006) to assert that inflation is forever ubiquitously a monetary occurrence.

2.2.5 Inflation Measurement

Palmer and Faseku as cited in Oyediran (2006) have pointed out that there are three general indexes to measure the extent of inflation in any economy. These are:

- The implicit price index (IPI) or the GDP deflator;
- The wholesale price index (WIPE), and
- The consumer price index (CPI).

Zimbabwe uses the consumer price index to calculate inflation (Gono, 2005). The Consumer Price Index (CPI) captures the rate of price change for goods consumed (Harriott, 2000). Gono (2005) reveals that the Central Statistics Office of Zimbabwe (CSO) specifically uses the Laspeyres index presented overleaf to measure inflation:
Laspeyres Index = \( \frac{\sum P^i Q^i}{\sum P^o Q^o} \times 100 \)

Where
- \( P^i \) = Price in the current year
- \( P^o \) = Price in the base year
- \( Q^o \) = quantities sold in the base year

### 2.2.6 Optimal Inflation Rate

The optimal inflation rate is defined as the inflation rate that maximizes the economic well-being of the public (Todd, 2008). Tödter et al (2007), states that there is no unique optimal rate of inflation. Pragmatism however dictates that in order to recognize changes in relative prices without being confused by changes in the overall price level, the optimal inflation rate ought to be zero (Koniczny as cited in Tödter et al., 2007). Poole et al (2007), in harmony, intimate that in line with other measures, the ideal rate of inflation should be near or equal to zero. Billi et al (2008) however contend that there should be a bit of positive inflation that is above zero so that firms can reduce real wages when it is necessary to maintain employment. Policymakers generally agree that the optimal inflation rate should be above zero to ensure nominal interest rates do not fall to zero (Todd, 2008). Todd (2008) argues that once nominal interest rates fall to zero, policymakers cannot lower them further and as a result, at this point, the conventional tool of monetary policy for stabilizing the economy becomes ineffective in addressing an economic downturn should one occur, signifying the possibility of inflation becoming even more volatile. As such, Billi et al (2008) state that negative or falling inflation rates (deflation) are more adverse compared to similar positive or rising inflation rates.

### 2.2.7 Why inflation should be low

Inflation normally brings in several irreparable damages to an economy (Wijewardena, 2007). This section exhibits these damages that merit the need to keep inflation low and borrows extensively from the work of Billi et al (2008), Tödter et al (2007) and Poole et al (2007).
According to Billi et al (2008), inflation should be kept low merely because it is costly. Tödter et al (2007) itemize the costs of inflation into the following categories:

- Nominal government institutional costs;
- Nominal private institutional and habit costs;
- Unanticipated inflation costs through nominal contracts;
- Uncertainty of future inflation costs, and
- Government attempts to suppress inflation costs.

Amalgamating the above stated categories, Tödter et al (2007) state that if contracts for goods are fixed in monetary terms as is often the case in construction, unanticipated inflation leads to arbitrary redistributions between buyers and sellers and debtors and creditors. Effectively unanticipated inflation leads to relative price distortions that undermine the efficiency of the market pricing mechanism (Billi et al, 2008). As a result, it is not uncommon for situations to arise in which inflation works in reverse of the market mechanism, benefiting debtors while hurting creditors by decreasing the nominal value of outstanding debt, and discouraging savings and investment by creating uncertainty about future prices (Billi et al, 2008).

In contrast, Poole et al (2007) state that when inflation is low, people do not waste resources attempting to protect themselves from inflation but rather save and invest with confidence. High inflation creates uncertainty, shortens nominal contracts and increases the reluctance to make future commitments, thereby increasing transaction costs (Tödter et al, 2007). Wijewardena (2007) states that this type of short-term commitment behaviour on the part of people causes the economy concerned to collapse on itself due to a lack of long term contracts. As a result policymakers through their policies want to keep inflation low (Billi et al, 2008).
2.2.8 The Broader Effects of Inflation

Billi et al. (2008) state that one of the worst effects of inflation is that it increases taxation by artificially increasing incomes and profits. Kovanen (2004) concurs and states that inflation distorts resource allocation and complicates economic management. As such, inflation undermines productive investment and reduces productivity and growth (Kovanen, 2004). At this juncture an economy subjected to inflation will react poorly to the air of uncertainty and confusion, further hindering economic growth (West, 2000). Hanke (2008e) further states that besides untold economic damage, inflation causes misery and suffering to a nation’s citizens. Billi et al. (2008) concur and state that inflation reduces the standards of living. Oyediran (2006) itemizes the effects of inflation as:

- Fall in purchasing power;
- Fall in aggregate output;
- Fall in the value of money;
- Fall in exports;
- Fall in the exchange rate;
- Increase in foreign debt burden, and
- Abandonment of currency.

In the same manner, Wijewardena (2007) states that the major effects of inflation are:

- The erosion of the confidence of people in the domestic currency, and
- The loss of control by governments of national money, which inevitably results in the failure to use monetary policy to curb further inflation hikes or the effects thereof.

Valge (2006), states that in severe circumstances inflation can result in a collapse in democracy.
2.2.9 General Causes of Inflation

Oyediran (2006) documents the causes of inflation as:

- An accelerated rate of growth which is greater than the required or planned rate of growth;
- Governments trying to absorb more resources than that released by the economy at the existing price level;
- Groups of participants (Employers, Traders, Business merchants etc) in an economy scaling up their incomes, thereby increasing prices of the goods offered (to match higher incomes) without increasing production.

Contrary to Oyediran’s (2006) one-dimensional approach, Venezie and Schmidt (2007), contend that there are two major causes of inflation. They suggest that excessive money supply growths, as well as excessive demand, are the two primary causes of inflation. Developing these assertions further, Venezie et al (2007) state that excessive money supply causes prices to rise prompting the value of the money that an economy is printing and circulating to grow larger than the value of the goods it is producing. As such, the result of this process is that the surplus currency devalues, resulting in inflation (Venezie et al, 2007). In basic terms, there will be too much money chasing too few goods (Venezie et al, 2007). The alternative school of thought suggests that inflation occurs when overall demand is greater than the economy’s ability to satisfy this demand, thereby creating a shortage in supply which causes prices to rise (Venezie et al, 2007).

2.2.10 The Creation of Inflation by Government

Punungwe (2009) states that no government can ever be a staunch devotee to its people because every government relies on taxing the same people for income that is supposed to benefit the people. As a result, innumerable scholars posit that inflation is similar to sin because every government condemns it, yet every government practises it (Sir Frederick Keith-Ross as cited in Makochekanwa, 2007). Krois (2002) vehemently claims that the attainment of government debt by means of newly printed
money is effectively the sole cause of inflation in developing countries such as Zimbabwe. West (2000) concurs and states that since governments control currencies, it follows that they create inflation. McMahon (2008) states that this sequence of events occurs when government increases the money supply via the printing press faster than the quantity of goods available. According to Harriott (2000), this process inevitably leads to inflation because it represents an increase in money balances without a corresponding increase in the quantity of goods in the economy, that is more money chasing the same amount of goods as detailed previously. Krois (2002) resolves that inflation is the result of “weak” governments who simply print more money in an effort to finance their expenditure. Dem, Mihailovici and Gao (2001) assent to this assertion of “weak” governments causing inflation but determine that the inflation process occurs in a different manner to that identified by Krois (2002), McMahon (2008) and Harriott (2000).

Dem et al (2001), state that weak governments create inflation via seignorage-finance whereby governments try to pacify different forms of the population with grants in order to build up political bases. This indicates that even the feeblest governments can enforce inflation when it can enforce nothing else (Keynes as cited in Makochekanwa, 2007). West Coast Asset Management (2009) state that governments can continue in this vein of idiocy (printing money incessantly) for a short period of time as inflation progressively debases the national currency, leading to financial collapse. This assertion applies to the Zimbabwean context; Gono (2005) states that excessive money supply growth is a major cause of inflation in Zimbabwe. According to Gono (2005), money supply growth in Zimbabwe emanates from the actions of the government to the extent of their borrowing from the banking system. This process has resulted in inflation in Zimbabwe.

2.2.11 Hyperinflation

There is modest controversy about the role of monetary factors in explaining every one of the reported incidents of hyperinflation (Siklos, 2000). The causes of
hyperinflation are theoretically the same as those of inflation; the difference is solely
the magnitudes of some of the variable causes; the causes of hyperinflation are more
severe than in the case of normal inflation (Makochekanwa, 2007). Similarly, Siklos
(2000) states that all of the various theories of inflation and hyperinflation have one
thing in common, namely assigning their contiguous cause to movements in money
supply.

Hyperinflation is an uncommon occurrence which only occurs when the supply of
money has been governed by unrestricted paper money principles (Hanke, 2008f).
Hanke (2008g) states that no hyperinflation has ever been recorded when money has
been goods-based or when paper money has been convertible into a good. Dem et al
(2001) concur and state that hyperinflation is preceded by major increases in money
supply mostly where fiat currency systems are utilised. Williams (2008) also confirms
that hyperinflation occurs if the printed currency is a fiat currency by nature.

Much like its comparative inflation, Keeton (2009) states that hyperinflation is
generated by government.

2.2.12 Factors that Lead to Excessive Money Printing

Keeton (2009) asserts there are a number of reasons that cause a government to
print excessive volumes of money. Keeton (2009) argues that among other
considerations, external factors such as the collapse of a critical good price, where
one industry contributes a significant part of government revenue may lead to
government printing more currency to offset the fallout of the collapsed good price.
Alternatively, a rise in international interest rates or a lack of further access to
foreign credit because of debt default by government may entice government to print
more money to fund expenditure. Siklos (2000) states that governments that find
themselves needing to print money suspend borrowing limits from their central banks
and instead turn the bank into a printing mill. As more money is printed, inflation
accelerates, and the fiscal authorities print more money to try to stay ahead of
Chapter Two

inflation and inflationary expectations (Siklos, 2000). Siklos (2000) also contends that this process only raises inflation further. Inevitably, “hyperinflation”, or rather inflation that has gone amok, is created (West Coat Asset Management, 2009).

2.2.13 Zimbabwe’s’ Inflation Dynamics

Amnesty International (2007) reports that Zimbabwe is currently experiencing severe hyperinflation which virtually translates to daily increases in the prices of goods. Zimbabwe’s inflation soared from about 20% in December 1997 to a peak of 623% in January 2004 (Muñoz, 2006). McIndoe (2009) states that Zimbabwe has experienced inflation rates above 100% annually since 2001 rising to over 1,500% annually in 2006. According to Coorey, Clausen, Funke, Muñoz, and Ould-Abdallah (2007), Zimbabwe currently has the highest rate of inflation in the world. Makochekanwa (2007) concurs and states that Zimbabwe’s’ inflation figures are currently the highest in the world with rates currently above 1,000%. According to Hanke (2008a), in 2008 inflation in Zimbabwe was a staggering 165,000% year-on-year. In early June 2008, inflation stood at about 2.5 million percent per annum (Hanke, 2008a).

Ostensibly, Zimbabwe’s inflation is well over the 50% monthly threshold for qualifying as hyperinflation (Hanke, 2000b). As a result, Hanke (2008b) reports that Zimbabwe has entered the misery of hyperinflation. Hanke (2008e) developed the Hanke Hyperinflation Index for Zimbabwe (HHIZ) presented on page 45 to quantify the depth and breadth of the crisis in Zimbabwe. Hanke (2008e) developed this metric using market-based price data and it is presented in the table overleaf (page 46) which indicates that as of 14 November 2008, Zimbabwe’s annual inflation rate was 89.7 Sextillion \((10^{21})\) percent. In the subsequent months following this publication, the annual inflation rate of Zimbabwe rose to 6.5 quindecillion novemdecillion percent that is 65 followed by 107 zeros (Ali- Dinar, 2009).
2.2.14 Overview of Hyperinflation in Zimbabwe

Zimbabwe’s hyperinflation is destroying the economy, pushing more of its inhabitants into poverty, and forcing millions of Zimbabweans to emigrate (Hanke, 2008a). Marwizi (2005) states that hyperinflation has reduced the ability of the economy to function properly. Keeton (2009) suggests that the collapse of Zimbabwe has been more prominent than other nations that have experienced similar hyperinflation episodes. According to Gono (2005), inflation in Zimbabwe has resulted in the erosion of purchasing power of incomes. Hanke (2008a) concurs and states that hyperinflation has robbed people and financial institutions of their savings and capital respectively. Gono (2005) adds that inflation in Zimbabwe has also resulted in widespread uncertainty hindering business planning. In addition, Gono (2005) reports that inflation has also resulted in the following:

- Tentative activities, which re-route goods from productive activities;
- A strain on the country’s foreign exchange due to increased import demand;
- Low worker-drive, which has affected productivity, quality and the supply of goods;
- Suppressed economic growth.

Murerwa (2006) concurs and states that inflation has mainly resulted in the undermining of day-to-day business activity, while also eroding the purchasing power of the Zimbabwean currency. In the same vein, Coorey et al (2007) state that hyperinflation has resulted in the contraction of the Zimbabwean economy. Rosenthal (2008) states that inflation in Zimbabwe has become so severe that the nation’s citizens have been plunged into a Darwinian struggle to survive. “Many citizens have been reduced to hoboes and vagabonds, and black-market dealers, a result of one of the greatest hyperinflations in the world” (Rosenthal, 2008).
## Table 2.2.0: Hanke Hyperinflation Index for Zimbabwe (HHIZ)

<table>
<thead>
<tr>
<th>Date</th>
<th>Index</th>
<th>Monthly Rate</th>
<th>Annual Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Jan-07</td>
<td>1.00</td>
<td>13.7%</td>
<td></td>
</tr>
<tr>
<td>2-Feb-07</td>
<td>1.78</td>
<td>77.6%</td>
<td></td>
</tr>
<tr>
<td>2-Mar-07</td>
<td>3.14</td>
<td>76.7%</td>
<td></td>
</tr>
<tr>
<td>5-Apr-07</td>
<td>6.90</td>
<td>56.2%</td>
<td></td>
</tr>
<tr>
<td>4-May-07</td>
<td>6.75</td>
<td>-2.15%</td>
<td></td>
</tr>
<tr>
<td>1-Jun-07</td>
<td>20.70</td>
<td>207%</td>
<td></td>
</tr>
<tr>
<td>6-Jul-07</td>
<td>53.00</td>
<td>60.4%</td>
<td></td>
</tr>
<tr>
<td>3-Aug-07</td>
<td>49.10</td>
<td>-7.29%</td>
<td></td>
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<tr>
<td>7-Sep-07</td>
<td>82.50</td>
<td>70.6%</td>
<td></td>
</tr>
<tr>
<td>5-Oct-07</td>
<td>219.00</td>
<td>165%</td>
<td></td>
</tr>
<tr>
<td>2-Nov-07</td>
<td>642.00</td>
<td>193%</td>
<td></td>
</tr>
<tr>
<td>28-Dec-07</td>
<td>2,010.00</td>
<td>61.5%</td>
<td>215,000%</td>
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<tr>
<td>25-Jan-08</td>
<td>2,250.00</td>
<td>11.8%</td>
<td></td>
</tr>
<tr>
<td>29-Feb-08</td>
<td>8,260.00</td>
<td>259%</td>
<td></td>
</tr>
<tr>
<td>28-Mar-08</td>
<td>17,700.00</td>
<td>115%</td>
<td></td>
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<tr>
<td>25-Apr-08</td>
<td>57,100.00</td>
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<tr>
<td>30-May-08</td>
<td>442,000.00</td>
<td>498%</td>
<td></td>
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<tr>
<td>26-Jun-08</td>
<td>23,600,000.00</td>
<td>5,250%</td>
<td>41,400,000%</td>
</tr>
<tr>
<td>4-Jul-08</td>
<td>49,200,000.00</td>
<td>3,740%</td>
<td>93,000,000%</td>
</tr>
<tr>
<td>11-Jul-08</td>
<td>81,800,000.00</td>
<td>2,080%</td>
<td>167,000,000%</td>
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<tr>
<td>18-Jul-08</td>
<td>122,000,000.00</td>
<td>1,030%</td>
<td>250,000,000%</td>
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<td>157,000,000.00</td>
<td>566%</td>
<td>317,000,000%</td>
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<td>6,330,000,000.00</td>
<td>3,190%</td>
<td>9,690,000,000%</td>
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<tr>
<td>26-Sep-08</td>
<td>794,000,000,000.00</td>
<td>12,400%</td>
<td>471,000,000,000%</td>
</tr>
<tr>
<td>3-Oct-08</td>
<td>3,570,000,000,000.00</td>
<td>15,400%</td>
<td>1,630,000,000,000%</td>
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<tr>
<td>10-Oct-08</td>
<td>32,300,000,000,000.00</td>
<td>45,900%</td>
<td>11,600,000,000,000%</td>
</tr>
<tr>
<td>17-Oct-08</td>
<td>1,070,000,000,000,000.00</td>
<td>493,000%</td>
<td>300,000,000,000,000%</td>
</tr>
<tr>
<td>24-Oct-08</td>
<td>124,000,000,000,000,000.00</td>
<td>15,600,000%</td>
<td>26,100,000,000,000,000%</td>
</tr>
<tr>
<td>31-Oct-08</td>
<td>24,600,000,000,000,000,000.00</td>
<td>690,000,000%</td>
<td>3,840,000,000,000,000,000%</td>
</tr>
<tr>
<td>7-Nov-08</td>
<td>4,890,000,000,000,000,000,000.00</td>
<td>15,200,000,000%</td>
<td>593,000,000,000,000,000,000%</td>
</tr>
<tr>
<td>14-Nov-08</td>
<td>853,000,000,000,000,000,000,000,000.00</td>
<td>79,600,000,000%</td>
<td>89,700,000,000,000,000,000,000%</td>
</tr>
</tbody>
</table>

*Source: Hanke (2008e)*
Plainly, the data presented suggest that the effects of hyperinflation in Zimbabwe mirror the generic effects of hyperinflation discussed earlier.

### 2.2.15 The Severity of Zimbabwe’s Hyperinflation

Basckin (2009) states that due to the severity of Zimbabwe’s hyperinflation, the dollar has become so insignificant, so much so that even a trillion dollars cannot purchase as little as a loaf of bread. The figure below illustrates various denominations of the Zimbabwean currency pinned down as wallpaper to illustrate its worthlessness to the world (Basckin, 2009).

![Wallpaper made from official Zimbabwean currency (Basckin, 2009)](image)

**Figure 2.2.0**: Wallpaper made from official Zimbabwean currency (Basckin, 2009)

### 2.2.16 The Causes of Zimbabwe’s Hyperinflation

The source of Zimbabwe’s hyperinflation is the Reserve Bank of Zimbabwe (RBZ) (Hanke, 2008f). Hanke (2008c) states that the Zimbabwean government spends, and the RBZ finances that spending by printing money. Marwizi (2005) states that excessive money supply has fuelled inflation in Zimbabwe because of government’s continued expensive and unplanned expenditure, aimed at consolidating its dominance of the political landscape. Wines (2006) assents and states that President
Mugabe has printed trillions of Zimbabwean dollars to keep ministries functioning, as well as to shield the salaries of key supporters and potential enemies against inflationary erosion. Ncube (2009) concurs and states that the government’s US$23 million a month expenditure on salaries for ministers and allowances for civil servants is testimony enough of the governments unplanned and largely partisan fiscal expenditure. Lee (2009) states that the RBZ governor, Gideon Gono, backed by President Mugabe, is responsible for printing enormous quantities of money against the advice of orthodox economic practice. In response to similar assertions, Gono (2009) suggests that he has in fact been providing ideal policies in an effort to turn around the fortunes of the economy. In fact, Gono (2009) states that most of his policies have actually become the envy of the international community. In the same context, Gono concedes that his principal, President Robert Mugabe (Nyarota, 2009b) has regulated and acknowledged his actions. On the other hand, Lim, Govindan and Agarwal (2008) state that hyperinflation in Zimbabwe stems from two sources: the government’s out-of-control, quasi-fiscal activities and the diminishing Aggregate Supply (AS) of the country, resulting in an inability to keep pace with Aggregate Demand (AD), thus driving prices higher creating hyperinflation.

2.2.17 The Burning Money Phenomenon

‘Burning money’ is a system whereby foreign currency is converted to Zimbabwean dollars on the black market at rates that are excessively depreciated than the prevailing official inter-bank rates (Fleming, 2008). ‘Burning money’ is so quick and efficient that one could mistake it for an official well-organized economic system (Fleming, 2008). According to Fleming (2008), the black market creates and injects money into the Zimbabwean economy, rendering the central bank role, in terms of money creation, useless. Fleming (2008) explains that the money created, generates high levels of money supply growth and the central bank has to meet this avalanche with equivalent money creation - yet, the ‘burning press’ is so excessive that the printing press cannot keep pace with the amount of money created in the economy. ‘Burning money’ has informalized the financial market to such an extent that the
central bank can no longer account for the levels of money supply in the economy (Fleming, 2008). The central bank therefore cannot make any monetary policy because of the money it has created and because there are other informal full-time creators of money (Fleming, 2008). This assertion suggests that there could be another force, in the form of the black market, that is responsible for recklessly creating money and causing hyperinflation in Zimbabwe.

2.2.18 Policies to Curb Zimbabwe’s Hyperinflation

Gono, as cited in Mereki (2008a) states that if he has to print money for infrastructure he will do so until sanctions are removed. Gono, as cited in Mereki (2008a), further adds that this is an obligation that he is ready to be dismissed for, as the country gravely needs money for infrastructural development. Previous literature indicates that this is an inflation-causing process. Zimbabwe needs to end this process in order for the country to end hyperinflation (Keeton, 2009). Hamann and Prati (2003) state that countries that suffer from hyperinflation attempt to defeat the ill several times before they actually succeed. Keeton (2009) states that stopping hyperinflation is not an easy task as the government must resort to living within their means, the very same thing that they are unable to do which causes hyperinflation to start with.

Vis-à-vis Zimbabwe, Keeton (2009) states that in searching for the required policy to end hyperinflation, the country can draw upon a large body of international policy experience from more than twenty countries that, since 1920, have experienced and ended hyperinflation successfully. In recent attempts to tackle hyperinflation, the RBZ launched Operation Sunrise where the bank introduced a new set of monetary bearers cheques (effectively the standard currency) that devalued the currency by removing three zeros from each denomination: Z$ 1,000 has become worth Z$ 1 (Border and Immigration Agency, 2007). Guo (2008) states that these are false amendments. According to Gou (2008), what Zimbabwe needs is a change in rule and strategy that will improve local and foreign investment and protect property rights.
Hanke (2008e) suggests that getting rid of the RBZ in Zimbabwe is the only way to end hyperinflation.

Makochekanwa (2007) concurs and states that in order for Zimbabwe to stop hyperinflation there is a need to eliminate the source of excessive money supply. Hanke (2008b) further adds that “dollarization”, that is the adoption and use of other currencies such as the Rand and the United States dollar to replace the discredited Zimbabwean dollar, may also help end hyperinflation in Zimbabwe. Similarly, Coorey et al (2007) state that Zimbabwe needs a broad-based policy package of internationally accepted policies to end hyperinflation and argue that this package should include:

- Transparent transfer of quasi-fiscal activities to the government budget;
- Fiscal tightening of the RBZ or any other public entity;
- Liberalization of the exchange regime;
- The deregulation of good prices;
- The imposition of budget constraints on public enterprises, and
- The establishment of a strong money anchor to reduce inflation expectation.

There is no coherent consensus on a specific course of action that Zimbabwe should embark on to curb hyperinflation. It is however clear that various scholars have identified fiscal tightening, that is the reduction of excessive money printing or supply as the principal process to eradicate if Zimbabwe is to eliminate hyperinflation successfully.

2.2.19 Summary

The section documented the following:

- There is hyperinflation in Zimbabwe;
- The Zimbabwean dollar is valueless;
- The effects of inflation are dire and hence inflation must be kept low;
There is no consensus on the level of optimal inflation, however inflation rates near zero are considered to be ideal;

Inflation in all its forms is mainly a monetary phenomenon;

Inflation is created by government;

The Zimbabwean government is creating inflation by printing large sums of money without any productive link, and

The effects of inflation are tentatively related to the sub-problems that have been identified in the research.

The data in this section has uncovered substantial evidence, but not complete proof, that the effects of inflation relate to the specific sub-problems indicated in section 2.1. As such, the following section will discuss comprehensively how the effects of inflation result in each of the sub-problems stated in section 2.1, and how this has potentially affected the construction industry.
2.3 Investors in the Construction Industry

“Investment is a fundamental requirement that is needed to develop the construction industry” (Department of Public Works, 2001)

2.3.1 Introduction

This section aims to identify the role of investors in the construction industry. The section will review literature related to the importance and relevance of investors in the construction industry. The section further examines how the effects of inflation affects the investment process thereby revealing how the effects of inflation in Zimbabwe have led to a shortage of investors. The section will also discuss other factors that may have potentially resulted in a shortage of investors in Zimbabwe. The section concludes by linking the aforementioned matters to the collapse of the Zimbabwean construction industry.

2.3.2 The Investment Processes

Investment is a process that involves the uptake of new capital or finance from lending agencies to undertake new projects that generally employ people and generate income (L. Khan, 2008). Investment finance is usually available in the form of loans, of which the amount available for credit is determined by the ability to pay back the borrowed loan (Abutaleb, Sedik, Ramadan and Khattab, 1999). Abutaleb et al (1999) state that investment is a form of economic planning that is subject to constraints. Generally, due to social and financial reasons, there are usually constraints on the amount of available investments in each sector of a country (Abutaleb, et al 1999). L. Khan (2008) states that there are three types of investments that are listed below:

- Government investment that is mainly for infrastructure development;
- Private sector investment that is mainly for business, real estate or other profit generation, and
- Individual investment.
2.3.3 Types of Construction Industry Investors

Crafford (2007) suggests that the term “investor” is synonymous with the term “client” in the construction sector. The three distinct classes of clients (based on the nature of the client’s organizational entity) in the construction sector are:

- Public clients;
- Private clients, and
- Corporations.

A client in the construction industry is therefore a person or organization responsible for commissioning and paying for the design and construction of a construction good (Kamara, Anumba and Evbuomwan, 2002).

2.3.4 Construction Investors in Zimbabwe

Gombera et al (1999) report that the Zimbabwean local government and its ministries are the largest client of the Zimbabwean construction industry. Generally, the public sector commissions 60% of works in terms of value, with the balance held by the private sector (Mat Construct, 2005). Individual clients finance projects either through their own resources or through collaborations with other investors (Mat Construct, 2005).

2.3.5 Peculiarity of Construction Investment

Clients are central to the construction process, and are largely considered to be the driving force of the industry (Kamara et al, 2002). Ofori (1999) reveals that construction investment in developing countries such as Zimbabwe is mainly driven by foreign investors. According to Ofori (2001), foreigners account for 70% of the construction market share in the Southern African region. Alfaro and Charlton (2007) concur and state that this is why Foreign Direct Investment (FDI) is fundamental to developing countries.
2.3.6 The Significance of Construction Investment

Construction investment encompasses spending on a variety of physical building projects (Orszag, 2008). As such, construction investment has the ability to resuscitate a nation’s crumbling economy via the multiplier effect (Merrifield, 2000). Consequently, construction investment also generates jobs and wealth, and creates savings (L. Khan, 2008).

2.3.7 Investment Objectives

The objective of investors is to allocate capital to productive, successful and sustainable areas (Ethical Corporation, 2008). The purpose of investment therefore is to generate solid long-term returns (Ethical Corporation, 2008). As such, an investor’s principal objective is to seek investment opportunities that offer the highest potential profits for the least amount of risk (White, 2007). In other words, the primary concern of investors is to seek financial returns at no loss (Okuyama and Francis, 2006).

2.3.8 Shortcomings of Construction Investment

Construction investment is one of the most volatile components of GDP (Kun, 2003). This is because the construction industry presents a low return on investment compared to the return on other forms of investment (Heckroodt, 1998). Investment in construction is often perceived as being too expensive and unrewarding compared to other forms of investment (Myers, 2004). Given the difficulties inherent in construction, fluctuations in the rate of inflation pose an additional problem that further add to the industry’s unattractiveness to investors (Oyediran, 2006). The following section explains how this unattractiveness (prompted by inflation) may have led to capital flight in Zimbabwe.

2.3.9 Effects of Inflation on Investment

Inflation is a serious problem to investors because it increases uncertainty (Faria and Carneiro, 2001). Agarwal (2008) argues that this process occurs via the loss of
purchasing power of money. As such, given the costs associated with inflation, in a hyperinflationary environment, it is logical that investors will move to hedge against negative real returns by seeking refuge in non-interest bearing assets such as equities, the property market and the currency market, while abandoning high-risk sectors such as the construction industry (Mambondiani, 2008).

2.3.10 Impact of Inflation on Investments through Interest Rates

The rate of interest should move in the same direction as the expected rate of inflation (Miller and Mills, 2006). Madsen (2008) concurs and states that inflation increases nominal interest, thereby increasing an investors’ interest payment debt.

Duczynski (2000) concurs and states that this relationship is best explained by the “Fisher effect” model. The Fisher Effect postulates that nominal interest rates move together with inflation. Duczynski (2000) states that the relationship between nominal interest rates, \( i \), and inflation, \( \pi \), is given by the “Fisher equation” that states that:

\[
i = \pi + r,
\]

where \( r \) denotes real interest rates.

Duczynski (2000) suggests that this is a problematic relationship because high interest rates discourage investment. Cumming (2003) concurs and suggests that inflation exerts a very negative influence on investment returns thereby discouraging investment in an inflationary environment. As inflation escalates and interest rates follow suit, banks start to ration credit in order to decrease their risk (Boyd and Champ, 2006). Ultimately, as inflation and interest rates continue to rise, investors may refuse to invest, or they may at least restrict the quantity of investments that they make (Boyd et al, 2006). As a result, inflation significantly deters investment, in particular, in machinery and equipment and in non-residential buildings and structures due to inflation effects (Madsen, 2008).
2.3.11 Corresponding Causes of Investor Scarcity

Merrifield (2000) state that declines in building and construction investment are cyclical and follow the Kuznets and Kondratieff cycles which relate to construction investment; of which the different duration of the cycles can be related to the relative durability of different construction goods. In other words, Merrifield (2000) suggests that a lack of investment in infrastructure may signal an abundance of existing infrastructure that leads to a decrease in demand for investment. In such a case, investment finance only becomes available if there is an increase in demand for repairs and renovations to existing infrastructure, or if there is renewed demand for new buildings (Merrifield, 2000). On the other hand, Mambodhani (2008) states that investors are driven by emotions which determine whether they invest or not.

2.3.12 Types of Investors in Zimbabwe

The majority of finance in Zimbabwe is short to medium term, with the length of investment ranging from one to five years (United Nations Environment Programme, 2009). Vis-à-vis construction, Mhashu (2009) suggests construction finance in Zimbabwe emanates from the following sources:

- The public sector through loan schemes;
- The private sector through building societies loans;
- The private developers through bridging finance loans, and
- Civil society through savings and collective finance.

2.3.13 Zimbabwe’s Investment Climate

Gombera et al (1999) state that Zimbabwe has limited financial resources to complete its major construction projects and as such is heavily dependent on foreign funding. Currently, Zimbabwe has very low and inefficient levels of investment (United States Agency for International Development, 2007). The African Development Bank and African Development Fund (2007) state that Zimbabwe has a depressed investment environment. The United Nations Environment Programme (2009), states that the relatively small average investment size is symptomatic of the unavailability of long-
term finance. As a result of the lack of short- or long-term financial commitments, private gross capital formation has been on a downward trend inevitably triggering the closure of more than 800 private companies since the start of the new millennium (Dore et al, 2008). In general, post-2000 evidence suggests that there has been a total lack of replacement construction and new construction investment in Zimbabwe (Dore et al, 2008). As a result of the lack of private and public spending on infrastructure and building, the construction industry has collapsed (Mat Construct, 2005).

2.3.14 Causes of Investment Shortages in Zimbabwe
The Zimbabwean government resolutely maintains that investment shortages in the country are a result of sanctions imposed on the country by the West (Moss, 2007). Moss (2007) however contends that there aren’t any significant investment embargoes that have been imposed on Zimbabwe that could have such a marked impact on the economy (Moss, 2007). On the other hand, Dore et al (2008) attribute the massive disinvestment in Zimbabwe to a decline in value of the Zimbabwean dollar. As a result of the decline in the value of the currency, investors’ funds have been eroded by inflation making it impossible to undertake projects successfully (Mhashu, 2009). Davies and Rattso (2000) confirm that high inflation has had depressing effects on investment in Zimbabwe. Expanding on the complexities of this process, the Economic Commission of Africa (2002) suggests that high interest rates, which are an after-effect of high inflation, have resulted in the depressed Zimbabwean dollar, which in turn has led to the depressed investment climate.
### Table 2.3.0: Zimbabwe’s economic data

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP Per Capita Growth%</th>
<th>Consumer Price Inflation %</th>
<th>Lending Rate%</th>
<th>Real Interest Rate%</th>
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</table>

*Source: Hanke (2008a)*

The South African Migration Project (2007) suggests that the inflationary environment does not provide any incentive to investors to invest in new buildings, as returns are not attractive enough against the background of high interest rates. As a result, high interest rates in Zimbabwe have resulted in capital flight (United States Agency for International Development, 2007).

#### 2.3.15 Interest Rate Movement in Zimbabwe

Interest rates on bank loans in Zimbabwe averaged −27.7% over five years in contrast to an average of +10.7% for low-income sub-Saharan African countries, 5.6% for South Africa and 7.7% for Zambia (United States Agency for International Development, 2007). Hanke (2008g) states that inflation has robbed financial institutions of their capital through real (inflation-adjusted) interest rates that are actually negative (see table above).
In view of these hyperinflation-incensed interest rates, Zimbabwean investors have sought sanctuary in non-interest-bearing assets while shying away from interest-laden commitments such as construction (Mambondiani, 2008). As further testimony of this assertion, Nevin (2000) reports that as Zimbabwe's economic condition spirals downwards its stock exchange, a non-interest-bearing medium of wealth-exchange, is behaving as though it belonged to another more affluent country.

2.3.16 Summary

This section has discussed the following:

- The different types of construction investors;
- The peculiarity of construction investment;
- An investor's main objectives;
- The shortcomings of construction investment compared to other forms of investment;
- How inflation affects investment and the effects thereof;
- That inflation may lead to investor shortages through escalated interest rates;
- There are other factors that may result in investor shortages
- There is no investment in Zimbabwe, and
- Inflation has resulted in high interest rates in Zimbabwe, which are primarily blamed for the depressed investment environment.

Evidently the discussions presented above render the hypothesis that “Hyperinflation has led to a shortage of investors in Zimbabwe” credible. However, there is a need to conduct a scientific study to determine precisely whether this is a fact, especially given the array of possibilities to the contrary. The following chapters will follow a similar pattern in addressing their particular sub-problems.
2.4 CONSTRUCTION LABOUR

“Labour is a process whereby man’s activity, with the help of the instruments of labour, effects an alteration, designed from the commencement, in the material worked upon. The process disappears in the product; the latter is a use-value, nature’s material adapted by a change of form to the wants of man. In this regard, labour has incorporated itself with its subject: the former is materialized; the latter transformed,” Marx as cited in (Sayers, 2007).

2.4.1 Introduction

This section aims to identify the role of labour in the construction industry. The section will review literature related to the importance and relevance of labour, while examining how the effects of inflation affect the labour process. In addition, the section reveals how the effects of inflation theoretically lead to a shortage of labour. Similarly, the section will discuss other factors that may result in a shortage of labour. The section concludes by linking the aforementioned matters to the collapse of the Zimbabwean construction industry.

2.4.2 Labour Defined

Labour denotes two discrete yet related entities (Kitchener, 2001). One is the productive power of human beings, commonly referred to as a factor of production, while the other is the disutility endured by men in the course of production (Kitchener, 2001). Sayers (2007) states that labour is an influential activity which gives form to materials. Alternatively, Podolinsky (2008) states that labour is a process that involves the use of mechanical and intellectual energy. Fluitman (2002) concurs and refers to labour simply as either:

- Physical or mental work, or
- A factor of production.
On the other hand, Alinaitwe (2006) suggests that labour is any manual process that is performed by a human being. In line with Alinaitwe (2006), Podolinsky (2008) posits that human labour only ever leads to some type of muscular effort. Conversely, Small (2000) presents a financially inclined definition, stating that labour is the willingness of a human being to toil for the good of others in exchange for a wage.

2.4.3 What Motivates Labour

Inglehart, Basáñez, Diez-Medrano, Halman, and Luijkx (2004) state that people work to achieve something, to meet people, to learn things, to make themselves feel useful, among other considerations. Inglehart et al (2004) further state that work is done primarily for a wage that is a decent income, such that one has no “qualms about money”. Ehrbar (2002), in agreement with Inglehart et al (2004), suggests that labour is a process that is restricted to one elemental standard that is measured by money. Similarly, Laycock (1999) states that labour emerges altogether as paid for. Van De Vliert, Van Yperen and Thierry (2007) concur and state that decent pay is the reason most often mentioned for doing work. Similarly, Laycock (1999) states that the proletarian worker must sell his labour in order to obtain a means of life. Kitchener (2001) gives credence to this assertion by suggesting that every man is affluent or pitiable according to the degree in which he can afford to enjoy the requirements, amenities, and delights of life. This assertion, coupled with the contents of the preceding discussions leads to the following deductions:

- Labour is a commodity;
- Labour is sold for money, and
- People work to live better lives.

2.4.4 Importance of the labour process

Labour is fundamental because it is a means of production (Laycock, 1999). Cascio (2003) concurs and suggests that labour is important because organizations need labour to produce goods hence they cannot exist without this valuable resource, thus underlining the importance of labour. Schneider (2005) concurs and states that
human capital is the most important factor of production in modern economies because of its resultant effect on the broader economy. Similarly, McNiven and Foster (2009) suggest that labour is vital as it is an instrument for obtaining and sustaining economic growth. It is worth noting that labour has a market which is influenced by demand and supply (where wages are determined) and hence follows the principles of supply and demand as discussed earlier (Fluitman, 2002). Ejohwomu (2007) concurs and states that labour is dependent on key supply and demand factors.

2.4.5 Peculiarity of Construction Labour

Manual activity predominates in the construction industry (Ejohwomu, 2007). Alinaitwe (2006) states that this predomination is more pronounced in developing countries where most construction projects still rely on manual labour (Alinaitwe, 2006). Carliner (2005) suggests that labour availability is a critical issue that stands out ahead of a host of other concerns in the construction industry. As such, the availability of an ample supply of skilled labour is critical to a smoothly functioning construction industry (Construction Labour Research Council, 2005). Ejohwomu (2007) concurs and states that the importance of an ample pool of labour in a labour intensive industry such as construction cannot be over accentuated. On a similar note, Gunderson (2001) suggests that optimum labour in the construction industry is fundamental, as it is the only means by which project ambitions may be achieved.

Despite the apparent need of a large labour source, Ejohwomu (2007) states that the construction industry suffers from a phenomenon called the “construction skills crisis”. Frogner (2002) defines skills crises as recruitment difficulties resulting from a shortage of individuals with required skills in the accessible labour market, whereas Buchanan (2005) defines a skills crisis as a failure of the skill configuration system failing to meet the current and future needs of construction employers. Gunderson (2001) suggests that skill shortages lead to the development of blockages that negatively influence project costs, quality, productivity and completion. Ejohwomu (2007) concurs and states that the scarcity of labour in construction has severe
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consequences for the industry. Such effects on the construction and building sector inadvertently influence the economy as a whole (Gunderson, 2001).

2.4.6 Wage related Labour Shortages

In periods of slack economic growth, workers leave the construction industry for better-paying opportunities elsewhere (Construction Labour Research Council, 2005). Singh and Goodman (2005) suggest that labour shortages occur in the construction industry when jobs remain vacant because there are insufficient numbers of workers willing to work at the offered wage or salary. The International Organization for Migration (2003) states that there are two broad and detailed categories of wage-related labour shortages. These are:

- Brain drain, which is the cross-border movement of highly skilled persons who leave their country of origin in order to maximize the return on their investment in education and training by moving in search of the highest paying or most rewarding employment, and
- Labour migration, which involves people with fewer qualifications and skills than those considered highly skilled, moving across the border in search of better pay.

Chimanikire (2002) suggests that construction worker migrant flows are always from poor countries to richer countries. Differences in earnings are a key variable that determines migration flows (Chimanikire, 2002). The International Organization for Migration (2003) concurs and suggests that drops in real income, currency devaluation and rising cost of living result in brain drain and labour migrations.

2.4.7 Non wage-related Labour Shortages

Avera (2008) argues that skills shortage may result from any of the following:

- Stronger immigration enforcement (the construction industry is highly dependent of immigrant labour);
• An aging workforce combined with fewer young people entering the construction industry, and
• Mass exodus of the “baby boomers”, from the construction industry.

Pearman (2003) concurs and states that labour shortage may be attributed to the exodus of baby boomers, and the slow replacement of retired workers. Pearman (2003) argues that the latter point is extremely relevant, more so because construction is unique compared to other industries in that the retirement age of workers tends to be much sooner because of the demanding physical nature of construction jobs. Alternatively, Carliner (2005) suggests that at times an unusually large demand for construction projects may also result in a shortage of labour.

### 2.4.8 Labour Shortages in Zimbabwe

Mbizvo (2006) states that prior to 2006 there were critical skills shortages in Zimbabwe that were impacting negatively on the country. In 2001, the Zimbabwean building industry faced imminent collapse owing to the combination of brain drain and the dearth of new projects (Crush and Williams, 2001). The decline in the economy and the shrinking of construction has resulted in an increased exodus of highly qualified bricklayers, artisans, carpenters and so forth to other countries in the region, notably South Africa, Mozambique and Botswana leading to a skills shortage (Mbiba et al, 2006).

Chisi (2008) attributes this phenomenon which he calls “skills flight or brain drain” to the lure of more stable wages that Zimbabweans have found hard to resist. Mbizvo (2006) adds that the flight of Zimbabweans is financially driven and is not driven because people cannot find employment within the country. Crush and Williams (2001) report that many Zimbabweans have left the country against a background of costly living. The table overleaf serves as testimony of this mass exodus by Zimbabweans to other nations by highlighting emigration to South Africa. Migration
by Zimbabweans to South Africa has become so prevalent that the construction industry has become a preserve for Zimbabweans (Crush and Williams, 2001).

**Table 2.4.0: Migrant Employment in South Africa by Sector**

<table>
<thead>
<tr>
<th>Migrant Country of Origin</th>
<th>Lesotho</th>
<th>Mozambique</th>
<th>Zimbabwe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>63</td>
<td>40</td>
<td>9</td>
</tr>
<tr>
<td>Farm work</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Domestic Service</td>
<td>7</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Mechanic</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Factory Worker</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Percentage Employed</td>
<td>73</td>
<td>61</td>
<td>42</td>
</tr>
</tbody>
</table>

*Source: Crush et al (2001)*

Correlated to this, the decline in construction has resulted in the exodus of construction firms, which has further exacerbated labour shortages as the firms leave with some of their local labour force (Mbiba et al, 2006). On the other hand, individuals who cannot follow their companies out of the country have left the industry altogether, further exacerbating the labour shortages (Mbiba et al, 2006).

### 2.4.9 Non Wage-related Labour Shortages in Zimbabwe

Chisi (2008) suggests that a certain degree of personnel have left Zimbabwe for South Africa due to the huge infrastructure demands of the 2010 soccer world cup tournament. South African companies in particular have embarked on a massive drive to recruit personnel to meet deadlines for the 2010 spectacle (Crush et al, 2001).

### 2.4.10 Impact of Hyperinflation on Labour in Zimbabwe

Bloch (2008) suggests that labour shortages in Zimbabwe are a result of hyperinflation, which has negatively affected the economy (see table overleaf). Dugger (2008) suggests that this negative effect has occurred via the daily increases in prices of goods, which have rendered the economy inoperable.
Table 2.4.1 Main and additional reasons for leaving Zimbabwe by status

<table>
<thead>
<tr>
<th>Reason for leaving Zimbabwe</th>
<th>Main Reason</th>
<th>All Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undocumented</td>
<td>Documented</td>
</tr>
<tr>
<td>Economic</td>
<td>41</td>
<td>32</td>
</tr>
<tr>
<td>Lack of employment</td>
<td>38</td>
<td>12</td>
</tr>
<tr>
<td>Work abroad</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Study abroad</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Political</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>Join family</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not applicable</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Number</strong></td>
<td><strong>100</strong></td>
<td><strong>99</strong></td>
</tr>
<tr>
<td><strong>Undocumented</strong></td>
<td><strong>30</strong></td>
<td><strong>8</strong></td>
</tr>
<tr>
<td><strong>Documented</strong></td>
<td><strong>44</strong></td>
<td><strong>36</strong></td>
</tr>
<tr>
<td><strong>Total Number</strong></td>
<td><strong>166</strong></td>
<td><strong>172</strong></td>
</tr>
</tbody>
</table>

*Source: Bloch (2008)*

Inflation has made the Zimbabwean currency worthless thereby eroding the purchasing power of the domestic currency, adversely affecting the livelihood of the ordinary household as standards of living fall and basic social services become unaffordable (Murerwa, 2006). Hyperinflation resulted in this after-effect by essentially reducing wages to mere paper, while in the processes ensuring that eight in ten citizens become impoverished (Zimbabwe Review, 2008). The United States Agency for International Development (2007) states that even wage reviews and increases are not keeping up with price escalations, thereby eroding the already weak purchasing power of the Zimbabwean dollar. Elucidating further on this matter, Mumbengegwi (2007) suggests that wage adjustments have failed to ease rampant inflation. As such, employment in Zimbabwe does not generate sufficient income levels for workers to support themselves and their dependents (Mbizvo, 2006). Inflation has thus destroyed the lives of Zimbabweans, leaving them with little option other than to leave the country (Wilcox, 2008). Mbizvo (2006) suggests that almost everyone is leaving because they do not foresee a future in Zimbabwe as they cannot accumulate real value capital.
2.4.11 Prospects for the Zimbabwean Construction Industry

Mereki (2008b) states that construction industry wages are far below the poverty datum line in Zimbabwe. As such, in order to survive the economic hardships, millions of Zimbabwean construction workers have left the country and taken up unlawful residence in other countries (Mbizvo, 2006). Chisi (2008) suggests that firms that want to retain the remaining labour resources need to offer regionally competitive packages. In 2007, the government set up a “skills retention fund” that sought to retain critical skills that were leaving Zimbabwe in droves (Mumbengegwi, 2007). Until then, the government and the public sector had continued to review wages twice a year as if there was no hyperinflation (Makochekanwa, 2007). This ignoring of reality inflamed migration-related labour shortages. Ironically, wage reviews under a hyperinflationary environment present a dilemma for Zimbabwe as incessant wage reviews potentially fuel inflation via the wage-push spiral phenomenon (Makochekanwa, 2007).

2.4.12 Cases study: Zimbabwe National Sports Stadium Labour Shortage

According to Viriri (2009), the Zimbabwe National Sports stadium, constructed by the Chinese government in the 1980s, has since become dilapidated and was closed for repairs and renovation work in November 2006 (Viriri, 2009). The authorities indicated that the stadium would be shut down for a maximum period of 20 months (Viriri, 2009). Thirty-six months later, and after missing several completion deadlines, Viriri (2009) reports that repairs and renovations at the National Sports Stadium have hit a snag because of labour shortages. Mutungamiri (2008) states that workers have abandoned work because of wage-related issues.

Viriri (2009) further argues that renovations have literally ground to a halt because most of the staff are failing to report for work, due to poor wages that are inadequate to cover even their daily transport costs. Viriri (2009) suggests that the standard weekly wage of Z$ 28 billion is gravely inadequate, given that it costs Z$10 billion for a one-way trip from town to the stadium per day. As a result, the majority of workers
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on the stadium project have left for greener pastures in South Africa (Mutungamiri, 2008).

2.4.13 Summary

This section has discussed the following:

- Labour is a critical commodity that is needed for production to occur;
- People work in order to earn wages so as to improve their standard of living;
- As a result of inflation, Zimbabweans have been plunged into a Darwinian struggle to survive (Dugger, 2008);
- The construction industry is a labour-intensive industry;
- The construction industry is naturally susceptible to skills shortage;
- Zimbabwe has effectively outsourced its economy to South Africa (MacGarry, 2008);
- As expected, the Zimbabwean construction industry is a labour intensive industry;
- Theoretically, there are a number of causes of skills shortages;
- The Zimbabwean construction industry is facing a “critical skills crisis”;
- The skills crisis in Zimbabwe is hyperinflation driven, and
- If left unresolved, the labour shortages in Zimbabwe may add to a further collapse of the construction industry.

Evidently, the discussions presented above render the hypothesis that “Hyperinflation is forcing labour to emigrate” credible. However, it would be imprudent to suggest that this is fact, especially given the array of possibilities that are contrary to this effect. As such, there is a need to conduct a scientific research to determine precisely whether this is fact. The following section will follow a similar pattern in addressing its particular stated sub problem.
2.5 MATERIALS AND FOSSIL FUEL ENERGY

“Construction is a procedure where materials and equipment are installed methodically by labourers according to designs and specification” (Nasir, 2008). “On the other hand fuel is the driver of all productive procedures” (Gono, 2005).

2.5.1 Introduction

This section aims to identify the role of material and fossil fuel energy resources in the construction industry and will review literature related to the relevance of materials and fossil fuel energy resources in the construction sector. In addition, the section reveals how the effects of inflation have theoretically led to a shortage of materials and fossil fuel energy resources in Zimbabwe. The section will also discuss other causes that could possibly result in a shortage of materials and fossil fuel energy resources. The section concludes by linking the aforementioned matters to the collapse of the Zimbabwean construction industry.

2.5.2 Materials and Energy Resources Defined

The term “material” refers to “a substance or combination of substances forming components, parts, pieces and equipment items (Nasir, 2008). The term fossil fuel refers to carbon-based fuels found in the earth’s crust that have been formed over millions of years by decomposing remains of plants and animals under intense heat and pressure (Minter, Petz, Lea and Dillon, 2009). Fossil fuels include energy-rich fuels such as coal, petroleum and natural gas, which form the majority of the world’s energy supply (Minter et al, 2009).

The definitions of materials and fossil fuel energy presented above allude to the uses, as well as the importance, of materials and fossil fuel resources. The following section elaborates further on the importance of materials and fossil fuel in the construction industry.
2.5.3 Construction Materials and Prices

Construction is a material-consuming process and as such cannot occur in the absence of materials (Nasir 2008). Rono (2000) concurs and states that building materials are critical resources as they account for major portions of buildings. Generally, materials largely dictate whether dwelling units can be realized (Rono, 2000). Basic building materials include cement, marble, steel, pipes, timber, bricks, plastics, aluminium profiles, paints, coatings, glass, ceramics and sanitary ware, building ware, and heat-ventilation and air-conditioning products (Sezgin, 2009). Sezgin (2009) contends that cement is the most essential building material. Vis-à-vis costs, Niclas (2000) states that building materials comprise over 60% of building prices. As such, high building prices are reflective of high material prices (Niclas, 2000).

2.5.4 Fossil Fuel Energy and Prices

Fossil fuel energy has an important role to play in the construction industry because it drives all of the industries productive systems (Gono, 2005). The construction industry is generally a major consumer of fossil fuel energy (Australian Institute of Architects, 2008). Fossil fuel energy enables the fulfilment of otherwise complex and laborious tasks in the construction sector by enabling the running of off-road equipment and construction vehicles (Gono, 2005). Kruse (2004) concurs and epitomises the vehicular transportation of materials as a characteristic activity which would otherwise be impossible to undertake without fuel energy. On the other hand, Niclas (2000) states that the building material manufacturing process is also a major consumer of fossil fuel energy. Vis-à-vis costs, Auer and Heymann (2004) state that there are few determinants that are as fundamental as energy prices in development, building and construction. McMillan (2007) states that fuel prices may impact on overall construction prices by influencing construction operating prices or the cost of construction materials. Gono (2005) concurs and states that price adjustments to fuel inevitably trigger an adverse ripple effect on all production cost structures.
2.5.5 The Role of Inflation on Material and Fossil Fuel Shortages

 Developing countries need extensive foreign currency reserves to cushion themselves in times of currency fluctuations when repaying foreign liabilities incurred in foreign currencies (Wyplosz, 2007). In Zimbabwe, foreign currency is fundamentally used to purchase government’s critical requirements like fossil fuel energy. Stiftung (2004) suggests that Zimbabwe also requires foreign currency to import materials. Reports suggest that foreign currency is a scarce resource in Zimbabwe (African Economic Outlook, 2004). As such, Zimbabwe does not have sufficient foreign currency reserves to purchase fossil fuel energy (Gono, 2009). It comes as no great surprise that Zimbabwe is, as a result, suffering from erratic fuel supply shortages, a trend that has literally brought the country and all its productive sectors to a standstill (Mumbengegwi, 2007). In addition, reports also suggest that the acute foreign currency shortages in Zimbabwe have hampered material imports (Gono, 2009).

 Gono (2005) attributes the foreign currency shortages that have led to fuel and material shortages to inflation. In agreement with Gono (2005), Murerwa (2006) intimates that inflation in Zimbabwe triggered foreign currency shortages by way of discouraging exporters from increasing production and hence increasing Zimbabwe’s foreign currency revenues earned through the process of exports. Likewise, Mumbengegwi (2007) suggests that hyperinflation has affected Zimbabwe’s competitiveness, thus undermining the country’s capacity to generate foreign currency. Alternatively, Lim et al (2008) suggest that inflation has led to foreign currency shortages in Zimbabwe by plainly scaring away investors. Lim et al (2008) contend that as investment declined in Zimbabwe, the demand for the local currency also declined, triggering the depreciation of the exchange rate which affected foreign currency reserves. Lim et al (2008) deem that this process led to Zimbabwe’s inability to import the much-needed resources identified beforehand (Lim et al, 2008).
2.5.6 The Role of Price Controls on Material and Fuel Shortages

The prices of materials and fuel double every 24.7 hours in Zimbabwe because of inflation (Hanke, 2008g). Mumbengegwi (2007) argues that this upward spiral of prices has resulted in the distortion of project budgets, which has inevitably led to the shelving of planned projects. Gono (2005) concurs and states that due to incessant price escalations, construction costs have escalated to such high levels that construction is now prohibitive. Mumbengegwi (2007) identifies the escalating costs of materials and fuel as factors that are responsible for this phenomenon. In order to arrest rampant escalations buoyed by inflation, the government introduced price controls (African Economic Outlook, 2004). Teams such as the Price Monitoring and Stabilization Taskforce where installed to establish price controls to restore sanity in pricing in Zimbabwe with the notion of arresting inflation simultaneously (Mumbengegwi, 2007).

Price controls are by nature a process by which a government sets minimums and maximums for a commodity or group of commodities (Rockoff, 2008). Price controls hold out the promise of protecting groups that are particularly hard-pressed to meet price escalations (Rockoff, 2008). Sowell (2002) however contends that price controls are a mirage created by politicians to win votes, a mere pledge of something for nothing that causes shortages of supplies. Sowell (2002) further argues that in addition to causing shortages, price controls also reduce the quality of goods. Rockoff (2008) concedes that most economists are sceptical about price controls because they distort the allocation of resources. Reverting back to Zimbabwe, the African Economic Outlook (2004) reports that price control interventions in Zimbabwe have not produced the expected effects of lowering inflation but rather that they have led to even more acute shortages in the country. In effect, price controls have led to the birth of black markets, which sell scarce resources such as material and fuel at enhanced prices, a phenomenon that has unwittingly flamed inflation further (African Economic Outlook, 2004). Realizing the failure of price controls, and as a final bid to
quell inflation, the Zimbabwean government resorted to physical force to lower prices, edging the nation closer to anarchy (Wines, 2007b). As a result, most businesses have closed down (Lee, 2009).

2.5.7 Case Study: Cement Shortages in Zimbabwe

Cement is a common building material that is often referred to as the blood of the construction industry (Chimwala, 2009). This critical building material has been in short supply in Zimbabwe owing to reduced production volumes by producers because of the prevailing price controls (Chimwala, 2009). As such, mega construction projects such as project “Hlalani Kuhle” (Live Well), a major housing scheme, have been derailed because of a shortage of cement and similar related building materials (Ploch, 2008). In the same manner, other multi-million-dollar projects such as the Joina Shopping complex have been disrupted, primarily by the unavailability of cement and other construction materials (Madzimure, 2008).

2.5.8 Alternative Causes of Fuel and Material Shortages in Zimbabwe

Gono (2005) at odds with himself asserts that Zimbabwe’s materials and fuel shortages are man-made and as such are divorced from inflation and its effects. Gono (2005) suggests that inflation may have only led to tentative activities, which led to hoarding and artificial shortage creation, resulting from the hoarders quest to manipulate prices upwards on the black market. This assertion may be valid given that the construction industry naturally consists of monopolies which stand to make huge profits if they engage in corrupt practices (Myers, 2004). On the other hand, the government of Zimbabwe suggests that material and fuel shortages are a result of a covert industrial scheme aimed at inciting public anger against President Robert Mugabe and his administration (Chamunorwa, 2008). Alternatively, Wines (2006) suggests that farm seizures led to investor flight, which then resulted in the scarcity foreign currency, which in turn led to nationwide scarcities in Zimbabwe. Then again, Makochekanwa (2007) states that shortages in Zimbabwe are a result of reduced financial aid from donors such as the International Monetary Fund (IMF). Finally,
Gono (2005), without providing irrefutable proof, states that distribution logistics may also have contributed to material and fuel shortages in the country.

2.5.9 Summary

This section discussed the following:

- Materials and fossil fuels are critical resources in the construction industry production processes;
- Inflation in Zimbabwe has caused foreign currency shortages, which in turn led to material and fuel shortages;
- Material and fuel shortages in Zimbabwe have resulted in project distortions that have in turn led to project terminations or stoppages because of higher production costs;
- Higher material and fuel prices have prompted the government to install price controls;
- Price controls have resulted in material and fuel shortages in all formal markets;
- The black market is the only market that can provide materials and fuel;
- Black-market prices are exorbitant, and
- There are other plausible reasons that may have led to material and fuel shortages in Zimbabwe.

Evidently, the discussions presented above render the hypothesis that “Hyperinflation is causing foreign currency shortages leading to material and fossil fuel energy supply shortages” credible. However, in line with the course taken in the previous sections, it would be imprudent to suggest that this is fact, especially given the array of possibilities to the contrary. The following chapters will indicate the scientific processes used to determine the validity of the hypotheses that have been stipulated.
3.1 CHAPTER THREE

This chapter expounds on the methodology and general procedures used in the survey. As such, the chapter touches on data collection procedures; populations used; questionnaire design and data analysis.

3.1.1 Research Method

The research is descriptive in nature. Leedy and Ormond (2005) state that this type of research involves identifying the distinctiveness of an observable fact or delving into possible parallels in the midst of two or more phenomena. Crafford (2007) states that in every case descriptive research probes a situation as it is. Crafford (2007) contends that descriptive research does not involve altering or transforming the state of affairs under examination, nor does it intend to determine cause-and-effect interactions. In agreement with Leedy et al (2005) and Crafford (2007), Zikmund (2003:55) states that descriptive research seeks to clarify answers to, “who, what, when, where and how” questions. As such, this approach suitably addresses the main objectives of this research, which sought among other things to clarify the following:

- Who caused hyperinflation in Zimbabwe?
- What the effects of hyperinflation are in the Zimbabwean construction sector?
- When hyperinflation started in Zimbabwe?
- How hyperinflation evolved in Zimbabwe and how it manifested itself in the construction sector?

A pilot study consisting of a convenience sample of contractor and client representatives from Zimbabwe (now resident in Gauteng, the Eastern Cape and Western Cape Province) was conducted in order to collect data from the definitive subjects of the research to serve as a lead for the pending larger study. Bryman and Bell (2003) avow that pilot studies are always desirable to conduct before administering a self-completion questionnaire. In total 20 respondents were asked
to respond to the questionnaire which was administered via email. The pilot study questionnaire’s objectives was to ensure that the questionnaire:

- Was properly phrased;
- Could be answered within a reasonable period without causing “respondent fatigue” or boredom;
- Was easy to understand, and
- Did not have any unforeseen problems (content, structure or format), which if uncorrected would result in huge data losses in the larger study.

Sixty percent of the respondents successfully completed the pilot study questionnaire. The responses obtained were used as a means by which to improve on the questionnaire. The pilot study revealed the following problems with the questionnaire:

- The questionnaire was too long and needed to be abridged, and
- Some questions where ambiguous and needed to be rearticulated.

Consequently, a refined questionnaire fit for data collection from the target population was produced.

### 3.1.2 Data-collection Procedures

The secondary data used in this research was obtained from the following sources:

- National and international sources in the form of books, paperbacks, journal and conference papers;
- Articles, reports, monographs, and newspapers, and
- The Internet.

In addition, the Nelson Mandela Metropolitan University (NMMU) library was used as an inexhaustible source of data. The following NMMU databases were also explored for information:

- Business periodicals index, and
• the NMMU’s own database.

The preliminary data used in the research was obtained by way of an emailed, self-administered questionnaire. The questionnaire was administered as follows:

Phase 1: This involved obtaining a mailing list of registered contractors and financial institutions (clients) in Zimbabwe. A list of all the contractors in Zimbabwe was obtained from the Construction Industry Federation of Zimbabwe list of registered contractors at a cost of US $15. The client mailing list was obtained from the Reserve Bank of Zimbabwe website.

Phase 2: This involved the physical location of the target population using the mailing list addresses in order to determine whether the contractors or clients detailed in the mailing lists where still operating in Zimbabwe. The process therefore involved eliminating the contractors and clients who were no longer operating in the country as well as the solicitation of email addresses and other contact details of the contractors and clients now resident or operating in South Africa (mainly Gauteng, the Eastern Cape and Western Cape Province).

Phase 3: The preliminary research approach comprised of a quantitative method of data production, which necessitated the formulation of a standardized self-administered questionnaire of the “effects of hyperinflation on the Zimbabwean construction industry”. The questionnaire was administered to a sample of 20 respondents consisting of 10 contractors and 10 clients from Zimbabwe (now resident in Gauteng, the Eastern Cape and Western Cape Province) via email.

Phase 4: The pilot questionnaire was tested on 10 contractors and 10 clients each with between 5 and 10 years work experience.
Phase 5: A survey to be conducted in three forums by:

- Drop-off method;
- Email, and
- The Internet.

The questionnaire (Appendix 2) was designed during stage 4. This phase therefore entailed dropping off the questionnaire for collection from respondents on a later date (contractors and clients in Zimbabwe), as well as engaging the same contractors and clients to respond to the email or Internet versions of the survey, in lieu of the drop-off questionnaire if this was construed to be more expedient. Zikmund (2003) advocates the use of email and Internet survey despite the drawbacks of lack of connectivity or lack of internet access for the following purposes:

Email surveys:

- Allow for speedy distribution;
- Lower distribution and processing costs;
- Have a faster turnaround time;
- Respondents are more candid via email than in person or on the telephone
- More flexible, and
- The speed of email distribution and the quick response time are major advantages for time-sensitive reports.

Internet surveys:

- Speedy and cost effective, and are
- Visually appealing.

Crafford (2007) states that the construction industry has a poor response rate to surveys. As a result, the author deemed it necessary to administer the questionnaire in three forums. Each questionnaire was preceded by a covering letter (Appendix 1) dated 1 June 2009.
Phase 6: An aide memoire (Appendix 3) and replacement questionnaire was dropped off and emailed to the target population respondents who had not responded by the deadline date. A covering letter dated 3 August 2009 preceded this process. This served as the first reminder.

Phase 7: Additional reminder emails were sent to the contractors and clients who did not indicate that they had responded to the questionnaire on 13 August 2009. This served as the second reminder.

Phase 8: Further email reminders were sent to the individuals who did not return the questionnaire by 17 August 2009. This served as the third and final reminder.

3.2 Population

The populace of research respondents in the data-gathering phases can be divided into two classes:

- Contractors – A mailing list of all the registered contractors in Zimbabwe was obtained from the Construction Industry Federation of Zimbabwe. This list was then used to confirm whether these contractors were still operating in Zimbabwe and if so, the contact details of former representatives now resident in South Africa were solicited to create a redefined mailing list, and
- Clients – A mailing list of all the property developing financial institutions in Zimbabwe was obtained from the Reserve Bank of Zimbabwe website. The clients were also solicited for contact details of their ex-representatives now resident in South Africa.

3.3 Sampling

The total number of clients on the redefined mailing list was 11. Similarly, the total number of registered contractors, namely the general contractors (category A), on the redefined mailing list was 80.
3.3.1 Sample Size

Zikmund (2003) cites three factors to consider when determining the sample size. The three factors that Zikmund alludes to are:

- Variance or heterogeneity;
- Magnitude, and
- Confidence level.

Then again, Krejcie and Morgan, as cited in Crafford (2007), developed an undemanding table (Appendix 4), which is based on the above-stated blueprint for determining sample size. The research, because of ease of use, embraced the procedure for sample calculation as detailed in the table. As such, since the populations of contractors and clients was 100 and 11 according to the related mailing lists, the sample sizes were 80 for contractors and 11 for clients (full census), in line with the principles set out by Krejcie and Morgan as cited in (Crafford, 2007).

3.4 Questionnaire Design

The questionnaire comprised of four sections. The outline of each section beginning with the pilot study is detailed below.

A pilot questionnaire was emailed to the 10 contractors and 10 clients. The questionnaire sought to determine:

- Whether the effects of hyperinflation detailed in the questionnaire were the appropriate effects to inquire on;
- Whether the questions were phrased and arranged correctly, and
- The proper sequence in which the questions should be asked.

The consequences of the pre–test were as follows:

- Removal of an extra scale to the right of the questions in section two. This second scale did not make much sense to respondents;
• Addition of a general comments section, and
• Addition of an ‘Unsure’ section for respondents to select when they felt uncertain vis-à-vis a particular response to a question.

Consequently, the questionnaire design was based not only on the author’s insights but also on a concerted effort of reinvention and improvement from the target population. In addition, the Internet questionnaire used a standard NMMU graphical-user interface that was easy to use and follow, creating a user-friendly feel that motivated respondents.

3.5 Research Questionnaire

The questionnaire was intended to include all the effects of hyperinflation that were acknowledged during the literature review and pilot study stages. The author determined a procedure of presenting these effects and then asking the respondents to rate the competencies according to current evidence and importance on the Likert scale. The questionnaire consisted of four segments (Appendix 2) as detailed below:

• Segment one consisted of questions about the respondent’s demographic background;
• In segment two, part of the research pertaining to the evolution and effects of inflation were listed logically with an evidence scale to the right of each question;
• Segment three entailed the determination of the importance of sub-problem variables. Respondents were asked to rate the level of importance of each of the parameters. The importance scale was also to the right of each question;
• Segment four consisted of a general comments section where respondents were asked to express their views in response to open-ended questions pertaining to the evolution and effects of hyperinflation in the Zimbabwean construction sector.
3.6 Data Analysis

According to Zikmund (2003), data can only be described according to the scale in which it falls under. Zikmund (2003) states that rating questions such as the ones used in this survey (Section 2 and 3 ordinal data) can be best described by rank ordering using the mean or percentile ranking. Concerning Section 4 (comprising of open-ended questions) the responses were processed according to the procedures of the grounded theory (see Table 3.0) presented by Vasconcelos (2007). The crux of the theory is based on the three common principles of theoretical saturation, constant comparison of analysis and theoretical saturation (Vasconcelos, 2007).

Table 3.0: Processing of open-ended questions

<table>
<thead>
<tr>
<th>Data Collecting</th>
<th>Coding</th>
<th>Sorting</th>
<th>Ranking</th>
<th>Interpretation</th>
</tr>
</thead>
</table>

The grounded theory approach is a supple technique used to generate suppositions from data (Vasconcelos, 2007). Similarly, Allan (2003) states that grounded theory explores the realism of the world and analyses data with no preconceived hypothesis. As such, due to these positive aspects of grounded theory (vis-à-vis open-ended question) the researcher deemed it suitable to employ this procedure. In closing, the following data analysis techniques were used to test the hypotheses:

- In hypothesis 1, ranking was used;
- In hypothesis 2, ranking was used;
- In hypothesis 3, ranking was used;
- In hypothesis 4, ranking was used;
• In hypothesis 5, ranking was used;
• In hypothesis 6, ranking was used, and
• For open-ended questions, ranking was also used.
4.1 CHAPTER FOUR

This chapter presents the results and analysis of the survey data. It draws on descriptive statistics, which are a group of statistical methods used to summarize data, and inferential statistics, which are a group of statistical methods from which conclusions about the population are drawn (Collins and Hussey, 2009).

4.1.1 Response to Questionnaire

Ninety-one (91) questionnaires were posted to contractors and clients in total. Specifically, eighty (80) questionnaires were sent to contractors and eleven (11) were sent to clients. As a supplementary measure to try to boost the response rate, the questionnaire was, in addition to being dropped off with the respondents, simultaneously advertised via email as having an on-line survey option to the respondents. The respondents were then left to choose which response option suited them best. All in all, thirty-two (32) questionnaires were returned with, and including, the second call to respondents for responses. Two questionnaires that were returned on time were spoilt (illegible and incorrectly answered respectively) and hence were not included in the response-rate calculation. Of the fifty nine (59) outstanding questionnaires, 52 questionnaires remained unanswered past the deadline date, whereas the remaining questionnaires were reported to have been completed but where either missing or misplaced by the respondents.

After the deadline date, the unresponsive respondents were asked why at the very least, attempts were not made to complete the online survey in lieu of the dropped-off questionnaires. The following reasons were cited for not doing so:

- Lack of time, and
- Lack of Internet connectivity.
When comparing the number of completed questionnaires to the sample size prescribed by Krejcie and Morgan as cited in Crafford (2007), the following results were obtained:

**Table 4.0: Analysis of Response Rate**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Analysis of Respondent Sample</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sample</td>
</tr>
<tr>
<td>Contractors</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>Clients</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>111</strong></td>
<td><strong>91</strong></td>
</tr>
</tbody>
</table>

This represents a 32.9% effective response rate on the survey.

### 4.1.2 Response Rate

Zikmund (2003) states that a researcher should endeavour to use as many techniques as possible to increase the response rate. As such, in line with this doctrine, the following actions were pursued to perk up the response rate:

- The questionnaire was administered in three forms, mainly as a drop-off questionnaire and subsequently via email (with an attached Word version of the questionnaire) and on-line (Internet survey);
- A reward of R1,000 was offered to one lucky respondent for successfully completing the questionnaire;
- The Internet survey interface was designed to appeal to respondents in terms of ease of use and referencing;
- The respondents were assured of anonymity;
- A reminder letter was sent after three weeks, including an additional questionnaire, email and Internet survey prompt request, and
- Two additional reminder emails were sent two weeks after sending the reminder letter.
4.2 Demographic profiles of respondents

4.2.1 Sector

Figure 4.1 indicates the sectoral distribution of the respondents. The majority of respondents were contractors who constituted 77% of the sectoral distribution.

![Figure 4.1 Sector distribution](image1)

4.2.2 Age

Figure 4.2 indicates the collective age distribution of the respondents. The figure indicates that all the respondents are over 20 years of age and that the bulk of the respondents were aged between 25 and 34 years.

![Figure 4.2: Collective age distribution of respondents](image2)
4.2.3 Gender

Figure 4.3 indicates that there was an equally balanced collective gender distribution of respondents who participated in the survey.

![Figure 4.3: Collective Gender distribution of respondents](image)

4.2.4 Year of Experience versus Respondent Number

Figure 4.4 indicates that the majority of respondents have between five and nine years of construction industry experience. Figure 4.4 also indicates that there is a fair spread of experience that ranges from as little as five years (approximately) to as much as 15 to 20 years experience in the industry.

![Figure 4.4: Experience distribution of respondents](image)
4.2.5 Highest formal qualification

Figure 4.5 indicates that respondents with an undergraduate qualification constituted the highest number of respondents to the survey. The figure also indicates that the remainder of respondents had a postgraduate qualification. As such there were no respondents with any qualification higher than a postgraduate qualification. Similarly there were no respondents with other qualifications or qualifications lower than an undergraduate qualification (O and A level, ZJC, etc.) hence the 0% indicators on the figure below.

![Figure 4.5: Highest formal qualifications of respondents](image)

4.2.6 Occupational Status of Respondents

Figure 4.6 indicates the occupation status of the respondents. The majority of respondents are senior staff closely followed by junior staff with a slight representation from directors or management personnel.
4.2.7 Association of Demographic Data

Zibran (2009) states that the chi-square test of association is a useful check to use to identify whether the categorizations on a given population are associated to each other or not. Resembling Zibran (2009), a chi-square test of association was conducted on the demographic variables to determine whether there was any association between them at a 5% significance level. To minimize violation of “the rule of five” (Hanke and Reitsch, 1994), the classes of the demographic variables with less than five respondents were combined with the nearest appropriate class. This affected the following variables: highest qualification, experience, and age. The survey data (converted to nominal data via rescaling) was entered into the Predictive Analytics Software Package (PASW), where cross-tabulations in rows and columns were used to perform the chi-square tests for interdependence of the demographic variables.

The chi-test hypotheses used were as follows:

- **Null hypothesis**: There is no association between the two demographic variables.
- **Alternative hypothesis**: There is an association between the two demographic variables.
Table 4.1 shows the demographic variables that are significantly associated with each other by means of ‘Sig’ (the opposite is true). It is worthwhile to note that there is 52% significant association out of the 21 relationships identified.

Table 4.1: Association of Demographic Variables

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Sector</th>
<th>Gender</th>
<th>Age</th>
<th>Experience</th>
<th>Highest Qualification</th>
<th>Status</th>
<th>Size of Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gender</td>
<td>Not Sig</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Age</td>
<td>Not Sig</td>
<td>Not Sig</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Experience</td>
<td>Not Sig</td>
<td>Sig</td>
<td>Sig</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Highest Qualification</td>
<td>Not Sig</td>
<td>Not Sig</td>
<td>Sig</td>
<td>Not Sig</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Status</td>
<td>Not Sig</td>
<td>Sig</td>
<td>Sig</td>
<td>Sig</td>
<td>Not Sig</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of Practice</td>
<td>Sig</td>
<td>Sig</td>
<td>Sig</td>
<td>Sig</td>
<td>Not Sig</td>
<td>Sig</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

4.3 Rescaling Data

Bendixon and Sandler as cited in Crafford (2007) state that researchers who draw on Likert scales ought to rescale the data obtained in order for them to decipher the data in a more accurate and clear-cut manner since Likert scales do not produce interval data. Bendixon and Sandler as cited in Crafford (2007) contend that this aspect, is often overlooked by most researchers and, as such, most researchers who embrace this approach inadvertently tread on disingenuous and often treacherous territory.

Akin to the line of thought espoused by Bendixon and Sandler as cited in Crafford (2007), rescaling of data was conducted in this research. The rescaling was conducted discretely for the evidence survey and the importance survey. The rescaling procedure used was as follows:

- Arrange the constructs on the rows and the rating scale on the columns;
- Generate the frequency count from the response data set;
- Perform a correspondence analysis of the data set;
• Choose a 2-axis solution for simplicity and request the eigenvalue and column plot reports, and

• Using the eigenvalues of the first two axes, find the euclidean distance between the scale points. Tables 4.2 and 4.3 illustrate the results of the rescaling.

**Table 4.2** Rescaling of Evidence survey results

<table>
<thead>
<tr>
<th>Likert scale of Evidence</th>
<th>Eigen Value</th>
<th>Cum. Percent retained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Axis 1</td>
<td>Axis 2</td>
</tr>
<tr>
<td>Axis 1 coordinate</td>
<td>0.31437</td>
<td>0.10358</td>
</tr>
<tr>
<td>Axis 2 coordinate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euclidean distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 No Evidence</td>
<td>1.288</td>
<td>-0.78</td>
</tr>
<tr>
<td>2 Poor Evidence</td>
<td>1.076</td>
<td>0.674</td>
</tr>
<tr>
<td>3 Reasonable Evidence</td>
<td>-0.064</td>
<td>0.247</td>
</tr>
<tr>
<td>4 Good Evidence</td>
<td>-0.131</td>
<td>-0.055</td>
</tr>
<tr>
<td>5 Very Strong Evidence</td>
<td>-0.342</td>
<td>-0.049</td>
</tr>
</tbody>
</table>

**Table 4.3** Rescaling of Importance survey results

<table>
<thead>
<tr>
<th>Likert scale of importance</th>
<th>Eigen Value</th>
<th>Cum. Percent retained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Axis 1</td>
<td>Axis 2</td>
</tr>
<tr>
<td>Axis 1 coordinate</td>
<td>0.06118</td>
<td>0.03427</td>
</tr>
<tr>
<td>Axis 2 coordinate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euclidean distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Not important</td>
<td>1.436</td>
<td>-0.947</td>
</tr>
<tr>
<td>2 Of little importance</td>
<td>-1.425</td>
<td>-1.132</td>
</tr>
<tr>
<td>3 Somewhat important</td>
<td>-0.447</td>
<td>0.349</td>
</tr>
<tr>
<td>4 Important</td>
<td>0.041</td>
<td>-0.044</td>
</tr>
<tr>
<td>5 Very important</td>
<td>0.064</td>
<td>-0.005</td>
</tr>
</tbody>
</table>

The moderate cumulative percentages retained in tables 4.2 and 4.3 indicate that the rescaling results are relatively similar to the ordinal data results meaning that no data was lost during the rescaling exercise (Crafford, 2007). The mean rating percentage for evidence is 87%. This value was obtained by dividing the adjusted scale value for "Reasonable Evidence" of 4.3613 by 5 (Very Strong Evidence). Similarly, the mean rating percentage for importance is 89%. As such, variables on the evidence and importance scales that are rated above the mean ratings of 87% and
89% respectively indicate that most respondents agree that the particular variables (relating to the said questions) address the survey inquiry/s adequately. The higher the ratings are above the mean the stronger the consensus by respondents’ vis-à-vis the variable in question. The opposite is also true. As such, the interpretations section will only comment on the top three ranked variables, as these variables will most likely be rated above or close to the mean. As a result, the interpretations section will reveal the fundamental variables that have a bearing towards the support or lack of support thereof of the hypothesis.

4.4 Testing of Hypothesis

4.4.1 Hypothesis 1

The first hypothesis intimates that hyperinflation has resulted in the lack of a stable national currency in Zimbabwe. As such, the research question read, “How evident is it that each of the variables listed below are lacking as a result of hyperinflation in the Zimbabwean construction industry”. Ordinal data obtained from the survey was converted to interval data by means of re-scaling as before described. This procedure resulted in the computation of the means (also translated to percentage scores) of the stated variables. Table 4.4 below indicates the rescaling results in rank order.

Table 4.4: Variables that are lacking due to hyperinflation

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7.8</td>
<td>Stable currency</td>
<td>98.24%</td>
<td>1</td>
</tr>
<tr>
<td>Q7.6</td>
<td>Profitable rate of return on construction project investments</td>
<td>97.75%</td>
<td>2</td>
</tr>
<tr>
<td>Q7.2</td>
<td>Private sector investment</td>
<td>97.69%</td>
<td>3</td>
</tr>
<tr>
<td>Q7.1</td>
<td>Government investment</td>
<td>97.63%</td>
<td>4</td>
</tr>
<tr>
<td>Q7.3</td>
<td>Individual investment</td>
<td>96.47%</td>
<td>5</td>
</tr>
<tr>
<td>Q7.9</td>
<td>Meaningful wages and salaries</td>
<td>95.76%</td>
<td>6</td>
</tr>
<tr>
<td>Q7.5</td>
<td>Security of investment</td>
<td>95.75%</td>
<td>7</td>
</tr>
<tr>
<td>Q7.11</td>
<td>Abundant supplies of ancillary or secondary construction resources</td>
<td>94.30%</td>
<td>8</td>
</tr>
<tr>
<td>Q7.10</td>
<td>Abundant supplies of materials and fossil fuels</td>
<td>91.75%</td>
<td>9</td>
</tr>
<tr>
<td>Q7.7</td>
<td>Large labour force</td>
<td>91.21%</td>
<td>10</td>
</tr>
<tr>
<td>Q7.4</td>
<td>Quick return on investment</td>
<td>90.92%</td>
<td>11</td>
</tr>
</tbody>
</table>
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4.4.2 Hypothesis 2

Hypothesis 2 stated that the unchecked money supply of Zimbabwean dollars has caused hyperinflation. As such, the research question read, “How evident is it that each of the variables listed below has caused hyperinflation in Zimbabwe”. Table 4.5 below indicates the rescaling results obtained.

Table 4.5: Prospective hyperinflation-causing variables

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.2</td>
<td>The Zimbabwe government and the RBZ arbitrarily printing money</td>
<td>93.88%</td>
<td>1</td>
</tr>
<tr>
<td>Q2.5</td>
<td>President Robert Mugabe</td>
<td>84.07%</td>
<td>2</td>
</tr>
<tr>
<td>Q2.6</td>
<td>Burning’ money phenomenon</td>
<td>83.94%</td>
<td>3</td>
</tr>
<tr>
<td>Q2.3</td>
<td>Sanctions</td>
<td>81.61%</td>
<td>4</td>
</tr>
<tr>
<td>Q2.4</td>
<td>Expectations of higher incomes and wages</td>
<td>61.36%</td>
<td>5</td>
</tr>
<tr>
<td>Q2.1</td>
<td>Zimbabwe’s rate of growth is faster than the planned rate of growth</td>
<td>48.65%</td>
<td>6</td>
</tr>
</tbody>
</table>

4.4.3 Hypothesis 3

Hypothesis 3 stated that hyperinflation has resulted in high interest rates that have resulted in investor shortages. As such, the research question read,” How evident is it that each of the variables listed below has resulted in investor shortages in the Zimbabwean construction industry”. Table 4.6 below indicates the rescaling results obtained.

Table 4.6: Prospective cause of investor-shortage variables

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4.2</td>
<td>High Interests rates induced by hyperinflation</td>
<td>97.51%</td>
<td>1</td>
</tr>
<tr>
<td>Q4.6</td>
<td>Low emotional investment drive towards Zimbabwe</td>
<td>89.05%</td>
<td>2</td>
</tr>
<tr>
<td>Q4.4</td>
<td>Unstable political and economic climate</td>
<td>82.06%</td>
<td>3</td>
</tr>
<tr>
<td>Q4.1</td>
<td>Sanctions</td>
<td>81.43%</td>
<td>4</td>
</tr>
<tr>
<td>Q4.5</td>
<td>Downturn in government investment</td>
<td>81.02%</td>
<td>5</td>
</tr>
<tr>
<td>Q4.3</td>
<td>Business cycles</td>
<td>76.59%</td>
<td>6</td>
</tr>
</tbody>
</table>
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4.4.4 Hypothesis 4

Hypothesis 4 stated that hyperinflation is forcing labour to emigrate. As such, the research question read, “How evident is it that each of the variables listed below has resulted in labour shortages in the Zimbabwean construction industry”. Table 4.7 below indicates the rescaling results obtained.

Table 4.7: Prospective cause of labour-emigration variables

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5.1</td>
<td>Skilled labour ‘Brain drain’ induced by hyperinflation</td>
<td>99.51%</td>
<td>1</td>
</tr>
<tr>
<td>Q5.2</td>
<td>Unskilled labour migration induced by hyperinflation</td>
<td>96.91%</td>
<td>2</td>
</tr>
<tr>
<td>Q5.3</td>
<td>Skilled and unskilled labour migration induced by the 2010 World Cup</td>
<td>87.35%</td>
<td>3</td>
</tr>
<tr>
<td>Q5.4</td>
<td>Seasonal construction industry migration to other countries</td>
<td>75.04%</td>
<td>4</td>
</tr>
<tr>
<td>Q5.6</td>
<td>Slow replacement of retired or aging workers</td>
<td>65.25%</td>
<td>5</td>
</tr>
<tr>
<td>Q5.5</td>
<td>Retirement of baby boomers (Baby making generation)</td>
<td>62.95%</td>
<td>6</td>
</tr>
</tbody>
</table>

4.4.5 Hypothesis 5

Hypothesis 5 stated that hyperinflation is causing material and fossil fuel shortages. As such, the research question read, “How evident is it that each of the variables listed below has resulted in material and fossil fuel shortages in the Zimbabwean construction industry”. Table 4.8 below indicates the rescaling results obtained.

Table 4.8: Prospective cause of material and fossil fuel shortage variables

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q6.3</td>
<td>Lack of foreign currency induced by hyperinflation</td>
<td>98.73%</td>
<td>1</td>
</tr>
<tr>
<td>Q6.1</td>
<td>Price controls induced by hyperinflation</td>
<td>97.58%</td>
<td>2</td>
</tr>
<tr>
<td>Q6.6</td>
<td>Collusion and speculation by Zimbabweans resulting in artificial shortages</td>
<td>85.91%</td>
<td>3</td>
</tr>
<tr>
<td>Q6.4</td>
<td>Excess demand outstripping supply</td>
<td>82.75%</td>
<td>4</td>
</tr>
<tr>
<td>Q6.2</td>
<td>Sanctions</td>
<td>78.45%</td>
<td>5</td>
</tr>
<tr>
<td>Q6.5</td>
<td>Distribution logistics problems</td>
<td>60.95%</td>
<td>6</td>
</tr>
</tbody>
</table>
4.4.6 Hypothesis 6

Hypothesis 6 stated that hyperinflation is the root cause of the collapse of the Zimbabwean construction industry. As such, the research question read, “How evident is it that each of the variables listed below is active as a result of hyperinflation in Zimbabwe”. Table 4.9 below indicates the rescaling results as before described for the variables that are active as a result of hyperinflation and hence indicative of a collapsed economy and construction sector. Supplementary to this, another question was asked to further validate the earlier enquiry. The question read, ‘How evident is it that each of the variables listed below has resulted in the collapse of the Zimbabwean construction industry”. Table 4.10 below indicates the results of this enquiry.

Table 4.9: Variables that are active as a result of hyperinflation

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3.1</td>
<td>Uncertainty resulting in construction related business closures</td>
<td>98.97%</td>
<td>1</td>
</tr>
<tr>
<td>Q3.5</td>
<td>Low economic growth resulting in a scarcity of projects</td>
<td>97.51%</td>
<td>2</td>
</tr>
<tr>
<td>Q3.2</td>
<td>Lower purchasing power of construction worker incomes</td>
<td>95.75%</td>
<td>3</td>
</tr>
<tr>
<td>Q3.4</td>
<td>Lower worker morale affecting construction productivity</td>
<td>94.55%</td>
<td>4</td>
</tr>
<tr>
<td>Q3.3</td>
<td>Speculative activity diverting resources way from construction</td>
<td>90.03%</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4.10: Variables that have resulted in the collapse of the construction sector

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8.3</td>
<td>Hyperinflation induced lack of materials and fuel</td>
<td>98.36%</td>
<td>1</td>
</tr>
<tr>
<td>Q8.4</td>
<td>All or any combination of the above</td>
<td>97.39%</td>
<td>2</td>
</tr>
<tr>
<td>Q8.1</td>
<td>Hyperinflation induced lack of investors</td>
<td>97.15%</td>
<td>3</td>
</tr>
<tr>
<td>Q8.2</td>
<td>Hyperinflation induced lack of labour</td>
<td>92.72%</td>
<td>4</td>
</tr>
</tbody>
</table>

Above Average
4.4.7 Importance Ranking

The level of importance of pertinent variables was obtained and ranked as shown in Table 4.11 below.

**Table 4.11: Importance level of variable as ranked by respondents**

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Descriptions</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9.9</td>
<td>Meaningful wages and salaries</td>
<td>99.52%</td>
<td>1</td>
</tr>
<tr>
<td>Q9.10</td>
<td>Abundant supplies of materials and fossil fuels</td>
<td>99.22%</td>
<td>2</td>
</tr>
<tr>
<td>Q9.11</td>
<td>Abundant supplies of ancillary or secondary construction resources</td>
<td>99.22%</td>
<td>2</td>
</tr>
<tr>
<td>Q9.6</td>
<td>Good national investment climate (non construction related investment)</td>
<td>99.17%</td>
<td>4</td>
</tr>
<tr>
<td>Q9.2</td>
<td>Private sector investment</td>
<td>98.76%</td>
<td>5</td>
</tr>
<tr>
<td>Q9.7</td>
<td>Profitable rate of return on construction project investments</td>
<td>98.41%</td>
<td>6</td>
</tr>
<tr>
<td>Q9.3</td>
<td>Individual investment</td>
<td>97.45%</td>
<td>7</td>
</tr>
<tr>
<td>Q9.1</td>
<td>Government Investment</td>
<td>97.43%</td>
<td>8</td>
</tr>
<tr>
<td>Q9.12</td>
<td>Low inflation or absence of hyperinflation</td>
<td>97.23%</td>
<td>9</td>
</tr>
<tr>
<td>Q9.5</td>
<td>Security of investment</td>
<td>96.42%</td>
<td>10</td>
</tr>
<tr>
<td>Q9.4</td>
<td>Quick return on investment</td>
<td>96.12%</td>
<td>11</td>
</tr>
<tr>
<td>Q9.8</td>
<td>Large labour force</td>
<td>95.74%</td>
<td>12</td>
</tr>
</tbody>
</table>

4.5 Quadrant analysis

An Importance-Evidence quadrant analysis as prescribed by Zikmund (2003) was conducted in order to incorporate the rankings of the mean importance and mean evidence (lacking) levels of the variables identified in Table 4.11 (Variables 1 to 11). Basically, a quadrant is a cross tabulation derivative that plots two rating measures against each other on a two-dimensional plane. The position of the variable in question is then plotted in the two-dimensional plane and is hence qualified using the two dimensions on the quadrant. In this particular instance, the objective was to determine the position of the critical variables that are in need of immediate remedy in Zimbabwe on the importance-evidence quadrant. The following figure shows the results of the analysis.
4.5.1 Open-ended Question 1

The first open-ended question sought to determine whether hyperinflation strongly affected one’s ability to acquire goods or services or both. A yes or no option was presented to the respondents with a prompt to motivate their response further. The responses were ranked according to generic groupings established via categorisation. The table below presents the results obtained.

Table 4.12: Open-ended question 1

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>%</th>
<th>Rank</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, it is impossible to plan ahead</td>
<td>100%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Yes, it has created corruption</td>
<td>66.60%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Yes, no reason</td>
<td>33.30%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>No, no Reason</td>
<td>0%</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

*Above Average* | *Below Average*
4.5.2 Open-ended question 2

The second open-ended question sought to determine how hyperinflation affected the construction industry the most. The responses were ranked according to the generic groupings established via categorisation. The table below presents the results obtained.

Table 4.13: Open-ended question 2

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created Project scarcity</td>
<td>100.00%</td>
<td>1</td>
</tr>
<tr>
<td>Created Investor scarcity</td>
<td>83.30%</td>
<td>2</td>
</tr>
<tr>
<td>Skill and materials drain</td>
<td>66.60%</td>
<td>3</td>
</tr>
<tr>
<td>Created valueless currency</td>
<td>33.30%</td>
<td>4</td>
</tr>
<tr>
<td>Taken away planning function</td>
<td>33.30%</td>
<td>4</td>
</tr>
<tr>
<td>Lessen export and import viability</td>
<td>0.00%</td>
<td>6</td>
</tr>
<tr>
<td>Abnormal Escalation</td>
<td>0.00%</td>
<td>6</td>
</tr>
</tbody>
</table>

4.5.3 Open-ended question 3

The third open-ended question sought to determine whether or not inflation should be classified as an extraordinary project risk that warrants the addition of an "inflation clause" in construction contracts to safeguard industry players? A yes or no option was presented to the respondents with a prompt to motivate their response further. The responses were ranked according to the generic groupings established via categorisation. The table below presents the results obtained.

Table 4.14: Open-ended question 3

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, but when inflation graduates to hyperinflation</td>
<td>100.00%</td>
<td>1</td>
</tr>
<tr>
<td>Yes, no reason</td>
<td>66.60%</td>
<td>2</td>
</tr>
<tr>
<td>No, ordinary escalation clauses already cover this</td>
<td>33.30%</td>
<td>3</td>
</tr>
<tr>
<td>No, no reason</td>
<td>0.00%</td>
<td>4</td>
</tr>
</tbody>
</table>
4.5.4 Open-ended question 4

The fourth open-ended question sought to determine how the Zimbabwean construction industry could be revived. The responses were ranked according to the generic groupings established via categorisation. The table below presents the results obtained.

**Table 4.15: Open-ended question 4**

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>%</th>
<th>Rank</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Create stable socio-economic environment</td>
<td>100.00%</td>
<td>1</td>
<td><strong>Above Average</strong></td>
<td></td>
</tr>
<tr>
<td>Form new government</td>
<td>50.00%</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase infrastructure expenditure</td>
<td>50.00%</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove sanctions</td>
<td>25.00%</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adopt or use foreign currency</td>
<td>0.00%</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.6 Other Analysis

4.6.1 Gap Analysis between Importance and Evidence of Variables

The table below indicates the gaps that exist between the ratings of importance and evidence of the listed variables.

**Table 4.16: Gap Analysis between Importance and Evidence of Variables**

<table>
<thead>
<tr>
<th>Variable Descriptions</th>
<th>Importance</th>
<th>Evidence</th>
<th>Current Gap</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abundant supplies of materials and fossil fuels</td>
<td>99.22%</td>
<td>91.75%</td>
<td>7.47%</td>
<td>1</td>
</tr>
<tr>
<td>Quick return on investment</td>
<td>96.12%</td>
<td>90.92%</td>
<td>5.20%</td>
<td>2</td>
</tr>
<tr>
<td>Abundant supplies of ancillary or secondary construction resources</td>
<td>99.22%</td>
<td>94.30%</td>
<td>4.92%</td>
<td>3</td>
</tr>
<tr>
<td>Large labour force</td>
<td>95.74%</td>
<td>91.21%</td>
<td>4.53%</td>
<td>4</td>
</tr>
<tr>
<td>Meaningful wages and salaries</td>
<td>99.52%</td>
<td>95.76%</td>
<td>3.76%</td>
<td>5</td>
</tr>
<tr>
<td>Private sector investment</td>
<td>98.76%</td>
<td>97.69%</td>
<td>1.07%</td>
<td>6</td>
</tr>
<tr>
<td>Individual investment</td>
<td>97.45%</td>
<td>96.47%</td>
<td>0.98%</td>
<td>7</td>
</tr>
<tr>
<td>Security of investment</td>
<td>96.42%</td>
<td>95.75%</td>
<td>0.67%</td>
<td>8</td>
</tr>
<tr>
<td>Profitable rate of return on construction project investments</td>
<td>98.41%</td>
<td>97.75%</td>
<td>0.66%</td>
<td>9</td>
</tr>
<tr>
<td>Government Investment</td>
<td>97.43%</td>
<td>97.63%</td>
<td>-0.20%</td>
<td>10</td>
</tr>
</tbody>
</table>
4.6.2 Chi-Square Goodness of Fit Test

The chi-square goodness of fit test was conducted on all the questionnaire variables save for the open-ended section. According to Lani (2009), this statistical procedure is used to determine how well an empirical distribution fits the normal distribution. The following hypotheses were assumed in the test:

- **Null hypothesis:** There is no significant difference between the observed empirical data and the expected normal distribution.

- **Alternative hypothesis:** There is a significant difference between the observed empirical data and the expected normal distribution data. The results of the test are shown below.

**Table 4.17: Chi-square goodness of fit test**

<table>
<thead>
<tr>
<th>Questionnaire Reference</th>
<th>Variable Description</th>
<th>Result of Goodness of Fit Test</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.1</td>
<td>Zimbabwe’s rate of growth is faster than the planned rate of growth</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q2.2</td>
<td>The Zimbabwean government and the RBZ arbitrarily printing money</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q2.3</td>
<td>Sanctions</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q2.4</td>
<td>Expectations of higher incomes and wages</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q2.5</td>
<td>President Robert Mugabe</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q2.6</td>
<td>“Burning” money phenomenon</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q3.1</td>
<td>Uncertainty resulting in construction-related business closures</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q3.2</td>
<td>Lower purchasing power of construction worker incomes</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q3.3</td>
<td>Speculative activity which has diverted resources away from construction</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q3.4</td>
<td>Low worker morale which has affected construction productivity</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q3.5</td>
<td>Low economic growth which has resulted in a scarcity of projects</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q4.1</td>
<td>Sanctions</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q4.2</td>
<td>High Interests rates induced by hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q4.3</td>
<td>Business cycles</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q4.4</td>
<td>Unstable political and economic climate</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q4.5</td>
<td>Downturn in government investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q4.6</td>
<td>Low emotional investment drive towards Zimbabwe</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q5.1</td>
<td>Skilled labour &quot;brain drain&quot; induced by hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q5.2</td>
<td>Unskilled labour migration induced by hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q5.3</td>
<td>Skilled and unskilled labour migration induced by the 2010 World Cup</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q5.4</td>
<td>Seasonal construction industry migration to other countries</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q5.5</td>
<td>Retirement of baby-boomers (Baby making generation)</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q5.6</td>
<td>Slow replacement of retired or aging workers</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q6.1</td>
<td>Price controls induced by hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q6.2</td>
<td>Sanctions</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q6.3</td>
<td>Lack of foreign currency induced by hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q6.4</td>
<td>Excess demand outstripping supply</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q6.5</td>
<td>Distribution logistics problems</td>
<td>Sig</td>
<td>1</td>
</tr>
<tr>
<td>Q6.6</td>
<td>Collusion and speculation by Zimbabweans resulting in artificial shortages</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.1</td>
<td>Government investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.2</td>
<td>Private sector investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.3</td>
<td>Individual investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.4</td>
<td>Quick return on investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.5</td>
<td>Security of investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.6</td>
<td>Profitable rate of return on construction project investments</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.7</td>
<td>Large labour force</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.8</td>
<td>Stable currency</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.9</td>
<td>Meaningful wages and salaries</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.10</td>
<td>Abundant supplies of materials and fossil fuels</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q7.11</td>
<td>Abundant supplies of ancillary or secondary construction resources</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q8.1</td>
<td>Hyperinflation induced lack of investors</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q8.2</td>
<td>Hyperinflation induced lack of labour</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q8.3</td>
<td>Hyperinflation induced lack of materials and fuel</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q8.4</td>
<td>All or any combination of the above</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.1</td>
<td>Government Investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.2</td>
<td>Private sector investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.3</td>
<td>Individual investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.4</td>
<td>Quick return on investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.5</td>
<td>Security of investment</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.6</td>
<td>Good national investment climate (non construction-related investment)</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.7</td>
<td>Profitable rate of return on construction project investments</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.8</td>
<td>Large labour force</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.9</td>
<td>Meaningful wages and salaries</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.10</td>
<td>Abundant supplies of materials and fossil fuels</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.11</td>
<td>Abundant supplies of ancillary or secondary construction resources</td>
<td>Not Sig</td>
<td>0</td>
</tr>
<tr>
<td>Q9.12</td>
<td>Low inflation or absence of hyperinflation</td>
<td>Not Sig</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 4.17 Chi-square goodness of fit test Results** (Continued)
5.1 INTERPRETATION OF RESULTS

This chapter discusses the findings set out in the previous chapter vis-à-vis the understanding and hence eventual support or lack of support thereof of the research hypothesis.

5.1.1 Respondent sample

The response rate of the study is 32.97%. Contemporary built environment survey response rates range from as little as 7% to as much as 40% in general (Crafford, 2007). As such, comparing the study response rate with the abovementioned contemporary study response rates it would seem that the study response rate would suffice for the relevant hypothesis tests to be conducted satisfactorily.

5.1.2 Demographic profiles of respondents

An analysis of the demographic profiles of respondents revealed the following:

- The analysis of the response rate revealed that the client to contractor response rate is approximately 6 in 10 clients compared to 3 in 10 contractors (in terms of response to the survey). Clients drive the construction sector (Myers, 2004), as such, they possess the most fundamental information required by the research in addressing the effects of hyperinflation on the Zimbabwean construction industry. As such, the higher client to contractor response rate favours the research.

- The sectoral distribution reveals that there are more contractors compared to clients in Zimbabwe. To a certain extent, the low client presence validates the assertion by Gombera et al (1999) that Zimbabwe is suffering from investor shortages.

- The age and experience distribution of the respondents indicates that the respondents are all adults who possess a moderate to well-established degree of experience in the construction industry. The results indicate that the respondents experienced the hyperinflation era in Zimbabwe first hand as
described by Hanke (2008a). This occurrence further validates the findings of the research.

- The gender distribution indicates that there were equal numbers of males and females who responded to the research. Nelson and Quick (1999) suggest that attributes such as gender determine how a respondent responds to a survey. As such, the 50/50 split in the research presents a balanced respondent view that limits gender bias in the research findings.

- All the respondents either had a postgraduate or undergraduate qualification. This high educational level aspect further enhanced the credibility of the survey responses, and

- Most of the respondents are senior staff members. However, there is a fair amount of junior staff who responded to the survey. This presents a good blend of substantial as well as novice experience in the industry. Overall, this positive occurrence ought to provide helpful feedback.

5.1.3 Association of Demographic Variables

Over half of the demographic variables i.e. 52% are significantly associated. This occurrence is consistent with Nelson and Quick (1999) who suggest that there are always interrelationships between demographic variables regarding responses to surveys. The moderate significance level equates to a moderate degree of influence of the associations on the responses. Zibran (2009) however warns that the institution of any statistical association by means of the chi-square test does not essentially entail any underlying relationship between the attributes compared, but does indicate that the reason for the association is worth probing.

5.2 Testing the hypotheses

5.2.1 Hypothesis 1

The first hypothesis intimates that hyperinflation has resulted in the lack of a stable national currency in Zimbabwe. Table 4.4 indicates that all of the top three ranked variables are rated above the mean rating of (87%) indicating that quite a number of
elements besides the stable currency are lacking in Zimbabwe because of hyperinflation. The top three ranked variables in descending order are:

- **Rank 1 (above average): Lack of a stable currency** - Oyediran (2006) suggests that this is one of the major symptoms of severe hyperinflation. Gono (2005) concurs and suggests that this was one of the worst effects of hyperinflation in Zimbabwe.

- **Rank 2 (above average): Profitable rate of return on construction project investment** - This is in line with Boyd et al (2006) who suggest that as inflation rises interest rates also rise, thereby reducing profitable rates of return in industry.

- **Rank 3: Private sector investment (above average)** - This is in line with Cumming (2003) who states that inflation exerts a negative influence on investment returns, which discourages investment in an inflationary environment.

The above average rating of all top three variables indicates that hyperinflation results in more than just the lack of a stable currency. Fatefully for the Zimbabwean construction sector, low profits and low private investment have negatively affected the industry, leading to its collapse. Nonetheless, the “lack of a stable currency” was ranked highest among the three variables. As such, hypothesis 1 is supported.

### 5.2.2 Hypothesis 2

Hypothesis 2 stated that the unchecked money supply of Zimbabwean dollars has caused hyperinflation. The highest ranked variable is also the only variable rated above the mean rating of 87%. This indicates that most respondents agree that this variable has solely caused hyperinflation. Table 4.5 indicates that the top three ranked variables in descending order are:

- **Rank 1 (above average): The Zimbabwe government and RBZ arbitrarily printing money** - Gono (2005), Makochekanwa (2007), Coorey et al (2007), and Hanke (2008f) concur and fervently posit that excessive money supply is indeed the sole cause of hyperinflation in Zimbabwe.
• **Rank 2 (Below average): President Robert Mugabe** – Although Wines (2006) suggests that President Mugabe (persona) is the cause of hyperinflation in Zimbabwe the respondents are not overly convinced that this is the root cause of hyperinflation in Zimbabwe. That said however, the below mean rating of the variable does not eliminate President Mugabe's role as a collaborative cause of hyperinflation in Zimbabwe since the President controls the RBZ (Gono,2005).

• **Rank 3 (Below average): Burning money phenomenon** - Fleming (2008) states that the money created by the burning phenomenon generated high levels of money supply growth that led to hyperinflation. Respondents however rated this variable lowly. It can be argued that this is because the burning money phenomenon (according to some scholars) commenced at the peak of Zimbabwe's hyperinflation and as such, the phenomenon may have only served to exacerbate hyperinflation in Zimbabwe without necessarily causing the phenomenon to start with.

Nonetheless the “Zimbabwean government and the RBZ arbitrarily printing money” was ranked as the most probable cause of hyperinflation in Zimbabwe. As such, hypothesis 2 is supported.

**5.2.3 Hypothesis 3**

Hypothesis 3 stated that hyperinflation has resulted in high interest rates leading to investor shortages. The top two variables are rated above the mean rating of 87%. Table 4.6 indicates that the top three ranked variables in descending order are:

• **Rank 1 (Above average): High interest rates induced by hyperinflation** – The Fisher Effect as described by Duczynski (2000) suggests that high interest rates induced by hyperinflation discourage investment. Cumming (2003) concurs and suggests that inflation exerts a very negative influence on investment returns thereby discouraging investment in an inflationary environment. This variable was ranked well above the mean rating indicating that it is the runaway cause of investor shortages in Zimbabwe.
• **Rank 2 (Above average): Low emotional investment drive towards Zimbabwe** - Mambondiani (2008) contends that investment decisions hinge on individual emotions. It can be argued therefore that respondents ranked this variable highly because of Zimbabwe’s regional and international image that has resulted in a lot of negative sentiment towards the country. As such, this phenomenon in collaboration with high interest rates may well have incensed investors shortages in the country.

• **Rank 3 (Below average): Unstable economical and political climate** - Richardson (2005) suggests that if a country has an unstable economical and political environment in the long run the economy collapses characterised by investor shortages among other elements. The respondents did not seem overly convinced that this was the main cause of investor shortages in Zimbabwe hence the lower rating. It can be argued however that this indicates how investors often overlook risky socio-political environments for promises of good returns.

Nonetheless, the “high interest rates induced by hyperinflation” was ranked as the most probable cause of investor shortages in Zimbabwe. As such, hypothesis 3 is supported.

### 5.2.4 Hypothesis 4

Hypothesis 4 stated that hyperinflation is forcing labour to emigrate. All of the top three variables were rated above the mean rating of 87%. Table 4.7 indicates that the top three ranked variables in descending order are:


• **Rank 2 (Above average): Unskilled labour migration induced by hyperinflation** – Chimanikire (2002), Crush et al (2001) and the International Organization for
Migration (2003) suggest that drops in real income, currency devaluation and rising cost of living (after effects of hyperinflation) result in unskilled labour brain drain and labour migrations.

- **Rank 3 (Above average): Skilled and unskilled labour migration induced by the 2010 World Cup** - Chisi (2008) suggests that a large degree of personnel in Zimbabwe have left for South Africa due to the huge infrastructure demands of the 2010 soccer world cup tournament.

The above mean ratings of the top three variables indicates that although hyperinflation has resoundingly led to labour scarcities in Zimbabwe, major infrastructural developments in South Africa for the 2010 world cup have also exacerbated the skills shortages. Nonetheless, the “Skilled labour `brain drain` induced by hyperinflation” was ranked as the most probable cause of labour shortages in Zimbabwe. As such, hypothesis 4 is supported.

### 5.2.5 Hypothesis 5

Hypothesis 5 stated that hyperinflation is causing foreign currency shortages leading to material and fossil fuel shortages in Zimbabwe. The top two variables are rated above the mean rating of 87%. Table 4.8 indicates that the top three ranked variables in descending order are:

- **Rank 1 (Above average): Lack of foreign currency induced by hyperinflation** - Gono (2009) states that Zimbabwe does not have sufficient foreign currency reserves to purchase fossil fuel energy. Gono (2005) attributes the foreign currency shortages that have led to fuel and material shortages in Zimbabwe to hyperinflation. This variable was ranked the highest and indicates that hyperinflation has indeed resulted in material and fuel scarcities through the lack of foreign currency.

- **Rank 2 (Above average): Price controls induced by hyperinflation** - The African Economic Outlook (2004) suggets that price control interventions in Zimbabwe have not produced the expected effects of lowering inflation but rather that they have led to even more acute shortages in the country. The above average
rating indicates that respondents agree that price controls are ill advised in a hyperinflation-riddled environment.

- **Rank 3 (Below average): Collusion and speculation by Zimbabweans** - Although Gono (2005) asserts on occasion that Zimbabwe’s material and fuel shortages are fabricated, respondents do not overly agree with Gono hence the variables lower ranking. Although this variable is rated below average, its mention in the top three is alarming for Zimbabwe as it indicates that some respondents feel that Zimbabwe is grappling with some (albeit minute) form of opportunism and corruption, a common but undesirable African ill which should be nipped in the bud before it gets out of hand.

Nonetheless, the “Lack of foreign currency induced by hyperinflation” was ranked as the most probable cause of material and fossil fuel shortages in Zimbabwe. As such, hypothesis 5 is supported.

### 5.2.6 Hypothesis 6

Hypothesis 6 stated that hyperinflation is the root cause of the collapse of the Zimbabwean construction industry. All of the top three variables were rated above the mean rating of 87%. Table 4.9 indicates that the top three ranked variables in descending order are:

- **Rank 1 (Above average): Uncertainty resulting in construction-related business closures** - This is in line with Tödter et al (2007) who state that high inflation creates uncertainty, shortens nominal contracts and increases the reluctance to make future commitments, thereby resulting in business closures that lead to economic collapse.

- **Rank 2 (Above average): Low economic growth resulting in a scarcity of projects** - This is in line with Oyediran (2006) who states that inflation leads to reduced economic growth that stunts growth in all industrial sectors of a nation.

- **Rank 3 (Above Average): Lower purchasing power of construction worker incomes** - This is in line with Laycock (1999) who states that that labour emerges altogether as paid for. Van De Vliert et al (2007) concur and state that
decent pay is the reason most often mentioned for doing work there by suggesting that lower purchasing power of incomes is reason enough for individuals to abandon industry thereby resulting in a collapse of that particular sector due to labour shortages.

All of the variables stated above were ranked above average indicating that there is a strong consensus among respondents that hyperinflation has indeed led to the collapse of the Zimbabwean economy by resulting in business closures, stunted economic growth and lower purchasing power of incomes. Since all of the variables are closely ranked it can also be argued that the variables have inadvertently collaborated to bring the Zimbabwean construction industry to a halt.

Table 4.10 in turn indicates the summary rankings of the variables that have actually resulted in the collapse of the Zimbabwean construction sector. The top three ranked variables in descending order are:

- Hyperinflation induced lack of materials and fuel;
- All or any combination of the above, and
- Hyperinflation induced lack of investors.

All the variables were rated well above the mean rating of 87% indicating that all of the variables have actually resulted in the collapse of the Zimbabwean construction sector. These findings consolidate the deductions made above. As such, Hypothesis 6 is supported.

### 5.3 Importance Ranking

Table 4.11 indicates the rankings of the variables that are of critical importance to the Zimbabwean construction industry. All the variables were ranked above the mean rating of importance of 89%. The top three ranked variables in descending order are:
• Rank 1 (Above average): Meaningful wages and salaries - This is in line with Inglehart et al (2004) who suggests that work is done primarily for a decent income such that one has no “qualms about money”. It is evident that this is a very important aspect for the Zimbabwean construction sector.

• Rank 2: Abundant supplies of ancillary or secondary construction resources and Abundant supplies of materials and fossil fuels (tied at second place) (Above average) - Nasir (2008) and Rono (2000) state that the construction industry is a resource consuming industry. As such, it is important for the industry to have an abundant supply of resources (human and ancillary) at hand to function optimally.

The ranking results indicate that wages and salaries are fundamental over all else in the industry.

5.4 Quadrant Analysis

Figure 4.7 presents the Importance-Evidence quadrant analysis of the variables identified in Table 4.11 (Variables 1-11). The quadrant analysis indicates that variables 1-11 are extremely important but that they are also all lacking in the extreme in Zimbabwe. The absence of these variables in Zimbabwe is in line with the hyperinflation after effects presented by Oyediran (2006); Gono (2005); Tödter et al (2007), Poole et al (2007) and Billi et al (2008). As such in order for the Zimbabwean construction sector to be revived there is a need to ensure that these variables are at their optimum all the time.
5.5 Open-ended Question 1

The first open-ended question sought to determine whether hyperinflation strongly affected one’s ability to acquire goods or services or both. Table 4.12 indicates that hyperinflation does affect one’s ability to acquire goods and services by hindering one’s ability to plan properly a phenomenon that is validated by Oyediran (2006) and Tödter et al (2007).

5.5.1 Open-ended Question 2

The second open-ended question sought to determine how hyperinflation affected the construction industry the most. Table 4.13 indicates that hyperinflation has affected the construction industry the most by creating project scarcities in Zimbabwe. Dore et al (2008) concur and state that since the inception of hyperinflation in Zimbabwe there has been a total lack of replacement as well as new building or infrastructural construction.

5.5.2 Open-ended Question 3

The third open-ended question sought to determine whether inflation should be classified as an extra ordinary project risk that warrants the addition of an “inflation clause” in construction contracts to safeguard industry players. Table 4.14 indicates that there should be a special inflation clause in construction contracts but that the clause should be hyperinflation-specific, as ordinary construction contracts already cater for inflation often termed “escalation”. McMillan (2007) concurs and suggests that escalation clauses only cover inflation at milder levels indicating the need for a hyperinflation specific clause.

5.5.3 Open-ended Question 4

The fourth open-ended question sought to determine how best the Zimbabwean construction industry could be revived. Table 4.15 prescribes the creation of a stable socio-economic environment as the best remedy for the revival of the Zimbabwean construction industry. This is in line with Richardson (2005) who suggests that a
stable socio-economic environment is the key to Zimbabwe’s overall economic revival.

5.6 Other Analysis

5.6.1 Gap Analysis between Importance and Evidence of Variables

The top three ranked variables of the gap analysis between importance and evidence in descending order are:

- Abundant supplies of materials and fossil fuels;
- Quick return on investment, and
- Abundant supplies of ancillary or secondary construction resources.

The gap analysis indicates that although these 3 variables are extremely important to the Zimbabwean construction industry they are unfortunately also extremely absent. As a result, although there are wide gaps in all 11 variables, these 3 variables take priority (large gaps) and as such have to be addressed with immediate effect, in this particular order if the Zimbabwean construction industry is to be resurrected.

5.6.2 Chi-Square Goodness of Fit Test

The Chi-Square goodness of fit test sought to determine whether there was any significant difference between the observed empirical data and the expected normal distribution data. Table 4.17 shows that 9 of the 56 variables indicate that there is a significant difference between the observed empirical data value and the expected normal distribution data. This means that 84% of the variables indicate that there is no significant difference between the observed empirical data value and the expected normal distribution data. As a result, the results of the study are representative of the views of the larger Zimbabwean population since they relatively fit the expected normal distribution.
6.1 CONCLUSIONS

6.1.1 Findings in relation to research objectives

The research sought to address three issues, which are fundamental to the understanding of the collapse of the Zimbabwean construction industry and its ultimate resurrection. The first objective was to determine the cause of hyperinflation in Zimbabwe. After ranking and analysis of the data it was established that the Zimbabwean government and the RBZ arbitrarily printing money are the root cause of hyperinflation in Zimbabwe. As such, the first objective was achieved.

The second objective sought to investigate the relationship between hyperinflation and the collapse of the Zimbabwean construction industry. The data analysis revealed that hyperinflation has resulted in the following:

- Lack of a stable national currency;
- Lack of investors;
- Lack of labour, and
- Lack of material and fossil fuel.

As such, hyperinflation distorts markets of all forms (currency, investor, labour, materials and fuel markets), a phenomenon that results in shortages that lead to the eventual collapse of industry and hence the economy at large. The research also revealed that hyperinflation has an antagonistic relationship with the construction industry: that is, as hyperinflation increases, construction activity decreases because of a lack of key variables required by the industry to function optimally. Scientifically, it can be concluded that hyperinflation shares an inverse relationship with the construction industry. The establishment of this relationship led to the achievement of the second objective.
The third objective sought to determine if hyperinflation is responsible for the collapse of the Zimbabwean construction industry. After ranking, it was established that hyperinflation has mainly resulted in business closures and stunted economic growth, two major factors that have also resulted in scarcity of construction projects. These variables, combined with the hyperinflation-induced market distortions described above have indeed led to the collapse of the Zimbabwean construction industry. As such, the third objective was achieved.

6.2 Resurrecting the Zimbabwean Construction Industry

The quadrant analysis that was performed indicates that the variables, which are currently lacking in Zimbabwe, are critical and important variables that are a precondition for the revival of the construction industry. In addition, the open-ended section revealed that it is impossible to plan and acquire goods and services in a hyperinflationary environment. As such, in order to redress this imbalance, the study indicates that there is a need for the creation of a stable socio-economic environment, a new government or an increase in infrastructure expenditure in order to resuscitate the economy and hence the construction sector, assuming that the necessary preconditions have been met.

6.3 Benefits

A number of benefits will accrue from this research. The study has added to the limited body of knowledge of inflation and its determinants in Africa and Zimbabwe in particular. In addition, the research quadrant and gap analysis identified variables that are of critical importance to the construction industry. Some of these variables may have been previously unknown since they only become apparent in a hyperinflationary environment, which is in itself a rare phenomenon.

The antagonistic relationship that exists between hyperinflation and the construction industry was also exposed. The revelation of the dynamics of this relationship in this study may be used as a blueprint by which tools or expertise to solve or mitigate hyperinflation in Zimbabwe and elsewhere may be developed.
Finally, the research has given an indication as to how the Zimbabwean construction sector can be resurrected. If applied, these prescriptions will benefit Zimbabwe by mitigating the country’s inflation, thereby redressing the wealth and income distortions that currently exist. As such, Zimbabwe may eventually reconcile its objectives to those of SADC.

6.4 Future research

The study presents a number of debatable issues that at face value ought to be investigated further. Chief among these issues is the effect of a new national government as remedy to hyperinflation. Similarly, the merits of a construction industry stimulus (increase in infrastructure expenditure) in a hyperinflationary environment need to be investigated to ascertain whether this prescription can apply to a hyperinflation-ravaged construction sector, as stimulus packages are effective in certain non-construction sectors. More importantly however, the research acknowledges that in January 2009, the Zimbabwean government gave legal tender status to the South African Rand and the United States Dollar (Kairiza, 2009). This process, often coined ‘Dollarization’ consisted of the replacement of the useless Zimbabwe dollar by the Rand and United States Dollar and had the effect of stopping hyperinflation in Zimbabwe thereby causing the country to enter into deflation of -2.34 percent and -3.26 percent in January and February of 2009 respectively (Kairiza, 2009). As such, although the research alludes to dollarization, its effects on the Zimbabwean construction industry are not investigated. As such, this presents an area of interest that warrants further study. Collectively, these areas of study would add to the limited body of knowledge pertaining to the counteraction of hyperinflation in general and in particular vis-à-vis the construction industry.
REFERENCES AND BIBLIOGRAPHY


References and Bibliography


References and Bibliography


References and Bibliography


APPENDIX 1

Cover Letter to Questionnaire
Dear Madam / Sir

1 June 2009

RE: The Effects of Hyperinflation on the Zimbabwean Construction Industry

This survey is part of a Masters research dissertation, which seeks to ascertain the effects of hyperinflation on the Zimbabwean construction Industry. The dissertation is part of the requirement for the degree of Master of the Built Environment (Project Management) at the Nelson Mandela Metropolitan University in Port Elizabeth, South Africa, and this survey is crucial to it.

The survey aims to assess and ascertain the effects of hyperinflation on the Zimbabwean construction Industry to establish whether inflation effects have resulted in the collapse of the Zimbabwean construction sector. As such, please respond with regards to the impact of inflation on the Zimbabwean industry only.

We would be most grateful if you would complete the attached questionnaire. All responses will be treated with the greatest confidentiality. Your response will be greatly appreciated, as it will contribute towards a better understanding and eventual improvement of the Zimbabwean construction industry.

Please endeavor to complete the questionnaire and return it no later than the 3rd August 2009 to the address stated below:

Admire Moyo
BNM Quantity Surveyors
No. 4 Burgess Street
Richmond Hill
Port Elizabeth
6001

Or via facsimile to (041) 373 0409
Or via email @ admirem@qs.bnm.co.za

Thanking you in advance.

Kind Regards

Admire Moyo
Researcher

Dr Gerrit J. Crafford
Supervisor
Appendices

APPENDIX 2

Survey Questionnaire
THE EFFECTS OF HYPERINFLATION ON THE ZIMBABWEAN CONSTRUCTION INDUSTRY
By Admire Moyo

Section 1: DEMOGRAPHIC INFORMATION

ORGANISATIONAL

1 Please Indicate the construction Industry stakeholder you represent

☐ General Contractor ☐ Client

2 Please indicate your position in your practice

☐ Managing Director ☐ Director

☐ Senior Staff ☐ Junior Staff

☐ Trainee/Intern ☐ Other

3 Please indicate the size of the practice you work for

☐ 1-5 people ☐ 6-10 people

☐ 11-20 people ☐ 21-30 people

☐ Greater 30 people

PERSONAL

1 Please indicate your gender

☐ Male ☐ Female

2 Please indicate the age category you fall in?

☐ 20-24 years ☐ 25-34 years

☐ 35-44 years ☐ 45-54 years

☐ More than 65 years
4 Please indicate your highest formal qualification

- ☐ Zimbabwe Junior Certificate
- ☐ Undergraduate level
- ☐ Ordinary Level Certificate
- ☐ Postgraduate Degree
- ☐ Advanced Level
- ☐ Other ________________

5 Please indicate how long you have been involved in the construction industry?

- ☐ Less than 5 years
- ☐ 5-9 years
- ☐ 10 to 14 years
- ☐ 15-20 years
- ☐ More than 20 years
Appendices

SECTION 2: EVIDENCE
Please indicate how evident each of the variables are in relation to the heading above it using the scale below
No Evidence = 'NE'; Poor Evidence = 'PE'; Reasonable Evidence = 'RE'; Good Evidence = 'GE'; Very Strong Evidence = 'VS'

<table>
<thead>
<tr>
<th>Evidence</th>
<th>NE</th>
<th>PE</th>
<th>RE</th>
<th>GE</th>
<th>VS</th>
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<td>1 2 3 4 5</td>
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</table>

How evident is it that each of the variables listed below has caused hyperinflation in Zimbabwe

1. Zimbabwe's rate of growth is faster than the planned rate of growth
2. The Zimbabwe government and the RBZ arbitrarily printing money
3. Expectations of higher incomes and wages
4. President Robert Mugabe
5. “Burning” money phenomenon

How evident is it that each of the variables listed below is active as a result of hyperinflation in Zimbabwe

1. Uncertainty resulting in construction related business closures
2. Lower purchasing power of construction worker incomes
3. Speculative activity which has diverted resources away from construction
4. Low worker morale which has affected construction productivity
5. Low economic growth which has resulted in a scarcity of projects

How evident is it that each of the variables listed below has resulted in investor shortages in the Zimbabwean construction industry

1. Sanctions
2. High Interests rates induced by hyperinflation
3. Business cycles
4. Unstable political and economic climate
5. Downturn in government investment
6. Low emotional investment drive towards Zimbabwe

How evident is it that each of the variables listed below has resulted in labour shortages in the Zimbabwean construction industry

1. Skilled labour "Brain drain" induced by hyperinflation
2. Unskilled labour migration induced by hyperinflation
3. Skilled and unskilled labour migration induced by the 2010 World Cup
4. Seasonal construction industry migration to other countries
5. Retirement of baby boomers (Baby making generation)
6. Slow replacement of retired or aging workers

How evident is it that each of the variables listed below has resulted in material and fossil fuel shortages in the Zimbabwean construction industry

1. Price controls induced by hyperinflation
2. Sanctions
3. Lack of foreign currency induced by hyperinflation
4. Excess demand outstripping supply
5. Distribution logistics problems
6. Speculation by Zimbabweans resulting in artificial shortages
Appendices

EVIDENCE (Continued)
Please indicate how evident each of the variables are in relation to the heading above it using the scale below

No Evidence = 'NE'; Poor Evidence = 'PE'; Reasonable Evidence = 'RE'; Good Evidence = 'GE'; Very Strong Evidence = 'VS'

<table>
<thead>
<tr>
<th>Evidence</th>
<th>NE</th>
<th>PE</th>
<th>RE</th>
<th>GE</th>
<th>VS</th>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

How evident is it that each of the variables listed below are lacking as a result of hyperinflation in the Zimbabwean construction industry:

1. Government investment
2. Private sector investment
3. Individual investment
4. Quick return on investment
5. Security of investment
6. Profitable rate of return on construction project investments
7. Large labour force
8. Stable currency
9. Meaningful wages and salaries
10. Abundant supplies of materials and fossil fuels
11. Abundant supplies of ancillary or secondary construction resources

How evident is it that each of the variables listed below has resulted in the collapse of the Zimbabwean construction industry:

1. Hyperinflation induced lack of investors
2. Hyperinflation induced lack of labour
3. Hyperinflation induced lack of materials and fuel
4. All or any combination of the above
5. Other
SECTION 3: IMPORTANCE

Please indicate the importance of each variable in relation to the heading above it using the scale below

Not important = 'NI'; A Of little importance = 'LI'; Somewhat important = 'SI'; Important= 'I'; Very important = 'VI'

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<th>2</th>
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<th>4</th>
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<td>NI</td>
<td>LI</td>
<td>SI</td>
<td>I</td>
<td>VI</td>
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</tr>
</tbody>
</table>

How important is of each of the variables listed below to the Zimbabwean construction industry

1. Government Investment
2. Private sector investment
3. Individual investment
4. Quick return on investment
5. Security of investment
6. Good national investment climate (non construction related investment)
7. Profitable rate of return on construction project investments
8. Large labour force
9. Meaningful wages and salaries
10. Abundant supplies of materials and fossil fuels
11. Abundant supplies of ancillary or secondary construction resources
12. Low inflation or absence of hyperinflation

SECTION 4: GENERAL COMMENTS

Has hyperinflation strongly affected your ability to acquire goods or services or both? Yes or No?
Please motivate your answer below starting with Yes or No....

In your opinion how has hyperinflation affected the construction industry the most?

In your opinion is hyperinflation an extra ordinary project risk that warrants further and understanding by the construction industry clients and professionals? Yes or No?
Please motivate your answer below starting with Yes o No....
In your opinion, how can the Zimbabwean construction Industry be revived?

COMPANY INFORMATION:

Please provide the following information with regard to your firm if you would like the advanced summary of the research findings.

Name of the firm:

Address of the firm

Telephone number:

Email address:

RETURN ADDRESS
Admire Moyo
BNM Quantity Surveyors
No. 4 Burgess Street
Richmond Hill
Port Elizabeth
6001
APPENDIX 3

Reminder Cover Letter
Dear Madam / Sir

3 August 2009

**RE: The Effects of Hyperinflation on the Zimbabwean Construction Industry**

We wish to remind you about the questionnaire on the above mentioned subject, which was posted to you on the 6th of July 2009.

If you have already completed and returned the questionnaire, please ignore this reminder and accept our appreciation for your participation in this research. If you have not answered the questionnaire or misplaced the copy, kindly refer to the enclosed copy for your consideration. The above mentioned research topic is in partial fulfilment of the requirements for the degree of Master of the Built Environment (Project Management) at the Nelson Mandela Metropolitan University in Port Elizabeth, South Africa. To meet the objectives of the research the attached questionnaire has been carefully designed and pre-tested among Zimbabwean construction industry professionals, in order to take between 8 to 10 minutes to complete. A careful selection of reputable construction industry stakeholders in Zimbabwe has been made, which includes your organization, to participate in this survey.

We therefore request your response to the attached survey. Your response will not only contribute towards a better understanding and eventual improvement of the Zimbabwean construction industry but will also enhance the reliability on the research findings.

In return for your participation, we undertake to provide you with an advanced summary of the research findings, which will also be published in popular media for the construction industry. All responses will be treated with the greatest confidentiality.

Please endeavour to complete the questionnaire and return it no later than the **17th of August 2009** to the address stated below:

Admire Moyo  
BNM Quantity Surveyors  
No. 4 Burgess Street  
Richmond Hill  
Port Elizabeth  
6001

Or via facsimile to (041) 373 0409 or email @admirem@qs.bnm.co.za

Thanking you in advance.

Kind Regards

**Admire Moyo**  
Researcher

**Dr Gerrit J. Crafford**  
Supervisor
APPENDIX 4

Sample Size
### Determining sample size from a given population

<table>
<thead>
<tr>
<th>Population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>200</td>
<td>132</td>
</tr>
<tr>
<td>300</td>
<td>169</td>
</tr>
<tr>
<td>400</td>
<td>196</td>
</tr>
<tr>
<td>500</td>
<td>217</td>
</tr>
</tbody>
</table>

*Source: Krejcie and Morgan as cited in Crafford (2007)*

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