

**POLYTECHNIC OF NAMIBIA**

**HAROLD PUPKEWITZ GRADUATE SCHOOL OF BUSINESS**

**RESEARCH TITLE**

**Assessing the Usage of Infant Industry Protection Policy in Selected  
Manufacturing Industries of the Namibian Economy**

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Thesis presented in partial fulfilment of the requirements of the Degree of Master in  
International Business in the Harold Pupkewitz Graduate School of Business in the  
Polytechnic of Namibia

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**January 2014**

## DECLARATION

I, Mrs Albertina Tweufiilwa Kamhulu, declare that the present work “*Is the usage of Infant Industry Protection Policy in selected manufacturing industries of the Namibian economy effective?*” carried out under the guidance of Dr Grafton Whyte is my original work and has not been submitted in any other Institution for any degree.

Date:

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## DEDICATION

There are people in everyone's lives who make success both possible and rewarding. I dedicate this thesis to my late grandmother, Elizabeth Nekwaya Haininga, for the kind of person she has moulded me into. My every success today is thanks to the value of hard work that she instilled in me.

A special feeling of gratitude goes to my loving parents, Hafeni Ndjukuma Kamhulu and Justina Ndahafa Nghitumbwa whose words of encouragement and push for tenacity ring in my ears. Without my cousin, Willem Nekwiyu, pursuit of this advanced degree would never have been started and I am eternally grateful for his positive influence.

I also dedicate this work especially to my husband, Ofyeava Vatilifa Hitiwa, for his genuine love, care, faith in me and most importantly his immense understanding to those countless late night home-coming hours when I was working on this thesis.

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**January 2014**

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## LIST OF ABBREVIATIONS

NDP4	National Development Plan Four
IIP	Infant Industry Protection
SACUA	Southern African Customs Union Agreement
MTI	Ministry of Trade and Industry
SMEs	Small and Medium Enterprises
MOF	Ministry of Finance
NSA	Namibia Statistics Agency
NMA	Namibia Manufacturing Associations
NCCI	Namibia Chambers of Commerce and Industry
USA	United States of America
UK	United Kingdom
GDP	Gross Domestic Product
DPA	Dairy Producers Association
NAU	Namibia Agriculture Union
WTO	World Trade Organisation
SACU	Southern African Customs Union
MOL	Ministry of Labour

## **ABSTRACT**

As part of its Industrial Development Policy, Namibia has made use of an Infant Industry Protection (IIP) policy to protect what are deemed as infant industries. This study investigated how effective the use of this policy has been in the Namibian manufacturing sector, specifically the Pasta and Dairy industries.

The main objectives of this study are twofold: firstly, to establish whether IIP has been effective in assisting protected industries to develop and grow; and secondly, to determine whether IIP has been effective in protecting the Pasta and Dairy industries from foreign competitors.

Ever since Namibia implemented IIP, no comprehensive assessment has been conducted to evaluate its effectiveness. While this study is perceived to be a pioneering attempt in this regard, its significant reliance on various theoretical literature and previous case studies of industries where IIP has been implemented has to be acknowledged.

The thesis utilized both quantitative and qualitative analysis methods to achieve its objective. The quantitative analysis utilized sample data on four impact variables, namely output, exports, imports and number of jobs created. On the other hand, the data used for qualitative analysis was collected through structured interviews with experts from various public and private sector organisations located in Windhoek.

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The study found that the implementation of the IIP policy has resulted in increased output, exports, and job creation in both the Pasta and Dairy industries. The results also suggest that while IIP has curtailed competitive imports in the Pasta Industry, it has not succeeded to do so in the Dairy industry. On this basis, the study inferred that the policy was ineffective in reducing competitive imports in the Dairy industry.

On the basis of the quantitative and qualitative findings, the overall conclusion of the study is that the IIP policy has helped both industries to develop but came short of curbing imports in the Dairy industry. In this light, it is recommended that stronger measures be instituted to improve the effectiveness of IIP in Namibia, particularly with regard to promoting import substitution.

## **Chapter 1 - Background and General Introduction**

### **1.1 Introduction**

One of the most important goals of the Government of the Republic of Namibia is to alleviate poverty by creating employment for its citizens. This goal is well articulated in Government policy documents such as the Namibia Industrial Development Policy (2012) and Fourth National Development Plan (NDP4) which built on Vision 2030. The overall objective of Vision 2030 is to make Namibia an industrialised nation by the year 2030. According to Vision 2030, for Namibia to become an industrialised nation, the Namibian economy must attain growth of approximately six percent (6%) per annum.

Vision 2030 also recognises the critical role of the manufacturing sector in stimulating the growth of other economic activities such as services, in employment creation and economic empowerment.

However, it is also highlighted in the Namibia Industrial Development Policy (2012), that for a strong manufacturing sector development to be successful in a developing country such as Namibia, it is important that the Government provides assistance to manufacturing industries, especially during the start-up phase. Equally important is that such industries need to be supported by local private sector businesses, such as retailers, and by large corporates.

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As part of industrial and manufacturing development strategy, Namibia has made use of the Infant Industry Protection (IIP) policy, a trade measure which is provided for under Article 26<sup>1</sup> of the Southern African Customs Agreement (SACU, 2002) to protect infant industries.

The main motive behind the use of this policy is to give an opportunity for infant industries to develop and to create a level playing field between such industries and highly advanced foreign industries producing similar commodities.

According to the Ministry of Trade and Industry (MTI) Annual Report 2011, the Dairy industry has benefited from IIP since 2000, while the Pasta industry started to benefit in 2002. Recently, the cement industry has been awarded the same treatment. The MTI Report also states that the poultry industry has launched an application for infant industry protection through the Ministry of Trade and Industry and it is expected that the Ministry will award this protection soon.

**This study intends to qualitatively and quantitatively analyse how effective the use of infant industry protection policy is to the Namibian economy, specifically looking at the industries that are enjoying the protection under this trade instrument.**

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<sup>1</sup> Article 26 Protection of Infant Industries

The Government of Botswana, Lesotho, Namibia or Swaziland may as a temporary measure levy additional duties on goods imported into its area to enable infant industries to meet competition from other producers or manufacturers in the Common.....

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### **1.1.1 Problem Statement**

The edition of *The Economist* dated 23 October 2012 reported that the Namibian Government released a media statement stating that "the Government took a decision at the 14th ordinary cabinet meeting held on 21 August 2012, to accelerate the process of gazetting infant industry protection policy for the cement industry. The policy requires that an extra import duty of 40% on top of the existing tariff is charged on imported cement in Namibia in order to discourage the importation of cheap cement into the country".

This decision has now been implemented by the Ministry of Finance's Directorate of Customs Administration which administers duties on imported goods.

The edition of *The Economist* dated 23 October 2012 also reported that the decision of the Government to raise import duty on imported cement has r drawn criticism and concerns from some quarters of the business community and some civil organisations such as the importers of cement and the Namibia Consumer Trust organisation, who argue that it could lead to price increases and the stifling of competition within the cement industry. The situation has even gone further in that some companies have launched a court case challenging the Ministry of Finance over the imposition of import duty on imported cement.

The same sentiments have also been raised with respect to the Pasta and Dairy industries that are enjoying this protection, with some constituents e.g. importer of dairy, poultry products as well as those that represent of consumer interests arguing that the protection of such industries hurts downstream industries normally made up

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of Small and Medium Enterprises (SMEs) involved in importing and reselling. Some economists who are anti-protectionist even went further to criticize that the policy is likely to do harm to the entire economy as it protects a few companies that are likely to monopolize the market, thereby hurting consumers, SMEs, threatening job creation and efforts aimed at poverty reduction.

It is against this backdrop that this study will attempt to determine the effectiveness of the IIP policy in curbing the inflow of cheap imports and the threat to protected industries and also to establish whether the concerns raised by those opposing the application of this policy are justifiable. Although this study was initially inspired by the debates that arose because of the cement industry being afforded IIP, the focus will be the analysis of the effectiveness of the policy on the Pasta and Dairy industries. This is because these industries have been enjoying protection under the IIP policy for some years but no thorough analysis has been conducted to assess their relative performance before and after IIP policy was implemented.

### **1.1.2 Central objective of the study**

The main focus of this study is to:

- a) Establish whether the infant industry protection has been effective in assisting the protected industry to develop
- b) Determine whether the usage of IIP policy in the Dairy and Pasta industries has been effective in providing protection from foreign competitors.

### **1.1.2 Research questions**

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The research questions for this study are divided into two categories, which consist of the main question and the sub-questions. The main question is as follow:

- ✓ *Is the Namibian IIP policy an effective tool for protecting & growing infant industries?*

The sub-questions are:

- ✓ Has the introduction of the IIP policy in the selected industries increased production?
- ✓ Has the introduction of the IIP policy in the selected industries increased exports
- ✓ Has the introduction of the IIP policy in the selected industries resulted in job creation?
- ✓ Has the introduction of the IIP policy in the selected industries achieved effective protection of the industry from foreign competition through reduction in competitive imports?
- ✓ What are the benefits and challenges of IIP as an instrument of economic management?
- ✓ What are the main aspects of the Namibian IIP policy?

#### **1.1.4 Significance of the study**

What prompted the researcher to consider researching on this topic was that ever since Namibia has implemented the IIP policy on Dairy and Pasta Industries, there never was an assessment done to determine its effectiveness. This study is therefore the first attempt in probing the aforementioned.

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Furthermore, The Ministry of Trade and Industry (MTI) has recently developed an industrial policy which mentions amongst other things, that infant industry protection is one of the strategic instruments to be considered for developing industries in Namibia, the researcher therefore reckoned that, the study would be very valuable to the policy makers, in understanding the IIP policy and may also assist MTI in assessing whether IIP is the right instrument to be considered for growing industries in Namibia. Similarly, the study would be important to key stakeholders such as the Ministry of Finance (MOF) and the business community at large in understanding the effectiveness of IIP.

The study aims to provide insight into whether IIP can work for the development of Namibian industries and the economy at large, highlight any possible unintended consequences of the policy and ultimately aid in devising remedial mechanisms.

#### **1.1.5 Limitation of the study**

This study will be limited to industries that have been receiving the infant industry protection for some time, i.e. Dairy and Pasta. As there is insufficient data on the cement industry, since IIP has only been implemented recently, it would be difficult to analyse the effectiveness of IIP on the cement industry. For this reason, the study is limited to Dairy and Pasta. It is hoped that the results from the study will provide some valuable lessons for the cement industry.

The study will use secondary data such as national accounts that provide time series data. The accuracy and reliability of the data is assumed, which may well be a

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limitation. Where obvious discrepancies appeared, the researcher attempted to verify the information from sources; otherwise data are presented as obtained.

Since this study is being carried out primarily for academic purposes, time limitations might constrain the scope of the study. Finally when conducting interviews, the researcher has had to assume that the responses are honestly given; however there is no way to ensure this.

#### **1.1.6 Scope of the study**

This study will cover selected companies from the targeted industries and other important stakeholders from both the private and public sector. Specifically, the study will gather information from the Ministry of Trade and Industry, Ministry of Finance, Namibia Statistics Agency (NSA), Namibia Manufacturing Associations (NMA), Namibia Chambers of Commerce and Industry (NCCI), Agronomic Board, Namib Mills, Bokomo Namibia and Namibia Dairies. Apart from the stakeholders listed above, the author also consulted academics and reviewed existing literatures and other sources for comprehensive background information.

#### **1.1.7 Organisation of the thesis**

The organisation of the thesis will follow the following outline:

**Chapter 1: Background and General Introduction** – Provides an overview of the topic and highlights the research problem, research objectives, the scope and the significance of the study. The purpose of this chapter is to provide a comprehensive background to the thesis and an overview of the key elements of the study.

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**Chapter 2: Literature Review** – An introduction will give general information about the subject and following this the available literature will be critically examined. The literature selected offers a theoretical framework taken from research papers and journals. The purpose of this chapter is to draw upon any previous research into the same subject and to analyse its conclusions.

**Chapter 3: Research Design** – In this section the research methodology will be described. This will include definition of the target group and data collection.

**Chapter 4: Data analysis, findings and discussion** – The data collected will be described, followed by a discussion of the analysis of the data collected. Any commonalities or differences emerging from the data will be explained. This chapter is the centre of the research and is the major component of the research study report.

**Chapter 5 Conclusion and Recommendations** – The conclusion will summarise the research findings and attempt to answer the research questions. Following this discussion, recommendations will be made, based on the research findings. It is hoped that these recommendations may be useful to the Ministry of Trade and Industry and may also add value to the academic literature.

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## **Chapter 2 - Literature review**

### **2.1 Introduction**

Appleyard, Field and Cobb (2010:341) report general recognition among economists that the argument in favour of IIP is valid from the standpoint of enhancing the welfare of the world as a whole. This argument rests on the notion that a particular industry in a country can come to possess, for various reasons, a long-run comparative advantage even though that country is initially an importer of those goods. In fact, the core principle of the argument is simply that nascent industries often do not have the economies of scale that their older competitors from other countries may have, and thus need to be protected until they can attain similar economies of scale. M. J. Melitz (2005: 175).

Whilst the infant industry argument has enjoyed the support of economists such as Ha-Joon Chang and persuaded many policymakers all over the globe, the topic has also stimulated academic debate focused on whether this policy can be effective and whether future gains offset initial costs. This chapter will review the debate on this subject, review the literature on trade practices and highlight historical lessons relevant to the sub-research questions listed above. The chapter will further attempt to highlight the main aspects of the Namibian IIP policy and its application.

#### **2.1.1 Theoretical arguments for and against IIP**

According to Shafaeddin (1998), the idea of infant industry protection was started by Hamilton in 1856 and promoted again by List in the 1970s. Shafaeddin explained further that, the essential point made by both was to emphasise that the

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production costs for newly established industries within a country are likely to be initially higher than for well-established foreign producers of the same line, who have greater experience and high skills level hence, government intervention in the form of IIP is required to level the playing field.

For Bell and Westphal (1984), the theory of infant industry protection is based on the view that firms (and industries) need the space to grow into adulthood. They further provided three reasons why IIP should be considered. Firstly, they reasoned that, in many sectors there are significant economies of scale such that late-comers to an industry need the opportunity to build-up production in a protected market so that they can travel down the cost curve.

Secondly, Bell and Westphal (1984) asserted that firms learn by doing, that is, the greater the experience of production, the more efficient they become. This is often referred to as the 'Boston Experience Curve', based upon the evolution of efficiency growth in the electronics industry recorded by the Boston Consulting Group in the 1970s.

Thirdly, they reasoned that firms not only learn-by-doing, they also learn-by-trying, in other words, the growth of technological capabilities require conscious effort, and this takes time.

All the reasons provided above, substantiate the argument that nascent industries need protection from the icy winds of international competition in their domestic markets. They also require government support as they enter export markets, since this, too, is a learning experience and is also subject to scale economies.

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Shafaeddin (1998: 35) supported the infant industry protection approach citing it as a significant tool of policy-making. According to Shafaeddin (1998), with the exception of Hong Kong, no country has developed its industrial base without resorting to infant industry protection. He argued that both early industrialized and newly industrialized countries applied the same principle, although to varying degrees and in different ways.

Appleyard, Field and Cobb (2010: 342) also argued that new and growing industries, particularly in less-developed countries, need to be shielded from foreign competition. They contend that costs decline with growth and that some industries must reach a minimum size before they are able to compete with well-established industries abroad. Kaplinsky and Mhlongo (1997) further added that IIP can protect the domestic market until the industry becomes internationally competitive and argued that the costs of protection can be recouped after the industry has reached maturity.

The arguments presented above reaffirm the ideas of List (1974:252) when he argued that the infant industry protection is not aimed at promoting inefficient industries but at protecting and nurturing them until they become efficient and competitive, until they are able to produce at costs as low as those of their competitors. Further, in List's (1974) view, any temporary monopoly granted by protection is not the same as a private monopoly but a monopoly for domestic producers against their foreign competitors. List (1974) therefore believed that fostering domestic competition will ensure that product prices keep falling in future as infant industries learn and appropriate the economies of scale.

Although the classical infant-industry argument for protection has long been regarded by economists as the major theoretically valid exception to the case of

worldwide free trade, the subject also draws controversy, especially among economists who are pro trade liberalisation. For instance, Baldwin (1969:274) warned that protecting industries through IIP policies often promotes inefficient production. Moreover, it is argued that, despite the best intentions of those promoting infant industry policies, protection and subsidies breed a coalition of interests which makes it politically very difficult to wean infants into adulthood and so-called 'temporary' protection becomes solidified over time. Baldwin (1969) further added that while an individual country can, in some circumstances, gain from protecting its infant industries, this protection is particularly costly for the international community as a whole. Baldwin (1969) cited that where there are major advantages in large-scale production, there are also large advantages in relatively free international trade and that by closing off markets, protection reduces the ability of firms to gain economies of large-scale normally gained through exports. Slaughter (2004) substantiated the above views by adding that if a group of countries imposes infant-industry protection, it will split up the market; each country may end up with small-scale, localized, inefficient production, thus reducing the prosperity of all the countries.

### **2.1.2 IIP experiences in industries of Developed & Emerging countries:**

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#### ***2.1.2.1 U.S motorcycle case study***

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Ederington and McCalman (2009) wrote that a modern variant of the infant industry protection is found in US motorcycle industry where the U.S. government in 1983 made a decision to raise safeguard tariffs on foreign imported motorcycles to help Harley-Davidson company to improve its efficient and introduce innovative new

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manufacturing and management technologies. They concluded that studies carried out to measure the impact of this intervention by the US government revealed that the U.S motorcycle market share rose from 60 to 70 percent in the early 1980 to 81 percent by 1984. Further, according to Ederington and McCalman (2009), the study by Hufbauer et al (1986) found that because of the US IIP policy aimed at the motorcycle industry, Japanese companies such as Kawasaki and Honda made a substantial investment in the US motorcycle industry, probably to escape the high tariffs which were imposed on foreign motorcycles, by establishing and increasing their production within the United States.

In addition, Ederington and McCalman (2009) noted that other studies on the same case study also established that Harley-Davidson (to which IIP intentions were targeted) reduced its production costs and improved quality, yet the cost to the consumer increased. It was also noted that the overall domestic production of motorcycles increased, employment in the motorcycle industry rose and the value of motorcycle shipments from U.S based firms increased by 75 percent in real terms from 1986 to 1993. Ederington and McCalman (2009) also however cautioned that while the US motorcycle case study could be a model for a successfully IIP policy, it was difficult to pin down that the success of the US motorcycle industry was solely attributed to the high protection afforded by the IIP policy. Ederington and McCalman (2009) further argued that some aspects of performance, such as exports, were perhaps due to other factors such as favourable exchange rates, improved safety perception etc.

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#### ***2.1.2.2 US Steel rail industry***

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Head (1994) studied the effect of tariff protection on the emergence of the steel rail industry in the United States. According to Head (1994), this case fits the infant industry protection view almost perfectly as the local industry was initially uncompetitive in (1860s) but only a few decades after the imposition of import tariffs the United States had become the world leader in this market to the extent that import duties could be removed. Head therefore concluded that protection through IIP certainly did not cause stagnation and gross inefficiency in the case of the steel rail industry in the United States. Head pointed out that IIP in the steel rail industry led to long-rung reductions in domestic prices and to increased production. He further argued that while the savings to railroad builders were too small and came too late to yield a net gain to consumers, the overall effect on welfare appears to have been positive(Head 1994:163).

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#### ***2.1.2.3 Brazilian microcomputers industry***

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According to Luzio and Greenstein (1995), the Brazilian government strongly protected its microcomputer industry in the 1980s and 1990s through IIP. Their study on the effect of this protection concluded that although there was a rapid productivity growth in the protected micro-computer industry, the industry never caught up with the rapidly advancing technology frontier and as result, welfare declined by a significant amount, estimated to be around 20% of the domestic spending on micro-computers. Luzio and Greenstein (1995) pointed out that the prices of domestically produced Brazilian PCs started higher and always stayed higher than their potential

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international competitors, illustrating that a similar computer model cost between 70 percent and 100 percent more in Brazil than in international markets. Luzio (1993) had long argued against the IIP policy on the Brazilian micro-computer industry, reasoning that the policy subjected the Brazilian market to expensive and poorly made products. The policy was eventually abandoned in the early 1990s.

### **2.1.3 Effectiveness of IIP policies**

Although some of the above case studies demonstrate a positive outcome for infant industry protection, it clear the policy is not always effective, as in the case of Brazilian micro-computer industry. Therefore the question of whether the policy is an effective tool in assisting infant industries to develop always attracts mixed arguments.

Slaughter (2004:66), reported that industry protection policies very often hurt rather than help industries to develop. As reported in the US motorcycle industry, Slaughter (2004) reiterated that the end-users (consumers) are normally worse off as IIP polices can apply higher import duties on foreign goods and domestic prices therefore increase. According to Slaughter, there are three specific practical problems that infant-industry policies may face. These are:

- that IIP policies often inhibit the ability of firms to become efficient, productive and competitive;
- that IIP policies are noted to cause unintended costs; and
- last but not least, IIP policies are noted to ignore producers' comparative advantage.

Slaughter (2004) has however acknowledged that the effectiveness of the IIP policy is dependent on the instrument being used i.e. tariffs, quota or subsidy, and the length of protection. He concluded that there are cases where IIP policies were used in certain industries and the results were positive despite those hardships that might have been experienced by end-users during the period of protection.

Srinivasan and Tendulkar's (2002) assessment of India's infant industry policies was that IIP has increased market power and that the policy has positively influenced growth and development in some cases. They further reported that in some industries, the reduction in foreign competition as a result of IIP led to increased monopoly possibilities for domestic firms, which then imposed extra costs on downstream users and/or final consumers. Srinivasan and Tendulkar (2002) concluded that contrary to the infant-industry theory, reduced competition does not necessarily lead to productivity gains; rather, protection reduces average firm productivity and widens the inefficiency spread across firms.

#### **2.1.4 The benefits of IIP policy**

Despite studies showing mixed results of IIP policies as narrated above, Chang (2001) wrote that the economic history of some advanced countries suggests that protecting young industries through industrial protection policy has proven to be beneficial for industrial development. He cited practical experience in the United States, UK, Japan and Germany where manufacturing industries have enjoyed the protection of high import tariffs and that the expansion of manufacturing industries can be attributed to protection which they had in the nineteenth century. Chang also pointed out examples of industries, such as the U.S. computer industry and the

Swedish automobile industry that were infants at one stage but grew and flourished with the assistance of government protection using IIP policies.

The South African Government used similar principles to develop their Motor Industry Development Plan, which currently constitutes the backbone of its industrial development. In China, special development zones were created where financial support is provided to certain identified infant industries and a variety of trade and support measures are also implemented to assist the development of new industries, World Bank Report (1997:15).

### **2.1.5 The challenges with IIP policy**

Tybout (2000:38) has pointed out that IIP policies are very challenging to implement as the protection of these industries might have negative impacts, especially for downstream industries. He explained that the protection afforded by IIP, say through an import duty, does more than just increase the price of imports. This protection induces a loss of competitiveness to industries that use the output of the protected infant industry as inputs. Furthermore businesses, including SMEs, who import products similar to products produced by the protected industries, are negatively affected and consumers are charged higher prices as import duties make imported products more expensive.

According to Tybout (2000), IIP policy becomes even more challenging for a government to adopt as it is not only difficult to pick the right industries; it is also difficult to decide the appropriate size and duration of the IIP. If the protection is too high and too long, there is a risk that companies have only limited incentives to

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develop learning and technology effects and to increase their scale of production. “If the protection is too low and too brief, it will not give companies the chance to develop competitive advantages. Another risk arising from IIP is that governments can be captured by the interests of lobby groups such that pressure from major industries can make it difficult to resist demands for applying and extending IIP” Tybout (2000:39).

## **2.1.6 Main aspect of IIP policy in Namibia**

### ***2.1.6.1 Structure of the Namibian Economy***

According to the World Bank Report of 2012, Namibia is classified as a middle-income country with a gross domestic product (GDP) of US\$9.5 billion and GDP per capita income of US\$4,542.90. The economy grew at an annual average rate of about 5% between 2001 and 2008. In 2009, the economy contracted by 0.7% grew again at an average growth rate of 3.5% between 2010 and 2012. The structure of the economy is as follows: agriculture contributes 7.7% value-added to the GDP; manufacturing sector contributes 20.5% valued-added to the GDP; services contribute 71.7% value-added to the GDP. Trade in Namibia (exports and imports of goods and services) in the last twelve years has accounted for about 95% of the GDP. In 2012, Namibia exported goods worth US\$3.8 billion and services worth US\$6 million. In the same year, Namibia imported goods worth US\$4.5 billion and services worth US\$8 million. This makes Namibia a net importer of goods and services.

“In 2011, Namibia was ranked 74<sup>th</sup> out of 139 countries in the Global Competitiveness Index” (Africa Development Bank report, 2012: 12). The current

position remains unchanged from that of 2009 – 2012, although the number of countries in the index increased from 134 to 139 in 2012.

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#### ***2.1.6.2 Overview of Namibia Dairy Industry***

The Namibia Industrial Development Policy (2012) has classified the Namibian Dairy industry as one of the important and strategic industries for food security in the country. The National Account (2012) cites that the industry contributes about 13.2% toward the manufacturing sector, which is a very significant component of GDP.

According to the Strategic Agricultural Industries Report (Ministry of Agriculture Water & Forestry, 2012), the Namibian Dairy industry is characterized by one large processor, Namibia Dairies (Pty) Ltd, which was established in 1998 following the merger of Rietfontein and Bonmilk. The industry also consists of a multitude of milk-producing cattle farmers under the Dairy Producers Association (DPA), who supply milk to Namibia Dairies. Namibia Dairies (Pty) Ltd is the only processor receiving raw milk from independent commercial producers through a Milk Quota Agreement. The Company has since grown into a leading force in the Namibian Dairy industry occupying about 50% market share and employing over 1500 people at its main production plant in Windhoek, the !Aimab Superfarm in Mariental and various depot locations across Namibia.

The report further states that Namibia Dairies is the major supplier of fresh and long-life milk, value-added dairy products and other beverages in Namibia. It operates depots in Windhoek, Swakopmund, Otjiwarongo and Oshakati. The company is known for its product innovation and value-adding production processes.

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Moreover, the Strategic Agricultural Industries Report has highlighted that since July 2009 Namibia Dairies operates one of the most modern dairy farms in the world, located in Mariental in the south of Namibia. The !Aimab Superfarm currently houses approximately 1,500 cows in milk, to be increased to 2,000 cows over the next five to six years. ! Aimab was built and equipped with tested, state-of-the-art technology from New Zealand, Israel and the United States. The total mixed ration and deep-litter system is based on the controlled feeding of cows in large barns, providing Namibia Dairies with a semi-intensive milk production process.

The report further alleges that, Namibia Dairies has also acquired its own fodder production, dairy farms and strategic milk-producing partners, and as such forms an integrated network of milk supply, processing, value- adding production and the largest national cold-chain distribution network in Namibia.

Apart from Namibia Dairies, the Strategic Agricultural Industries Report also cited that Namibia has 17 milk farmers under the umbrella of the Dairy Producers Association, an affiliate of the Namibia Agriculture Union (NAU). The Association was the backbone of the Namibia Dairy industry even before the establishment of Namibia Dairies. These Milk farmers employ about 500 people and produce between 300,000 and 500,000 litres per month, of which about 70% is sold to Namibia Dairies for further processing, while 30% is sold directly to the market.

Although Namibia Dairies seems to be dominating the Dairy industry, it was reported in the Namibia Economist (2009), that Namibia Dairies defends the Government decision to protect the industry through IIP, citing that the 40% IIP duty is necessary to protect its UHT plant from South African dumping. This is substantiated by the Namibia Competition Commission Investigation Report (2010)



into uncompetitive behaviour with respect to South African dairy imports. This confirmed that the South African milk market is highly oligopolistic, with four companies dominating the market. The report established that the four South African companies are accused of undertaking price fixing agreements and would theoretically be in a position to supply the Namibian market (equivalent to 1% of the South African market) below the prices charged in South Africa.

However, taking Namibia's external trade liberalisation commitments into account, it appears that the main competitor for supplying milk to Namibia is not South Africa but the EU. This is confirmed by the Trade Bulletin Report (2012: 12), which reported that Namibia imported milk with a fat content of between 1% and 6% (HS 040120) from the EU at a unit value of N\$ 6.00 between 2007 and 2012.

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#### ***2.1.6.3 Overview of the Pasta Industry***

As in the case of the Dairy industry, the Ministry of Trade and Industry, through its industrial development policy, has cited deliberate policy interventions for the Pasta industry, for food safety and security reasons.

Currently, the National Accounts (2012) indicated that the share of the Pasta industry in the overall manufacturing sector is 6.92%. This is fairly small but given size of the Namibian economy, the significance of the Pasta industry cannot be overemphasized. It is also evident from the Namibia Industrial Development Policy that the plan is to assist the Pasta industry to achieve annual growth of 20% for the

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next 5 years and increase its share of the manufacturing sector and the entire economy.

The Pasta industry is a relatively new industry in Namibia and is mainly dominated by two large companies, namely Namib Mills<sup>2</sup> and Bokomo Namibia who both benefit from IIP policy.

According to the Trade Directorate published by the Ministry of Trade & Industry (2011), Namib Mills Ltd was established in 1982 but pasta products were first tried on a small scale in 1993. Full scale operation only started in 1998. The company is the largest grain processing company in Namibia with 90% of the domestic market share, producing flour, varieties of pasta products, animal feeds and other products from raw materials including maize, much of which is imported, and local varieties of pearl millet (mahangu).

It is also quoted in the same Trade Directorate that Bokomo, which is a South African headquartered company, first entered the Namibian market in April 1998 but operations in the milling industry only started in 2001, with the company venturing into the pasta industry in 2008. The company now occupies 8% of the domestic market and is also supplying the Angolan and Zambian markets.

“Both the Namib Mills, and Bokomo Namibia as well as other small scaled producers of pasta makes up the pasta industry which now enjoys 40% IIP protection tariff duty introduced in 2002 and originally supposed to be gradually phased out after

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<sup>2</sup> Namib Mills has 10 milling facilities which are based in Windhoek, Otavi, Oshakati, Keetmanshoop, Katima Mulilo, etc.

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four years. However, the duty had never been reduced and IIP status has been extended to 2014” (Erasmus and Flatters 2003: 23).

### 2.1.7 Trade liberalization Commitment

The Namibia Industrial Development Policy (2012) states that as a member of the World Trade Organisation (WTO), Namibia has made commitment for trade liberalisation in line with its schedule of commitment to WTO; however, like any other WTO developing Member State, Namibia is eligible to excise its legitimate right within the realm of WTO and SACU provisions to protect its industries for the purposes economic development. Although the WTO provisions did not restrict members to the type of instruments to be taken as IIP measures, the SACU Agreement (2002) stipulates that Member States may only apply additional customs duties for IIP purposes; hence the main aspect of IIP policy in Namibia follows the SACU provision.

According to the Namibia Industrial Development Policy (2012) the main objective of IIP policy is to limit the influx of cheap imports in the country and give an opportunity to the protected infant industries to develop, thereby levelling a playing field between such industries and the import products of highly advanced foreign industries producing similar commodities. The Namibia Industrial policy further articulates that IIP policy in Namibia is applied in accordance with **Article 26 of the Southern African Customs Union Agreement (SACU, 2002)**, and is also within Article XVIII of GATT 1994 of WTO agreement which states that:

“It may be necessary to contracting parties, in order to implement programmes and policies of economic development designed to raise the general standard of living of their people, to take protective or other measures affecting imports, and that such measures are justified in so far as they facilitate the attainment of the objectives of this Agreement.” One of the areas in which 'additional facilities are allowed for such countries is 'to maintain sufficient flexibility in their tariff structure to be able to grant the tariff protection required for the establishment of a particular industry ....'(WTO legal text: 447)”

As for Article 26 (SACU, 2002), the full text of that article is as follows:

I. “The Government of Botswana, Lesotho, Namibia or Swaziland may as a temporary measure levy additional duties on goods imported into its area to enable infant industries in its area to meet competition from other producers or manufacturers in the Common Customs Area, provided that such duties are levied equally on goods grown, produced or manufactured in other parts of the Common Customs Area and like products imported from outside that area, irrespective of whether the latter goods are imported directly or from the area of another Member State and subject **to payment of the customs duties** applicable to such goods on importation into the Common Customs Area.

II. Infant industry means an industry which has been established in the area of a Member State for not more **than eight (8)** years.

III. Protection afforded to an infant industry in terms of paragraph 1 shall be for **a period of eight (8) years** unless otherwise determined by the Council.

IV. The Council may impose such further terms and conditions as it may deem appropriate."...( SACU 2002 Agreement:23)

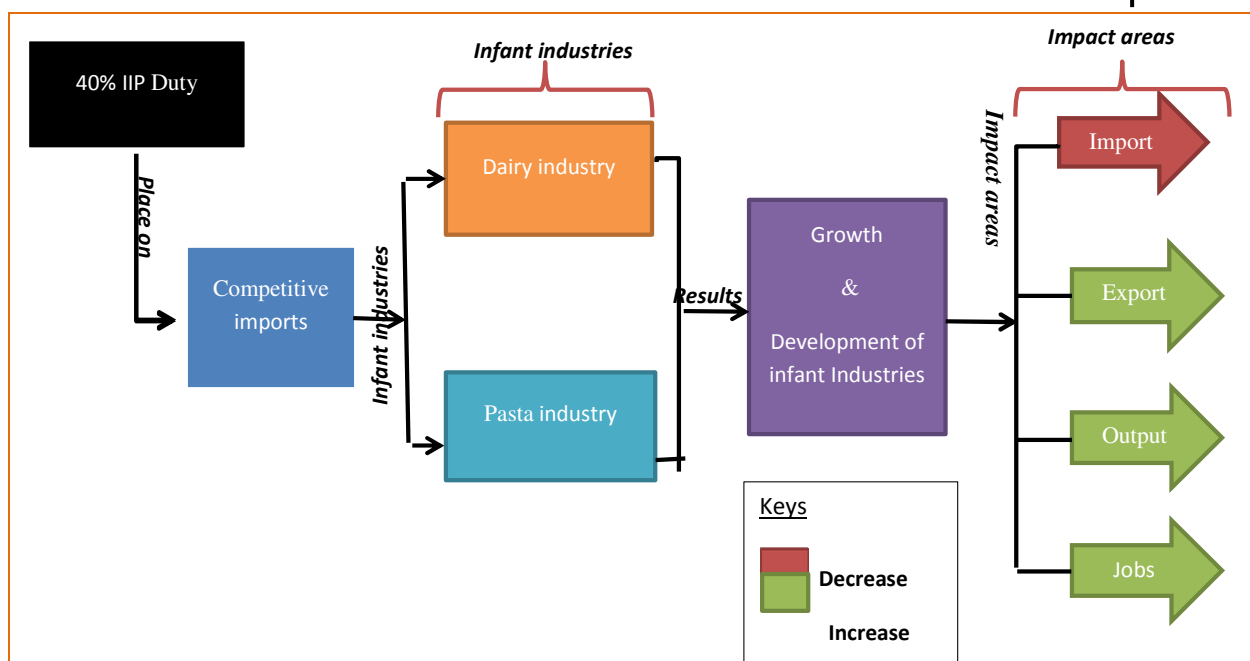
The Namibia Industrial and Implementation Strategy (2012) documented that the IIP offered to industries such as pasta, dairy and cement is in the form of an additional duty of 40% applied to imported products similar to the products produced by the protected industry. The 40% IIP tariff is applicable to imports from outside SACU as well as to those from inside SACU. The period for protection is eight (8) years but could be extended with the approval of the SACU Council of Ministers.

### **2.1.8 Conceptual Framework**

Having examined the theoretical literature on this subject and the main aspects of the Namibian IIP policy, it is important to outline the variables that are considered in this study and how the relationship between these can be established through a conceptual framework. Smyth (2004: 81) has defined a conceptual framework as the foundation on which the entire research project is based. According to Smyth, the conceptual framework is a logically developed, described and elaborated network of associations among the variables deemed relevant to problem situations and identified through such process as interviews, observations and literature reviews.

Smyth added that this framework may also be used as a tool to guide the investigation; it is a set of ideas used to structure the research, a type of map that may include the research question, the literature review, methods and data analysis.

As revealed in the literature review, it is clear that IIP policy could have a wide range of impacts on the economy and specifically to the industry being protected. It is however very important for this study to focus the main research question, taking the objectives of this study into account. This is achieved through the conceptual framework shown in Fig.1 below.



**Figure 1: Conceptual Framework**

Figure 1 maps out the relationships between the variables in this model. In this respect the focus of this study is to see how 40% IIP duty impacts on industries to determine policy effectiveness. Measurement is carried out on four impact areas: increased production output, increased exports, number of jobs created in the protected industries and finally, reduction in competitive imports.

## 2.2 Summary

In this chapter, the literature review has revealed that IIP policy is a very important policy tool for industry development. The literature also highlighted that the policy is controversial and that its effectiveness is blurred. Some studies suggest that the policy does not help the industries to grow, while other studies provided evidence of industries that have successfully developed while being shielded from foreign competition.

The main aspect of IIP highlighted in the literature on Namibia relates to the structure of the Namibian economy and that, although the Dairy and Pasta industries are relatively young, they are significant in terms of their contribution to overall manufacturing and to the entire economy.

There also seems to be wide recognition that developing countries, given their special needs, may need to make use of IIP policy as a legitimate tool to support the development of their industries.

This is demonstrated by the legal provision provided for in the rules of WTO Agreement which governs the multilateral trading system and in Regional Trade Agreements such as the Southern Africa Customs Union (SACU, 2002).

The chapter concluded by showing the variables that were considered and by mapping out a conceptual framework. The next chapter describes the methodologies used in this study.

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## **Chapter 3 - Research Methodology**

### **3.1 Introduction**

“Research methodology refers to the method by which data is gathered for a research project. It is the blueprint for the collection, measurement and analysis of data in order to achieve the objectives of a research project.” (Cooper and Schindler, 2003:15). Consideration of the research methodology is important in specifying the sampling design. Based on the goals and motivation for the study, the target population is defined along with the sampling and data collection methods.

This chapter discusses the methods and techniques by which data was obtained, including where, when and from whom it was collected. It outlines the research design and plan, population and sample, data collection instruments, sources and procedures for data analysis. The reliability and validity of the data collected is discussed, as are the limitations faced in the collection of data.

#### **3.1.1 Research Design**

This study investigated the selected industries to determine whether IIP policy has been effective or not. To achieve this, the study looked at current and historical performance in terms of output, exports, competitive imports and job creation before and after the IIP policy was implemented. Furthermore the study gathered expert opinion, specifically concerning historical data. Due to the need for measurement and

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descriptive and exploratory information, both qualitative and a quantitative research methods were employed.

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#### *3.1.1.1 Quantitative vs. Qualitative methods*

According to Mouton (2001), quantitative methods gather data in numerical form which can be put into categories or rank order, or measured in appropriate units of measurement. This type of data can be used to construct tables of raw data and graphs. Rajasekar, S. Philomation, P. and Chinnathambi, V, (2006) further added that, quantitative research focuses on showing causal relationships, testing theory and establishing facts. “It is based on the measurement of quantity or amount and addresses one specific issue in a formalized and structured manner. In other words, the quantitative approach, with proper sampling, allows for the measurement of many subjects' reactions to a set of questions. Because each question has a limited set of answers, the results can be compared and analyzed statistically; they also can be generalized to a larger population within known limits of error”, (Warwick and Lininger, 1975; Patton, 1986).

In contrast, Rajasekar et al (2006) describe qualitative methods as being non-numerical but rather descriptive, using words and applying reasoning. According to Saunders et al (2009), qualitative methods can provide the context against which one can more fully understand the situation and are commonly used to explore a topic or develop theory. They further explained that qualitative methods capture what people have to say in their own words and describe their experiences in depth, adding that qualitative data provides the texture of real life in its many variations by giving insight into the reasoning and feelings that motivate people to take action. In addition,

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Patton (1986) highlighted that a qualitative approach provides greater richness and more detailed information about a smaller number of people.

The key strengths and weaknesses of the two approaches are summarised in Table 1 below (Patton, 1990; Gosling and Edward, 1995; Carvalho and White 1997).

**Table 1: Strengths and weaknesses of quantitative and qualitative research methods**

<b>Quantitative research method</b>	<b>Qualitative research method</b>
<b>Strengths</b>	<b>Strengths</b>
- Testing and validating already constructed theories about how and why phenomena occur	- Data based on the participants' own categories of meaning
- Testing hypotheses that are constructed before the data are collected	- Useful for studying a limited number of cases in depth
- Can generalize research findings when the data are based on random samples of sufficient size	- Useful for describing complex phenomena
- Can generalize a research finding when it has been replicated on many different populations and subpopulations	- Provides individual case information
- Useful for obtaining data that allows quantitative predictions to be made	- Can conduct cross-case comparisons and analysis
- The researcher may construct a situation that eliminates the confounding influence of many variables, allowing one to more credibly establish cause-and-effect relationships	- Provides understanding and description of people's personal experiences of phenomena (i.e., the insider's viewpoint)
- Data collection using some quantitative methods is relatively quick (e.g., telephone interviews)	- Can describe, in rich detail, phenomena as they are situated and embedded in local contexts
- Provides precise, quantitative, numerical data	- The researcher can use the primarily qualitative method to inductively generate a tentative but explanatory theory about a phenomenon
- Data analysis is relatively less time consuming (using statistical software)	- Can determine how participants interpret constructs (e.g., self-esteem, IQ)
- The research results are relatively independent of the researcher (e.g., statistical significance)	- Qualitative researchers can respond to changes that occur during the conduct of a study (especially during extended fieldwork) and may shift the focus of their studies as a result
- It may have higher credibility with many people in power (e.g. administrators, politicians, people who fund programs)	- Qualitative data, in the words and categories of participants, lend themselves to exploring how and why phenomena occur
- It is useful for studying large numbers of people	
<b>Weaknesses</b>	<b>Weaknesses</b>
- The researcher's categories that are used might not reflect local constituencies' understandings	- Knowledge produced might not generalize to other people or other settings (i.e., findings might be unique to the relatively few people included in the research study).
- The researcher's theories that are used might not reflect local constituencies' understandings	- It is difficult to make quantitative predictions.
- The researcher might miss out on phenomena occurring because of the focus on theory or hypothesis testing rather than on theory or hypothesis generation (called the confirmation bias)	- It is more difficult to test hypotheses and theories with large participant pools
- Knowledge produced might be too abstract and general for direct application to specific local	- It might have lower credibility with some administrators and commissioners of programs.

situations, contexts and individuals	
	- It generally takes more time to collect the data when compared to quantitative research
	- Data analysis is often time consuming.
	- The results are more easily influenced by the researcher's personal biases and

Given the relative strengths and weaknesses of the two approaches and the varied purposes they serve, this study employed both methods to maximise the quality of the outcomes on the subject being assessed.

### ***3.1.1.2 Sampling***

The sample was drawn from the two selected industries including public and private sector stakeholders. For this reason, the sample was drawn based on purposive sampling to specifically focus on the concerned industries and relevant Ministries and Offices. According to Denscombe (2010), purposive sampling operates on the principle that we can get the information by focusing on a relatively small number of instances, deliberately selected on the basis of their known attributes. Denscombe (2010) further adds that purposive sampling works where the researcher already knows something about the specific people because they are seen to give the most valuable data. A total of 20 respondents were interviewed. The composition of respondents is made up of technical trade policy Analysts, Economists, Directors, Production and Marketing Managers, Chief Executive Officer (CEOs) and Senior-Economics Lecturers.

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### ***3.1.1.3 Target Institutions***

This study covered selected companies from the targeted industries and other important stakeholders from both private and public sector. Specifically, the study gathered information from the Ministry of Trade and Industry, Ministry of Finance, Ministry of Labour (MOL), National Planning Commission Secretariat, Namibia Statistic Agency, Namibia Manufacturing Associations, Namibia Chambers of Commerce and Industry, Namib Mills, Bokomo Namibia, and Namibia Dairies. Apart from the stakeholders listed above, the author also consulted academia and other sources for comprehensive information.

### **3.1.2 Data Collection**

As earlier stated, this study was planned to utilise both qualitative and quantitative research methods. This had an impact on data collection and created a requirement for both primary and secondary data. Primary data were obtained through semi-structured interviews with directly involved personnel, while secondary data collection relied on publications.

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#### ***3.1.2.1 Quantitative data***

Cohen et al (2005) argue that the use of secondary data saves time that would otherwise be spent collecting data. The approach is especially instrumental in the case of quantitative data, where it is said to provide larger and higher-quality databases that would be unfeasible for any individual researcher to collect on their own. This study

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therefore makes use of existing publications on economics, specifically publications that report on economic statistics such as the National Accounts, the Trade Statistics Bulletin published by the Namibia Statistics Agency (NSA) and Labour Survey Reports by the Ministry of Labour (MOL).

For the purpose of quantitative analysis, data relating to the four key impact areas, namely production, exports, competitive imports and job creation was collected, covering the selected industries. Table 2 describes the data collected with the view to addressing each of the research questions listed in chapter 1, section 1.1.3. The detailed data sets are attached to this paper as Appendix 1.

**Table 2: Description of quantitative data**

INDUSTRY	VARIABLE	SOURCE	MEASUREMENT	FREQUENCY	SCOPE	
					Sample 1 (before IIP)	Sample 2 (after IIP)
<b>Dairy Industry</b>	Output at current prices	NSA	N\$'000	Annual	1992 to 1999 (8 observations)	2000 to 2012 (13 observations)
	Exports	NSA	N\$ million			
	Competitive imports	NSA	N\$ million			
	Job creation	MOL	Number of people employed			
<b>Pasta Industry</b>	Output at current prices	NSA	N\$'000	Annual	1993 to 2000 (8 observations)	2001 to 2012 (12 observations)
	Exports	NSA	N\$ million			
	Competitive imports	NSA	N\$ million			
	Job creation	MOL	Number of people employed			

### 3.1.2.2 Qualitative data

Denscombe (2010) emphasized that the use of semi-structured interviews is necessary to allow the participants to speak more openly and widely on issues raised by the researcher. Therefore, in order to validate and establish the reasons for trends

observed in the qualitative data, the researcher conducted semi-structured interviews, of which the respondents were experts in the selected industries. The following were the key questions covered in the interviews:

1. How important is IIP protection to the selected industries i.e. dairy and pasta?
2. How do you view the performance of the protected industries before and after the IIP protection i.e. in terms of production, employment creation, exports, investment etc.?
3. If the performance of the protected industries has been positive since the implementation of IIP policy, do you think that positive performance is attributed to IIP policy?
4. Did IIP policy achieve the intended objective of employment creation, increased production & competitiveness of the targeted industries?
5. In your view, what are the challenges of this policy in respect of:
  - a. The protected industries-
  - b. Government-
  - c. Other role players
6. Do you think the IIP policy is an effective tool for economic management?
7. If not, how can the policy be redesigned to be more effective?

During the interviews, a number of follow-up questions stemming from the responses received were generated with the aim of allowing both the interviewer and the respondent the flexibility to probe for details. The interview responses are summarised in Appendix 2.

### ***3.1.2.3 Validity***

According to Denscombe (2010), the issue of validity is a credibility issue to demonstrate that data collected is accurate and appropriate. In order to address the accuracy and the appropriateness of data, the researcher tried to triangulate by comparing data from the interviews against the data gathered from secondary sources, as well as the literature related to the theory of infant industry protection arguments.

To further increase validity, the researcher made sure that questions were well considered to give less room for ambiguity. This was achieved through pilot-testing the interview questions and thereafter, the questions that were ambiguous were refocused. Punch (2009) also points out that the issue of validity in interview responses and questionnaires can be countered by careful design, planning and training. In this regard, proper design of the questionnaire was carried out and checked by Dr Whyte, Programme coordinator and research supervisor.

### **3.1.3 Data analysis**

#### ***3.1.3.1 Quantitative analysis***

To analyse the quantitative data, the researcher applied the following two parametric hypothesis tests using Microsoft Excel:

- ✓ The F-test for equality of two population variances, followed by
- ✓ The T-test for the difference of two population means.

A detailed description of each of these tests is provided below.

### **3.1.3.1.1 F-test for equality of two population variances**

#### **a) Definition and purpose**

As explained by Keller and Warrack (2003: 426) and by Underhill and Bradfield (1994: 217), the F-test is a parametric hypothesis test used to determine whether or not there is sufficient evidence to assume that the variances of two independent populations are equal. This test should be applied before the T-test, which is explained in section 3.3.1.2 below.

For this study, the F-test will be used to assess whether there is sufficient sample evidence for equality of the population variances, before and after the introduction of IIP, in respect of each of the four variables under consideration, i.e. output, exports, imports and number of jobs created, in each industry. The results of this test will also be used to decide which formula should be applied to compute the test statistic for the T-test.

#### **b) Assumptions of the test**

The key assumption of the F-test is that two random samples  $\{X_{11}, X_{12}, \dots, X_{1n_1}\}$  and  $\{X_{21}, X_{22}, \dots, X_{2n_2}\}$  extracted from the populations of two independent normally distributed random variables  $X_1$  and  $X_2$  populations are being compared, according to Keller and Warrack (2003). In terms of this study, this means that for each of the four variables, the sample data relating to the period before the introduction of IIP is treated as independent of the corresponding sample data after IIP.



For the purposes of this study, it will be presumed that the above assumption is satisfied, with no further statistical tests being carried out in this regard.

### c) Notation

Table 3 below serves to describe the symbols used to denote the parameters involved in the F-test. Firstly,  $i$  denotes an indexing variable with two values **D** and **P**, which in turn represent “dairy industry” and “pasta industry” respectively.

**Table 3: Notation for population variances**

SYMBOL	DESCRIPTION
$\sigma^2_{Q_{iB}}$	Population variance of annual total output ( $Q_i$ ) produced by Industry $i$ before the introduction of IIP;
$\sigma^2_{Q_{iA}}$	Population variance of annual total output ( $Q_i$ ) produced by Industry $i$ after the introduction of IIP;
$\sigma^2_{X_{iB}}$	Population variance of annual total exports ( $X_i$ ) of Industry $i$ before the introduction of IIP
$\sigma^2_{X_{iA}}$	Population variance of annual total exports ( $X_i$ ) of Industry $i$ after the introduction of IIP
$\sigma^2_{M_{iB}}$	Population variance of annual total competitive imports ( $M_i$ ) of Industry $i$ before the introduction of IIP
$\sigma^2_{M_{iA}}$	Population variance of annual total competitive imports ( $M_i$ ) of Industry $i$ after the introduction of IIP
$\sigma^2_{L_{iB}}$	Population variance of annual total number of jobs ( $L_i$ ) created in Industry $i$ before the introduction of IIP
$\sigma^2_{L_{iA}}$	Population variance of annual total number of jobs ( $L_i$ ) created in Industry $i$ after the introduction of IIP

### d) Hypothesis testing procedure

### i. Statement of hypotheses

In general, the F-test is essentially a test of the null hypothesis  $H_0: \sigma_1^2 = \sigma_2^2$  against the alternative hypothesis  $H_1: \sigma_1^2 \neq \sigma_2^2$ , where  $\sigma_1^2$  and  $\sigma_2^2$  denote the variances of the two populations. The null hypothesis indicates that the variances of the two populations are equal. Similarly, the interpretation of the alternative hypothesis is that the variances are unequal.

In this study, four replications of the F-test corresponding to each of the four impact variables (Q – total output; X – exports; M – imports; L – jobs) were carried out and the hypotheses are formulated in Table 4 below.

**Table 4: Hypotheses for the F-test**

IMPACT VARIABLE	HYPOTHESIS	DESCRIPTION
<b>Output (<math>Q_i</math>)</b>	$H_0: \sigma_{Q_i,B}^2 = \sigma_{Q_i,A}^2$	The population variances of output produced by Industry $i$ before and after IIP are equal.
	$H_1: \sigma_{Q_i,B}^2 \neq \sigma_{Q_i,A}^2$	The population variances of output produced by Industry $i$ before and after IIP are not equal.
<b>Exports (<math>X_i</math>)</b>	$H_0: \sigma_{X_i,B}^2 = \sigma_{X_i,A}^2$	The population variances of exports of Industry $i$ before and after IIP are equal.
	$H_1: \sigma_{X_i,B}^2 \neq \sigma_{X_i,A}^2$	The population variances of exports of Industry $i$ before and after IIP are not equal.
<b>Competitive imports (<math>M_i</math>)</b>	$H_0: \sigma_{M_i,B}^2 = \sigma_{M_i,A}^2$	The population variances of competitive imports by Industry $i$ before and after IIP are equal.
	$H_1: \sigma_{M_i,B}^2 \neq \sigma_{M_i,A}^2$	The population variances of competitive imports by Industry $i$ before and after IIP are not equal.
<b>Number of jobs created (<math>L_i</math>)</b>	$H_0: \sigma_{L_i,B}^2 = \sigma_{L_i,A}^2$	The population variances of the number of jobs created in Industry $i$ before and after IIP are equal.
	$H_1: \sigma_{L_i,B}^2 \neq \sigma_{L_i,A}^2$	The population variances of the number of jobs created in Industry $i$ before and after IIP are not equal.

### ii. Calculation of the test statistic

Keller and Warrack (2003: 322) state that the next step in the hypothesis testing procedure is to calculate the test-statistic from the available sample data. The test statistic is the criterion upon which the decision on whether to reject or accept the null hypothesis is based. If the value of the test statistic is inconsistent with the null hypothesis, the null hypothesis is rejected and the alternative hypothesis is accepted.

Following the procedure explained by Underhill and Bradfield (1994:219) the value of the test statistic for the F-test is calculated from the sample data using the general formula:

$$f_{calc} = \begin{cases} \frac{s_1^2}{s_2^2} & \text{if } s_1^2 > s_2^2 \\ \frac{s_2^2}{s_1^2} & \text{if } s_1^2 < s_2^2 \end{cases} \quad (1)$$

where  $s_1^2$  and  $s_2^2$  are the variances of the samples from the two populations.

Formula (1) was thus customized to each of the four hypothesis tests listed in Table 4 above. For example in the F-test for the equality of the population variances before and after IIP, the value of the test statistic is given by the formula:

$$f_{calc} = \begin{cases} \frac{s_{Q_iB}^2}{s_{Q_iA}^2} & \text{if } s_{Q_iB}^2 > s_{Q_iA}^2 \\ \frac{s_{Q_iA}^2}{s_{Q_iB}^2} & \text{if } s_{Q_iB}^2 < s_{Q_iA}^2 \end{cases} \quad (2)$$

where  $s_{Q_iB}^2$  and  $s_{Q_iA}^2$  are the sample variances of output produced by industry  $i$  before and after IIP respectively. Similar formulae were used to calculate the values of the test statistics for the hypothesis tests relating to exports, competitive imports and number of jobs created.

### iii. Formulation of decision rule

After calculating the value of the test statistic  $f_{calc}$  the next step is to formulate a decision rule, which is a set of conditions under which the null hypothesis will be either rejected or accepted. In doing so, the researcher used the p-value method as outlined by Keller and Warrack (2003: 327), who define the p-value of a hypothesis test as the probability of observing a test statistic at least as extreme as the one computed from the sample data given that the null hypothesis is true.

For this study, the p-value associated with the test statistic for each of the four envisaged F-tests was computed and interpreted in order to decide whether or not to reject the null hypothesis. Based on the decision, a conclusion regarding the equality of the population variances under comparison was then drawn. Table 5 outlines the criteria for the interpretation of the p-value and the resulting decisions and conclusions.

**Table 5: Decision rule for the F-test**

p-VALUE RANGE	INTERPRETATION	DECISION	CONCLUSION
$0 < p \leq 0.01$	Overwhelming evidence against $H_0$	Reject $H_0$	The population variances under comparison are not equal.
$0.01 < p \leq 0.05$	Strong evidence against $H_0$		
$0.05 < p \leq 0.10$	Weak evidence against $H_0$	Do not reject $H_0$	The population variances under comparison are equal.
$0.10 < p < 1.00$	No evidence against $H_0$		

### 3.1.3.1.2 T-test for the difference of population means

### a) Definition and purpose

According to Wackerly et al (2008: 521), a T-test is a small-sample hypothesis test concerning the difference between means of two independent normal populations. This test must be performed after considering the conclusion of the F-test discussed in section 3.3.1.1 above.

For this study, the T-test will be used to assess whether there is sufficient sample evidence for a significant improvement in each of the four variables under consideration, i.e. output, exports, imports and number of jobs created after the introduction of IIP in the Pasta and Dairy industries. Based on the results of the T-test, a conclusion can then be made as to whether or not the Namibian IPP Policy is an effective tool for protecting and growing infant industries.

### b) Assumptions of the test

As indicated by Mendenhall et al (1996: 298-300), the key assumptions of the T-test are:

- i. The samples were randomly and independently selected from normally distributed populations with unknown variances.
- ii. Both samples are small, meaning that each has less than 30 observations in line with the approach adopted by Mendenhall et al (1996: 298).
- iii. Depending on the conclusion of the F-test, an additional assumption will either be that the variances of the target populations are equal (i.e.  $\sigma_1^2 = \sigma_2^2$ ) or that they are unequal ( $\sigma_1^2 \neq \sigma_2^2$ ).

While Underhill and Bradfield (1994: 223) state that the assumption that the target populations are normally distributed can itself be tested, this study assumed that

this assumption is satisfied, with no further statistical tests being carried out in this regard.

### c) Notation

Table 6 below describes the symbols used to denote the parameters involved in the T-test, where  $i$  denotes an indexing variable with values **D** and **P**, for the Dairy and Pasta industries respectively.

**Table 6: Notation for population means**

SYMBOL	DESCRIPTION
$\mu_{Q_iB}$	Population mean of annual total output ( $Q_i$ ) produced by Industry $i$ before the introduction of IIP;
$\mu_{Q_iA}$	Population mean of annual total output ( $Q_i$ ) produced by Industry $i$ after the introduction of IIP;
$\mu_{X_iB}$	Population mean of annual total exports ( $X_i$ ) of Industry $i$ before the introduction of IIP
$\mu_{X_iA}$	Population mean of annual total exports ( $X_i$ ) of Industry $i$ after the introduction of IIP
$\mu_{M_iB}$	Population mean of annual total competitive imports ( $M_i$ ) of Industry $i$ before the introduction of IIP
$\mu_{M_iA}$	Population mean of annual total competitive imports ( $M_i$ ) of Industry $i$ after the introduction of IIP
$\mu_{L_iB}$	Population mean of annual total number of jobs ( $L_i$ ) created in Industry $i$ before the introduction of IIP
$\mu_{L_iA}$	Population mean of annual total number of jobs ( $L_i$ ) created in Industry $i$ after the introduction of IIP

### d) Hypothesis testing procedure

#### i. Statement of hypotheses

Mendenhall et al (1996: 299-300) state that the T-test can take one of the three alternative forms shown in Table 7 below, depending on the hypotheses to be tested. Note that  $\mu_1$  and  $\mu_2$  denote the respective means of the random variables  $X_1$  and  $X_2$  from whose populations the samples were randomly and independently selected.

**Table 7: Types of hypothesis tests**

TYPE OF TEST	HYPOTHESES
Upper one-tailed test	$H_0: \mu_1 - \mu_2 \leq 0$
	$H_1: \mu_1 - \mu_2 > 0$
Two-tailed test	$H_0: \mu_1 - \mu_2 = 0$
	$H_1: \mu_1 - \mu_2 \neq 0$
Lower one-tailed test	$H_0: \mu_1 - \mu_2 \geq 0$
	$H_1: \mu_1 - \mu_2 < 0$

The upper one-tailed test is used to test a claim that the mean of  $X_1$  is greater than the mean of  $X_2$ , while the lower one-tailed test is used to test a claim that the mean of  $X_1$  is less the mean of  $X_2$ . The two-tailed alternative, on the other hand, is merely applied to test a claim that the two population means differ, without any regard to which mean is larger than the other.

In this study, three replications of the upper one-tailed T-test were carried out to evaluate the hypothesis that the introduction of IIP in the Pasta and Dairy industries had resulted in increased output, exports and job creation. However, in respect of the hypothesis that IIP has curtailed the level of competitive imports in the aforementioned industries, a lower one-tailed T-test was performed. The detailed set of hypotheses is formulated in Table 8 below.

**Table 8: Hypotheses for the T-test**

IMPACT VARIABLE	HYPOTHESES	DESCRIPTION
Output ( $Q_i$ )	$H_0: \mu_{Q_{iA}} - \mu_{Q_{iB}} \leq 0$	The introduction of IIP in Industry $i$ has not resulted in increased output
	$H_1: \mu_{Q_{iA}} - \mu_{Q_{iB}} > 0$	The introduction of IIP in Industry $i$ has resulted in increased output

<b>Exports (<math>X_i</math>)</b>	$H_0: \mu_{X_{iA}} - \mu_{X_{iB}} \leq 0$	The introduction of IIP in Industry $i$ has not resulted in increased exports
	$H_1: \mu_{X_{iA}} - \mu_{X_{iB}} > 0$	The introduction of IIP in Industry $i$ has resulted in increased exports
<b>Competitive imports (<math>M_i</math>)</b>	$H_0: \mu_{M_{iA}} - \mu_{M_{iB}} \geq 0$	The introduction of IIP in Industry $i$ has not curtailed competitive imports
	$H_1: \mu_{M_{iA}} - \mu_{M_{iB}} < 0$	The introduction of IIP in Industry $i$ has curtailed competitive imports
<b>Number of jobs created (<math>L_i</math>)</b>	$H_0: \mu_{L_{iA}} - \mu_{L_{iB}} \leq 0$	The introduction of IIP in Industry $i$ has not resulted in increased job creation
	$H_1: \mu_{L_{iA}} - \mu_{L_{iB}} > 0$	The introduction of IIP in Industry $i$ has resulted in increased job creation

## ii. Test statistic under the assumption of equal variances

The approach used to compute the test statistic for the T-test is dependent on the outcome of the F-test, namely whether or not there is sufficient evidence to assume equal population variances (refer to the third assumption in section 3.3.1.2 b) iii above). Mendenhall et al (1996: 300) state that under the assumption of equal population variances ( $\sigma_1^2 = \sigma_2^2 = \sigma^2$ ), the value of the test statistic  $t_{calc}$  is calculated from the sample data using the general formula:

$$t_{calc} = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad (3)$$

where  $\bar{x}_1$  and  $\bar{x}_2$  are the respective means of the samples of sizes  $n_1$  and  $n_2$  observations taken from the populations of  $X_1$  and  $X_2$ . The symbol  $s$  denotes the square root of  $s^2$ , the pooled estimate of the assumed common population variance  $\sigma^2$ , given by the formula:

$$s^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2} \quad (4)$$

where  $s_1^2$  and  $s_2^2$  are the respective sample variances. The statistic  $t_{calc}$  follows a Student T-distribution with  $(n_1 + n_2 - 2)$  degrees of freedom.



If applicable, formula (3) would be customized to any of the four hypothesis tests listed in Table 8 above. For example, in testing the hypothesis that the introduction of IIP in industry  $i$  has resulted in increased production under the assumption that the population variances of output produced before and after IIP are equal ( $\sigma^2_{Q_iB} = \sigma^2_{Q_iA} = \sigma^2_Q$ ), the value of the test statistic  $t_{calc}$  would be given by the formula:

$$t_{calc} = \frac{\bar{q}_{iA} - \bar{q}_{iB}}{s_{Q_i} \sqrt{\frac{1}{n_{Q_iA}} + \frac{1}{n_{Q_iB}}}} \quad (5)$$

where  $\bar{q}_{iA}$  and  $\bar{q}_{iB}$  denote the means of the samples of sizes  $n_{Q_iA}$  and  $n_{Q_iB}$  observations of annual output produced by industry  $i$  after and before IIP respectively. The symbol  $s_{Q_i}$  represents the square root of  $s^2_{Q_i}$ , the pooled estimate of the assumed common population variance  $\sigma^2_Q$ , given by the formula:

$$s^2_Q = \frac{(n_{Q_iA} - 1)s^2_{Q_iA} + (n_{Q_iB} - 1)s^2_{Q_iB}}{n_{Q_iA} + n_{Q_iB} - 2} \quad (6)$$

where  $s^2_{Q_iA}$  and  $s^2_{Q_iB}$  are the sample variances of output produced by Industry  $i$  before and after IIP respectively. The test statistic  $t_{calc}$  has a Student T-distribution with  $(n_{Q_iA} + n_{Q_iB} - 2)$  degrees of freedom. Similar formulae would be used to calculate the values of the statistics for the hypothesis tests relating to exports, competitive imports and number of jobs created if applicable.

### iii. Test statistic under the assumption of unequal variances

Underhill and Bradfield (1994: 221) states that if the F-test forces rejection of the assumption that the population variances are equal, an approximate T-test can be

carried out, which does not pool the sample variances but makes an adjustment to the degrees of freedom. In this case, the value of the test statistic  $t_{calc}^*$  is calculated from the sample data using the general formula:

$$t_{calc}^* = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad (7)$$

where  $\bar{x}_1$  and  $\bar{x}_2$  are the respectively means of the samples of sizes  $n_1$  and  $n_2$  observations taken from the populations of  $X_1$  and  $X_2$ , and  $s_1^2$  and  $s_2^2$  are the respective sample variances. Unlike under the equal variances assumption, the statistic  $t_{calc}^*$  follows a Student T-distribution with  $v^*$  degrees of freedom, where:

$$v^* = \frac{\left[ \frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} \right]^2}{\left[ \frac{(s_1^2/n_1)^2}{n_1 + 1} + \frac{(s_2^2/n_2)^2}{n_2 + 1} \right]} - 2 \quad (8)$$

In most cases, formula (8) returns a non-integral value of  $v^*$ , which must be rounded off to the nearest integer.

If applicable, formula (8) would be customized to any of the four hypothesis tests listed in Table 8 above. For example, in testing the hypothesis that the introduction of IIP in industry  $i$  has resulted in increased production under the assumption that the population variances of output produced before and after IIP are unequal ( $\sigma_{Q_{iB}}^2 \neq \sigma_{Q_{iA}}^2$ ), the value of the test statistic  $t_{calc}^*$  would be given by the formula:

$$t_{calc}^* = \frac{\bar{q}_{iA} - \bar{q}_{iB}}{\sqrt{\frac{s_{Q_{iA}}^2}{n_{Q_{iA}}} + \frac{s_{Q_{iB}}^2}{n_{Q_{iB}}}}} \quad (9)$$

where  $\bar{q}_{iA}$  and  $\bar{q}_{iB}$  denote the means of the samples of sizes  $n_{Q_{iA}}$  and  $n_{Q_{iB}}$  observations, of annual output produced by industry  $i$  after and before IIP

respectively, and  $s_{Q_{iA}}^2$  and  $s_{Q_{iB}}^2$  are the respective sample variances. The test statistic  $t_{calc}^*$  has a Student T-distribution with  $v^*$  degrees of freedom, where:

$$v^* = \frac{\left[ \frac{s_{Q_{iA}}^2}{n_{Q_{iA}}} + \frac{s_{Q_{iB}}^2}{n_{Q_{iB}}} \right]^2}{\left[ \frac{(s_{Q_{iA}}^2/n_{Q_{iA}})^2}{n_{Q_{iA}}+1} + \frac{(s_{Q_{iB}}^2/n_{Q_{iB}})^2}{n_{Q_{iB}}+1} \right]} - 2 \quad (10)$$

Similar formulae would be used to calculate the values of the statistics for the hypothesis tests relating to exports, competitive imports and number of jobs created if applicable.

#### iv. Formulation of decision rule

After calculating the value of the test statistic  $t_{calc}$  (assuming equal population variances) or  $t_{calc}^*$  (assuming unequal population variances), the next step is to formulate a decision rule following an approach similar to that used under the F-test above.

For this study, the p-value associated with the test statistic for each of the four envisaged T-tests was computed and interpreted in order to decide whether or not to reject the null hypothesis. Based on the decision, a conclusion regarding whether or not the introduction of IIP has resulted in an improvement in respect of the impact variable under consideration was then drawn. Table 9 outlines the criteria for the interpretation of the p-value and the resulting decisions and conclusions.

**Table 9: Decision rule for the T-test**

APPLICABLE ACTION	p-VALUE			
	$0 < p \leq 0.01$	$0.01 < p \leq 0.05$	$0.05 < p \leq 0.10$	$0.10 < p < 1$
<b>Interpretation</b>	Overwhelming evidence against $H_0$	Strong evidence against $H_0$	Weak evidence against $H_0$	No evidence against $H_0$
<b>Decision</b>	Reject $H_0$		Do not reject $H_0$	

Conclusion	Output	The introduction of IIP in Industry <i>i</i> has resulted in increased output	The introduction of IIP in Industry <i>i</i> has not resulted in increased output
	Exports	The introduction of IIP in Industry <i>i</i> has resulted in increased exports	The introduction of IIP in Industry <i>i</i> has not resulted in increased exports
	Competitive imports	The introduction of IIP in Industry <i>i</i> has curtailed competitive imports	The introduction of IIP in Industry <i>i</i> has not curtailed competitive imports
	Number of jobs created	The introduction of IIP in Industry <i>i</i> has resulted in increased job creation	The introduction of IIP in Industry <i>i</i> has not resulted in increased job creation

### 3.2 Summary

Chapter 3 has presented the research methodology used in the study and highlights how data was collected, the sample size and the targeted institutions. The differences between quantitative and qualitative research methods and the relative strengths and weaknesses of each approach have been discussed, as has the way in which validity has been ensured. Figure 2(below) summarises the algorithm for quantitative analysis as described above.

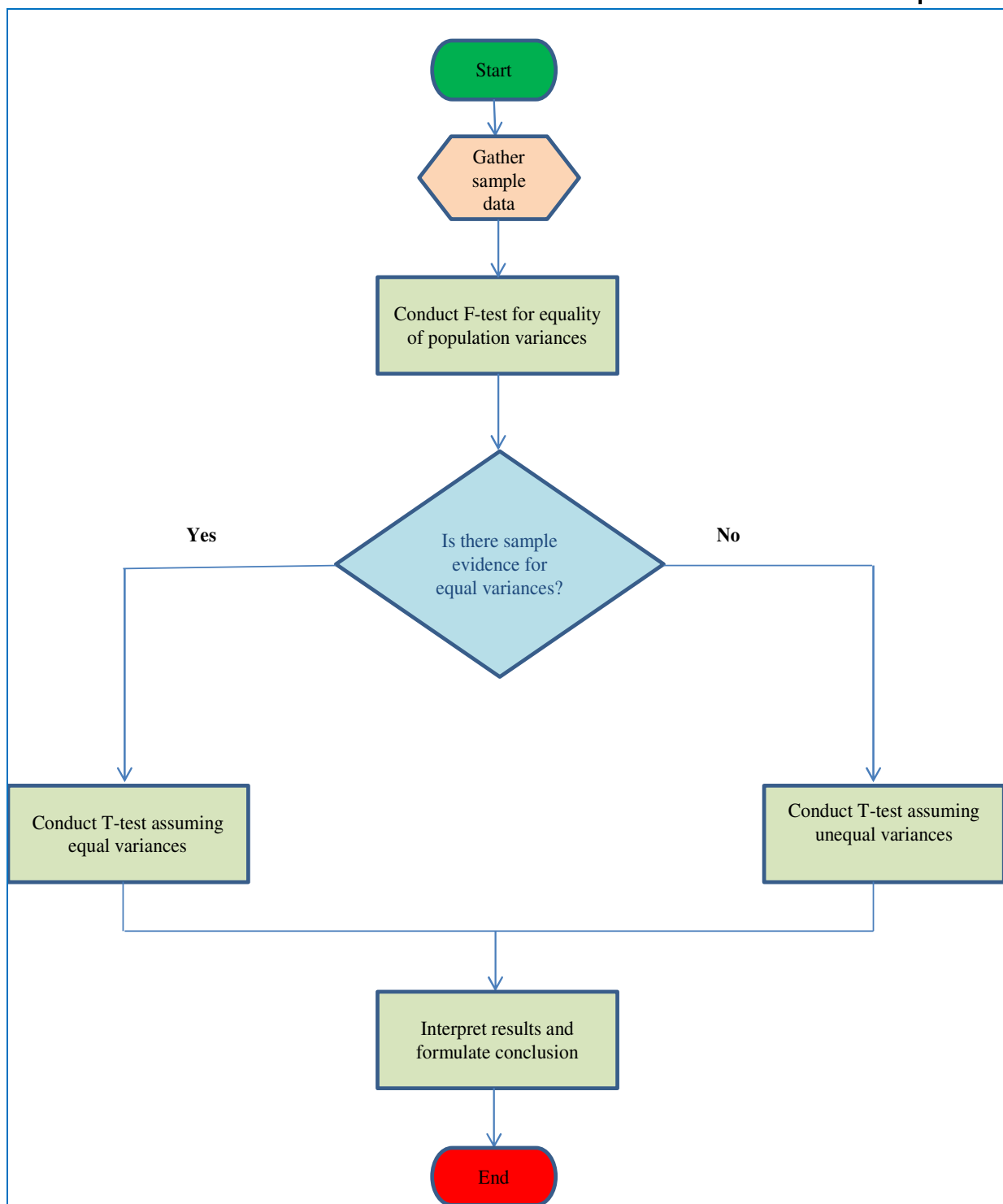


Figure 2: Quantitative analysis algorithm

## Chapter 4 – Results presentation and discussion

### 4.1 Introduction

This chapter focuses on the presentation of results. It includes interpretation of the quantitative data analysis and the interview responses (Appendix 1). In the process of interpretation, the results of data analysis will be translated into integrated conclusions relevant to the objectives of the research.

#### 4.1.1 Output

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##### *4.1.1.1 F-test results*

The F-test for equality of population variances of the Pasta Industry output, before and after the introduction of IIP, resulted in a sample F-statistic of approximately 0.467 (Table 10). The associated p-value of 0.161 is larger than 0.10, indicating that the test is not significant enough to reject equality. Consequently, the conclusion of the test is that the population variances of output produced by the Pasta Industry before and after IIP are equal.

With regard to the Dairy Industry, an F-statistic of approximately 0.006 was obtained, with a very low p-value of 0.000000273. In contrast to the Pasta Industry, this low p-value signifies overwhelming evidence against the null hypothesis, leading to the conclusion that the population variances of output produced by the Dairy Industry before and after IIP are not equal.

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The implication of the above results is that the T-tests subsequently conducted to determine whether the introduction of IIP has resulted in increased output had to assume equal variances for Pasta Industry output and unequal variances for Dairy Industry output, before and after IIP.

**Table 10: F-test for equality of population variances of output before and after IIP**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	121.625	715.7962715	144.6544325	1078.778595
<b>Variance</b>	21517.98214	46101.76488	1803.276701	279169.49
<b>Observations</b>	8	12	8	13
<b>Df</b>	7	11	7	12
<b>F</b>	0.46674964		0.006459433	
<b>P(F&lt;=f) one-tail</b>	0.160594221		0.000000273	
<b>F Critical one-tail</b>	0.277543618		0.279745598	

#### **4.1.1.2 T-test results**

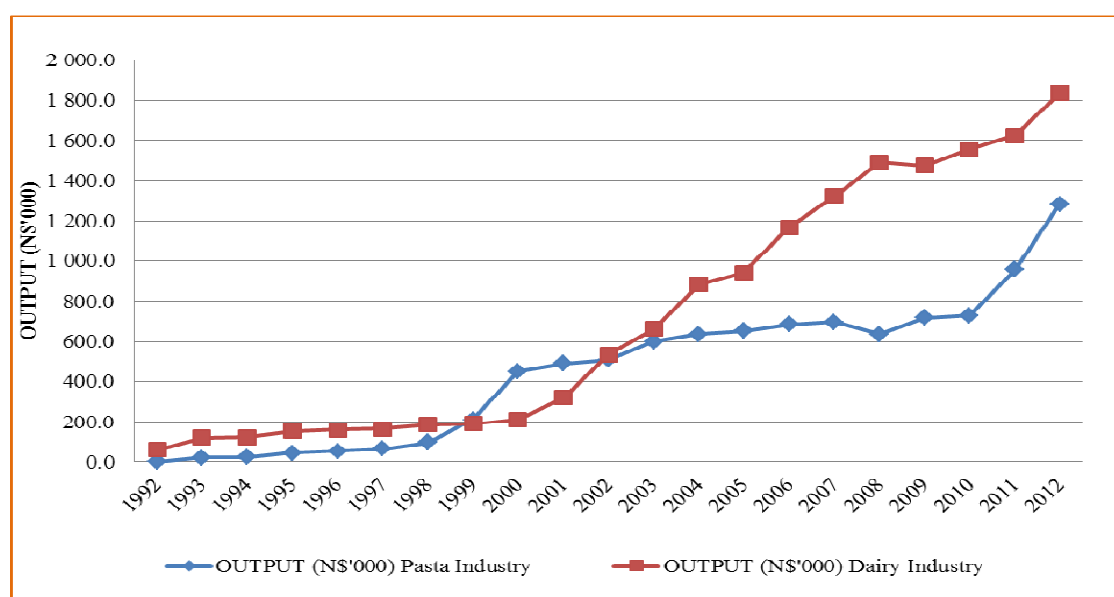
The T-test conducted to determine whether the introduction of IIP resulted in increased output, yielded T-values of -6.810 and -6.341 for the Pasta and Dairy industries respectively (Table 11). Both p-values are very close to zero, falling within the range of  $0 < p \leq 0.01$  and therefore the null hypotheses are rejected. For both industries, the test provides overwhelming evidence that the mean level of output increased after the introduction of IIP.

**Table 11: T-test results for output**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	121.625	715.7962715	144.6544325	1078.778595
<b>Variance</b>	21517.98214	46101.76488	1803.276701	279169.49
<b>Observations</b>	8	12	8	13
<b>Pooled Variance</b>	36541.40493		N/A	N/A
<b>Hypothesized Mean Difference</b>	0		0	
<b>Df</b>	18		12	
<b>t Stat</b>	-6.80988296		-	
<b>P(T&lt;=t) one-tail</b>	0.000001120		0.000018562	
<b>t Critical one-tail</b>	1.734063607		1.782287556	
<b>P(T&lt;=t) two-tail</b>	0.00000224		0.000037123	
<b>t Critical two-tail</b>	2.10092204		2.17881283	

#### 4.1.1.3 Interpretation

The rejection of the null hypothesis means that the alternative hypothesis is true, providing strong evidence to conclude that the introduction of IIP has resulted in increased output in both the Pasta and Dairy industries. This conclusion is in line with the patterns observed in the output data graphs for both industries. Figure 3 depicts the trend in the values of output in both industries.

**Figure 3: Output produced by the Pasta and Dairy Industries before and after IIP**

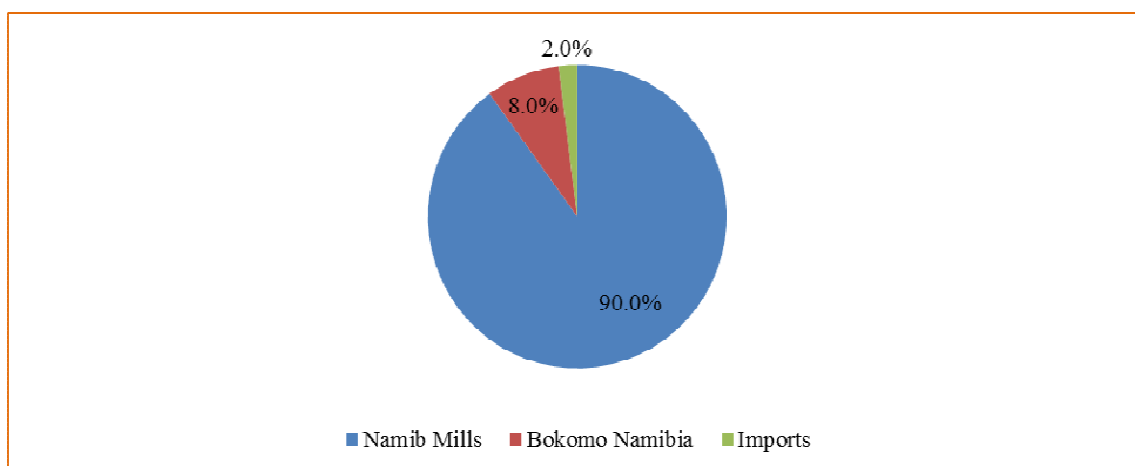
Source: Namibia Statistics Agency



According to Table 11, the average value of output for pasta industry before IIP, i.e. from 1993 to 2000 totals N\$121.6 thousands while after the introduction IIP (2001 to 2012) the average has increased to N\$ 715.8 thousands. Similarly, for the dairy industry, the average value of output before IIP i.e. from 1992 to 1999 amounts to N\$144.7 thousands and to N\$ 1078.8 thousands after IIP has been introduced from 2000 to 2012.

In addition to the official statistics released in the National Account publication of the Namibia Statistic Agency, the Dairy and Pasta industries have made a significant contribution to the overall manufacturing industry sector with a combined share of 35% during the period of 1992 and 2012.

Both the results of the T-tests and the patterns observed from the actual data conform to the views expressed by the respondents, both private and public sector, in the qualitative study. The qualitative study (Appendix 2) revealed that the Pasta industry has seen an increase in its domestic market share from 60% to 98% since the introduction of IIP policies in 2001. Specifically, the experts from the Agronomic Board indicated that Namib Mills produces about 90% of Namibia's pasta consumption (of about 9,000 tons) which is about 40% more than before IIP had been implemented in 2001. The following pie-chart illustrates the role players in the Pasta industry and the share that they occupy in terms of supplying the domestic market with Pasta products.



**Figure 4: Domestic market share for the Pasta Industry**

*Source: Agronomic Board*

The Agronomic Board also explained that although Bokomo Namibia was active in the milling industry well before IIP was approved for the Pasta industry, the company only extended its operation to the manufacturing of pasta in 2008, which could explain why Namib Mills retains 90% of the local market. Bokomo Namibia occupies 8% of local market share, while 2% is filled by imports, mainly from South Africa and Europe.

Likewise, the respondents from the Dairy industry reported that since IIP, the industry has recorded expansions in production. In particular, the industry has been able to venture into a variety of products such as Fresh milk, Extended Shelf Life milk (ESL), Ultra High Temperature milk (UHT), buttermilk, curdled, yoghurt and other fermented milk, in which Namibia had little production capacity or competitive advantage prior to the implementation IIP policy.

### 4.1.2 Exports

#### 4.1.2.1 F-test results

As depicted by Table 12 below, the F-test for equality of population variances of exports before and after the introduction of IIP resulted in a sample F-statistics of 0.000 and 0.002 (correct to 3 decimal places) for the Pasta and Dairy industries respectively. The associated p-values were extremely low for both industries, indicating that the test statistics are significant, that is, there is overwhelming evidence against the null hypothesis. Consequently, the conclusion of the test was that the population variances of output produced before and after IIP are not equal in both industries.

The above results imply that the T-test conducted to determine whether the introduction of IIP has resulted in increased exports must assume unequal variances in both industries, before and after IIP.

**Table 12: F-test results for exports**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	0.0375	14.39166667	6.649125	123.1422308
<b>Variance</b>	0.002678571	237.8244697	21.92766041	9554.915396
<b>Observations</b>	8	12	8	13
<b>df</b>	7	11	7	12
<b>F</b>	0.000011263		0.002294909	
<b>P(F&lt;=f) one-tail</b>	0.000000000		0.000000007	
<b>F Critical one-tail</b>	0.277543618		0.279745598	

#### 4.1.2.2 T-test results

The values of the T-statistic obtained during the T-test to assess whether exports improved after IIP were found to be approximately -3.224 and -4.289 for the Pasta and Dairy industries respectively (Table 13). The associated p-values were approximately 0.008 for the Pasta industry and 0.001 for the Dairy industry. These low p-values indicate that the null hypotheses should be rejected in both industries.

**Table 13: T-test results for exports**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	0.0375	14.39166667	6.649125	123.1422308
<b>Variance</b>	0.002678571	237.8244697	21.92766041	9554.915396
<b>Observations</b>	8	12	8	13
<b>Hypothesized Mean Difference</b>	0		0	
<b>df</b>	11		12	
<b>t Stat</b>	-3.224309112		4.288942185	
<b>P(T&lt;=t) one-tail</b>	0.004048383		0.000526123	
<b>t Critical one-tail</b>	1.795884819		1.782287556	
<b>P(T&lt;=t) two-tail</b>	0.008096766		0.001052247	
<b>t Critical two-tail</b>	2.20098516		2.17881283	

#### 4.1.2.3 Interpretation

The T-test statistics of -3.224 and -4.289 their respective associated p-value of approximately 0.008 for the Pasta industry and 0.001 for the Dairy Industry suggests that there is overwhelming evidence against the null hypothesis, leading to rejection of the null hypothesis and acceptance of the alternative hypothesis in both industries. The conclusion therefore is that the introduction of IIP has resulted in an increased value of exports in both the Pasta and Dairy industries.

These results are in line with the qualitative study where the respondents, from private and public sector, confidently confirmed that there has been an increase in exports of pasta and dairy products not only in value but also in volumes. The dairy industry indicated that Namibia is now exporting dairy products such as fresh and long-life milk, value-added dairy products and other beverages to Angola, DRC and Zambia.

Similarly, it was revealed by the Pasta industry that companies in the industry are exporting to all SACU countries including South Africa, where Namibian pasta products have gained a market share of 34% (Appendix 2). Pasta products are also going to Angola, DRC, Tanzania, Zambia and Zimbabwe. In Botswana, a Namibian registered company has invested in a manufacturing and production plant due to be operational by the second quarter of 2014.

#### **4.1.3 Competitive imports**

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##### ***4.1.3.1 F-test results***

The calculated statistics from the F-test for equality of population variances of competitive imports before and after the introduction of IIP were approximately 10.754 and 0.005 for the Pasta and Dairy Industries respectively (Table 14). These F-statistics are significant, as evidenced by their very low associated p-values, indicating that the samples from both industries provide sufficient evidence to reject the null hypothesis. On this basis, the conclusion was that the population variances of competitive imports before and after IIP are unequal in both industries.

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The implication of the above results was that the T-test for determining whether the introduction of IIP has effectively curtailed competitive imports was to be conducted under the assumption of unequal variances for competitive imports in both industries before and after IIP.

**Table 14: F- Test results for competitive imports**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	6.7625	12.44166667	204.01525	339.3604615
<b>Variance</b>	39.74267857	3.695378788	590.4153371	120887.9569
<b>Observations</b>	8	12	8	13
<b>df</b>	7	11	7	12
<b>F</b>	10.754696840		0.004883988	
<b>P(F&lt;=f) one-tail</b>	0.000381201		0.000000103	
<b>F Critical one-tail</b>	3.012330343		0.279745598	

#### **4.1.3.2 T-test results**

From the T-test conducted to determine whether IIP was effective in curtailing competitive imports in the Pasta and Dairy Industries, the sample T-statistics were found to be -2.473 and -1.398, with associated p-values of 0.019 and 0.094 (to three decimal places) respectively (Table 15). The p-value for the Pasta Industry exceeds 0.01 but is still less than 0.05, indicating strong evidence against the null hypothesis in this industry. On the other hand, the p-value associated with the T-statistic for the Dairy industry is above 0.05 but less than 0.10, indicating that there is weak sample evidence against the null hypothesis for this industry. Based on the aforementioned p-values, the null hypothesis was rejected for the Pasta Industry but accepted for the Dairy Industry.

**Table 15: T-test results for competitive imports**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	6.7625	12.44166667	204.01525	339.3604615
<b>Variance</b>	39.74267857	3.695378788	590.4153371	120887.9569
<b>Observations</b>	8	12	8	13
<b>Hypothesized Mean Difference</b>	0		0	
<b>df</b>	8		12	
<b>t Stat</b>	-2.472527609		1.397997744	
<b>P(T&lt;=t) one-tail</b>	0.019279103		0.093709513	
<b>t Critical one-tail</b>	1.859548038		1.782287556	
<b>P(T&lt;=t) two-tail</b>	0.038558206		0.187419026	
<b>t Critical two-tail</b>	2.306004135		2.17881283	

#### 4.1.3.3 Interpretation

The calculated T-statistics of -2.473 and -1.398 and their associated p-values of 0.019 and 0.094 for the Pasta Industry and Dairy Industry respectively, suggest that there is strong evidence against the null hypothesis in the Pasta Industry but weak evidence against the null hypothesis in the Dairy Industry. This deduction led to the rejection of the null hypothesis and acceptance of the alternative hypothesis in the Pasta Industry, whilst the null hypothesis was accepted (and the alternative hypothesis rejected) in the Dairy Industry. The conclusion drawn from the test was therefore that IIP was effective in curtailing competitive imports in the Pasta industry but ineffective in the Dairy Industry.

The findings of the qualitative research conform to the results of the quantitative research concerning imports for both industries. Some interview respondents suggested that increased Pasta industry imports - N\$ 149.3 million for 2001 to 2012 compared to N\$ 54.1 million for 1993 to 2000 - did not mean that IIP has been ineffective in reducing competitive imports. It was claimed that the effectiveness of IIP in the Pasta industry could be proved by the fact that only 2% of

domestic market share is filled by imports of pasta products. It was also well stated in the qualitative data that even with the increase in the value of competitive imports after the IIP, the competitive imports are not a threat to the domestic industry, as a large portion of the imported pasta is destined to hotels and restaurant as the end user, meaning that it does not follow the standard distribution channel i.e. (*Manufacturers→wholesalers→retailers→consumers*).

With regard to competitive imports in the Dairy industry, the qualitative data provided a general consensus that the IIP policy has not effectively reduced the level of imports of dairy products. Indeed, concerns were noted over the surges in imports of dairy products which threaten to cause injury to the domestic industry.

Contrary to the finding above, some views expressed were that, although the import figures do not indicate a downward slope in imports of dairy products during IIP period, it would be wrong to conclude that the policy has not been effective in safeguarding the industry, especially in providing a competitive advantage to local products in the domestic market. Some suggested that by making a comparison of the retail price of domestically produced dairy products and imports of like products from South Africa, domestically produced dairy products would slightly be cheaper. To demonstrate this, the respondents from the Dairy industry made an illustration that, for example, a litre of fresh milk would retail between N\$ 14.70 to N\$15.60 in the local market, while the same imported product would cost around N\$18.90, with 40% IIP duty added. Without the duty, it could have been N\$12.66 which is much lower than the price of the domestically produced product.



From the above descriptions, it is clear that 40% IIP duty has made a difference by effectively subsidising domestically produced dairy products, giving local produce a competitive advantage over similar imported products. In connection to the above argument, views were also expressed that looking at trade statistics alone, especially imports data, to see whether imports have declined or not may not necessarily be enough to assess the effectiveness of IIP policy on a particular industry. It was further suggested that the effectiveness of IIP policy on the dairy industry should be looked at within the context of the maturity of the industry. In this case, it has been contended that the Dairy industry had been barely formalised before the application of the IIP policy. Today however, the industry is formally recognised and has been able to compete effectively within the domestic market and to record exports, notably to neighbouring countries such as Angola, Botswana, DRC, and Zambia and, to a lesser extent, South Africa.

#### **4.1.4 Number of jobs created**

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##### ***4.1.4.1 F-test results***

In testing for the equality of population variances of job creation before and after the introduction of IIP, the F-test resulted in sample F-statistics of approximately 0.011 and 0.0000424 for the Pasta and Dairy industries respectively (Table 16). The respective p-values associated with the F-statistics were very low for both industries, indicating that there is overwhelming evidence against the null hypothesis. This scenario led to the inference that the population variances of job creation before and after IIP are significantly unequal in both industries.

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Based on the conclusion of the F-test above, the T-test for determining whether the introduction of IIP has boosted job creation was to be performed under the assumption of unequal variances for job creation in both industries before and after IIP.

**Table 16: F-test results for job creation**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	3.75	32.91666667	155.5	404.7692308
<b>Variance</b>	1.928571429	173.5378788	1.428571429	33699.02564
<b>Observations</b>	8	12	8	13
<b>df</b>	7	11	7	12
<b>F</b>	0.011113259		0.000042392	
<b>P(F&lt;=f) one-tail</b>	0.000001875		0.000000000	
<b>F Critical one-tail</b>	0.277543618		0.279745598	

#### 4.1.4.2 T-test results

In conducting the T-test to assess whether or not IIP was effective in boosting job creation, the sample T-statistics were found to be -7.607 and -4.896 (three decimal places), with significantly low p-values (Table 17). The low p-values observed for both industries indicate overwhelming evidence against the null hypothesis. On this basis, the null hypothesis was rejected for both industries.

**Table 17: T-test results for job creation**

	<i>Pasta Industry</i>		<i>Dairy Industry</i>	
	<i>Before IIP</i>	<i>After IIP</i>	<i>Before IIP</i>	<i>After IIP</i>
<b>Mean</b>	3.75	32.91666667	155.5	404.7692308
<b>Variance</b>	1.928571429	173.5378788	1.428571429	33699.02564
<b>Observations</b>	8	12	8	13
<b>Hypothesized Mean Difference</b>	0		0	
<b>Df</b>	11		12	
<b>t Stat</b>	-7.606595086		-4.89572167	
<b>P(T&lt;=t) one-tail</b>	0.000005258		0.000184299	
<b>t Critical one-tail</b>	1.795884819		1.782287556	
<b>P(T&lt;=t) two-tail</b>	0.000010516		0.000368597	
<b>t Critical two-tail</b>	2.20098516		2.17881283	

#### ***4.1.4.3 Interpretation***

The very low p-values provide very strong evidence against the null hypothesis in both industries. Consequently, the null hypotheses were rejected and the alternative hypotheses accepted. Accordingly, the test concluded that that IIP was effective in boosting job creation in both industries.

There was a general consensus among interview respondents that employment was indeed created in both the pasta and dairy industries after the implementation of IIP and, moreover, that such jobs were able to be sustained because the two industries continued to be protected through IIP policy. There was however a concern noted among the respondents that the numbers of jobs reported to be created seems to be underestimated, pointing out that it seems the labour surveys only concentrated reporting on the direct number of jobs created at the formalised establishments such as at Namibia Dairies for the Dairy industry, and Namib Mills and Bokomo Namibia for the Pasta industry.

Both the respondents from the Pasta and the Dairy industries disputed the labour survey statistics on their respective industries citing that both industries have created a number of indirect jobs, for example through distribution and other related activities, which the surveys seem not to have captured. It was also revealed during the interviews with the representatives from Namibia Dairies, that Namibia Dairies (Pty) Ltd, in particular, initially in 2008 employed a total of 850 people at its main production plant in Windhoek, the !Aimab Superfarm in Mariental and various depot locations across the country and this figure has further increased to 1500 since 2010. The figures quoted above are much different from the data obtained from the labour

surveys of the Ministry of Labour and Social Services, see appendix 1, which indicates that there were 435 jobs created in the Dairy industry in 2008 and 810 in 2012. When clarification was sought, it was explained that the gap between the survey data and those supplied by Namibia Dairies could be due to the fact that, Namibia Dairies data counted both the permanent and the contractual positions created.

#### **4.1.5 Other findings**

The government view is that IIP is a very important policy tool for the Namibian Government and in particular for the protected industry. All the respondents from the public sector argued that without IIP Namibia could not have successfully established the Pasta industry, a fairly new industry in Namibia. The government view on the Dairy industry however is that it is very vulnerable to competitive imports mainly from South Africa and the EU. IIP was therefore necessary to cut down on imports and to ensure greater food security and local employment creation.

The views of the beneficiary industries echoed those from the public sector, specifically that IIP helped to establish an industry to be very competitive and that without it some industries, and especially the Dairy industry, would cease to exist.

There were also mixed views within parts of private industry, with some respondents feeling that while IIP is a very useful strategic policy tool, the use of IIP in the Pasta and Dairy industries has limited consumer choices by creating monopolies of the beneficiary companies. They cited that the products of the domestic pasta industry would be naturally expensive because of the inefficiency of the

Namibian Pasta industry in comparison to the pasta products produced, say, in Italy which has comparative over-production of pasta products. However due to IIP duty, imported pasta products became twice as expensive as domestic products.

While noting positive progress which could be attributed to IIP, the qualitative study also revealed some challenges. For instance, the government view was that the policy remains challenging for the government to implement, as it requires balancing of consumer's interest and protecting the concerned industry. Specifically, it was pointed out that the government has experienced difficulty in regulating and monitoring pricing to ensure compliance with pre-set conditions for IIP.

Concurring with Government sentiments, the beneficiary industry acknowledged the view that once an industry is protected, this may lead to monopolistic behaviour and higher prices and this is indeed the most common challenge of industries afforded IIP.

Respondents from the Dairy industry also mentioned a host of unfair trade practices which relate to subsidised dairy products from South Africa, which gave a competitive advantage over the Namibian dairy products thereby making the long term impact of IIP somewhat ineffective. Other challenges raised by the industry related to shelf management practices by retailers, their approach to cost cutting and difficulties in accessing the local market through certain retailers.

Because of the challenges raised above, some respondents have even cast doubt as to whether the Dairy industry will be able to compete competitively after the end of 12 years of IIP. On the basis of the above argument, the Dairy industry related that although IIP made significant contributions towards the development of the

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industry, the protection may not be enough to prepare the industry to be able to withstand future competition. The industry maintains that even after IIP has come to an end, the industry would still propose that the government consider other measures of protecting the industry.

On this note, the industry proposed that it would be more appropriate if the government can consider the IIP measure in the form of a quota instead of a tariff. According to the industry, setting a quota has been proven to be a more effective tool of economic management than a tariff. The industry further proposed that the Namibia Competition Act should be strengthened to counter issues of unfair trade practices which hinder fair competition in the domestic market. The Pasta industry on the other hand indicted that it was satisfied with the protection afforded so far and would not seek additional protection once the IIP for the Pasta industry comes to an end in 2014. The industry maintained that its strong domestic base and market access to the southern African regional market would enable it to remain competitive even after the policy has come to an end.

## 4.2 Summary

Table 18 below summarizes the findings of the study.

**Table 18: Summary of findings**

IMPACT VARIABLE	CONCLUSION OF F-TEST	CONCLUSION OF T-TEST
<b>Output</b>	The population variances of output produced by the Pasta industry before and after IIP are equal; however in the Dairy industry it was found that the population variances of output before and after IIP were unequal.	There was significant evidence to show that IIP has resulted in increased output in both industries
<b>Exports</b>	The conclusion of the test was that the population variances of output produced before and after IIP are	The conclusion was that the introduction of IIP has resulted in increased value of exports in both the

	not equal in both industries.	Pasta and Dairy industries
<b>Competitive imports</b>	The test concluded that the population variances of competitive imports before and after IIP are not equal in both industries.	The conclusion was that IIP was effective in curtailing competitive imports in the Pasta industry but ineffective in the Dairy Industry.
<b>Number of jobs created</b>	The population variances of job creation before and after IIP are significantly unequal in both industries	The test concluded that that IIP was effective in boosting job creation in both industries.

The results of the quantitative data analysis, summarized above, have been shown to have been validated by the qualitative analysis. The results of the quantitative analysis and the qualitative analysis of output, exports, imports and jobs were in line with each other, except for in case of competitive imports of the Dairy industry. In this case the qualitative analysis indicated that, although there was a notable increase in the value of imports after IIP, the policy was still deemed to have been effective in terms of providing a competitive advantage to the domestically produced Dairy products especially over pricing in the local market. The qualitative analysis highlighted the importance of IIP policy as a strategic tool for government economic management and for what it meant to the industries being protected. Furthermore, the analysis revealed challenges experienced by government and industries in applying IIP and what might be done to enable the policy to be more effective. The next chapter will conclude and make recommendations.

## **Chapter 5 – Conclusion and recommendations**

### **5.1 Introduction**

The first section of this chapter deals with the conclusion, based on the whole report. The second section looks at possible recommendations that the government of Namibia may consider to enhance the effectiveness of the policy. The recommendations are based on the research findings and take into account the literature review.

#### **5.1.1 Conclusions**

The decision to embark on this study was inspired by an article which appeared in the local Economist Newspaper dated 23 October 2012, where the Namibian Government released a media statement stating that "the Government took a decision at the 14th ordinary cabinet meeting held on 21 August 2012, to accelerate the process of gazetting infant industry protection policy for the cement industry. The policy requires that extra import duty of 40% is charged on imported cement in Namibia in order to discourage the importation of cheap cement into the country".

The article drew comment about the effectiveness of infant industry protection and whether or not the policy had succeeded in the Pasta and Dairy industries which had enjoyed protection since early 2000. There was however no comprehensive study available to illuminate the debate. Hence the intention of this study was to qualitatively and quantitatively analyse how effective the use of infant industry

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protection policy is to the Namibian economy, specifically looking at the industries that are enjoying the protection under this trade instrument.

The existing literature review on the topic exposed controversy surrounding the use of IIP policy. Some theoretical arguments supported the policy, while other scholars argued against the use of the IIP to develop infant industries.

The case studies on the US Motorcycle and Steel Rail industries concluded that IIP policy was effective, while the assessment of IIP policy as applied to the Brazilian microcomputers industry discovered that although there was an increase in productivity, the policy was generally not effective.

With respect to the findings of this study, the quantitative analysis revealed that there was notable improvement in terms of production, exports and job creation within the industries investigated, which may be attributed to IIP. With regard to the competitive imports, the policy was found to be effective in the Pasta industry but ineffective in the Dairy industry. The qualitative analysis validated the results of the quantitative analysis but also hinted that the Dairy industry will not be able to sustain competitiveness without IIP protection. The Pasta industry was deemed to have reached the level of competitiveness sufficient to sustain the industry even after the termination of IIP policy on the industry. On the basis of the above, it can therefore generally be concluded that IIP worked for the Pasta industry has not been so effective in helping the Dairy industry.

While the finding of the study provides strong evidence on the variables tested, it is observed that the collected data on output, exports, and imports are on

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nominal terms (current prices) and not adjusted for inflation. This could therefore be seen as a major limitation of this study as current series are influenced by the effect of price inflation.

### **5.1.1 Recommendations**

Some recommendations are now made to help improve the implementation and effectiveness and of IIP policy in Namibia. Firstly, it was reported that, currently, Namibian IIP policy only takes the form of a tariff which is placed on competitive imports. Several respondents raised this issue as a limitation and proposed that other policy instruments such as quotas and subsidies should be explored. It is therefore recommended that government should assess the option of using other instruments for protecting young industries.

Secondly, it was found that the main challenges to the government as far as IIP is concerned, is not knowing when to balance consumer's interest while protecting infant industries. There was also a concern raised over the monopoly prices charged by protected industries and that the protected industries tend to never come out of infancy. To ensure that IIP does not result in inefficient industries and is applied in such a way that the negative implications for consumers and sourcing industries are minimised, it is recommended that the following criteria should be applied:

1. The protection should only be given to a new industry where there is reasonable ground to believe that it can survive without IIP in the long run;

2. IIP should be time limited;
3. The protection level should not be too high;
4. IIP should be applied in a transparent and legitimate way (e.g. the criteria for the IIP selection process should be made clear).

Given the limitation of this study as highlighted in the conclusion that data collected were not adjusted for inflation, it is hereby recommended future studies investigate this further.

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## Appendices

### Appendix 1: Sample data for the Pasta and Dairy Industries

PERIOD	OUTPUT (N\$'000)		EXPORTS (N\$ million)		COMPETITIVE IMPORTS (N\$ million)		NUMBER OF JOBS CREATED	
	Pasta Industry	Dairy Industry	Pasta Industry	Dairy Industry	Pasta Industry	Dairy Industry	Pasta Industry	Dairy Industry
1992	...	60.0	...	2.0	...	185.0	...	155
1993	21.0	120.0	0.0	3.0	0.5	188.2	3	156
1994	25.0	124.0	0.0	2.2	1.0	195.2	3	156
1995	45.0	153.0	0.0	3.0	2.5	198.6	3	158
1996	55.0	160.0	0.0	8.2	3.7	200.5	3	155
1997	65.0	165.0	0.0	9.0	5.6	240.6	3	155
1998	99.0	185.2	0.1	12.1	8.7	243.1	4	155
1999	211.0	190.0	0.1	13.5	15.5	180.9	4	154
2000	452.0	210.7	0.1	16.0	16.6	171.5	7	165
2001	490.3	320.4	0.6	16.2	17.2	150.2	15	170
2002	508.1	533.7	2.9	28.8	12.6	150.1	15	250
2003	598.4	662.0	3.8	29.4	11.2	131.8	17	270
2004	635.6	882.7	5.3	48.4	11.7	131.6	24	355
2005	651.8	941.7	5.6	66.7	10.6	122.2	24	360
2006	684.8	1,168.3	8.0	90.6	12.8	162.7	37	370
2007	695.3	1,322.0	8.0	150.7	13.0	168.0	37	435
2008	636.8	1,490.0	9.5	170.7	10.3	269.0	41	435
2009	717.1	1,475.5	17.1	235.6	10.6	320.2	41	472
2010	729.7	1,556.0	24.9	229.3	12.8	470.6	46	520
2011	958.0	1,625.1	36.3	248.7	12.1	955.6	48	650
2012	1,283.6	1,836.0	50.7	269.8	14.4	1,208.1	50	810

**Appendix 2: Interview responses (summarised)**

	Public sector views	Private sector views		
		IIP beneficiaries		Other (including academia)
		Pasta industry	Dairy industry	
<b>Number of people interviewed</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Questions asked</b>				
<b>1. How important is IIP protection to the selected industries i.e. dairy and pasta?</b>	All 5 respondents cited that IIP is very important policy tool to the Namibian Government and in particular to the protected industry. Without IIP Namibia could not have successfully established the pasta industry which is fairly new. The dairy industry is also very vulnerable to competitive imports mainly from South Africa and EU. IIP helps to curb down the imports thereby ensuring self-food security and employment creation domestically.	All the respondents stressed the importance of IIP to the pasta industry arguing that it helped to establish the industry to be very competitive. Certainly without the protection offered through IIP the industry wouldn't have been able to establish itself in Namibia. The IIP that was offered to the Pasta industry incentivized further investments in the industry.	All the respondents for the dairy industry illustrated the significance of IIP to the industry by explaining that the dairy industry is very fragile to external market forces and without government intervention such as through IIP, it can easily cease to exist. IIP is therefore very critical to the industry and assisted the industry to withstand the competition against surge in subsidized imports mainly coming from South Africa and EU.	Mixed view from private industry, 3 of the 5 respondents agreed IIP is a strategic tool for any Government to use to protect its infant industry hence the use of IIP to dairy and pasta industry is important for self-sufficiency and food security. The other 2 respondents responded that the use of IIP in those two industries has limited the consumer choices by creating monopolies. They cited that the products of the domestic pasta industry are expensive and pasta products imported are twice as expensive as the domestic products due to the added IIP duty placed on imports.

**2. How do you view the performance of the protected industries before and after the IIP?**

Both dairy and pasta industries have recorded positive performance in term of production. The industries are exporting to other markets and their domestic market share has grown the industry contribution to the overall manufacturing industry has been impressive. Since the implementation of IIP

All the respondents argued that the industries performed well during the period under consideration leading to increased domestic market share of about 98% up from 60% share it used to occupy before IIP, including the first three to two years after IIP 2002, According to the respondents

(Who are all experts in concerned industry), the domestic market is almost fully controlled by domestically produced pasta products.

The industry has also attracted investment in the existing pasta production facility in 2011.i.e Namib mills increased it production facility to 40 depots countrywide. Bokomo PTY has also entered the Namibian market registering as a Namibian entity in 2002.

Exports have increased not only in value but it volumes as well, and the companies in the industry are exporting to all SACU countries even gaining 54% market share in south Africa. Exports are also going to Angola, DRC, and Zambia. Zimbabwe and Tanzania. In terms of competitive imports, the industry confirmed that although imports are still coming in the market, it has noted that it not in large quantity and thereof there is serious injury or material injury caused or threatened o the industry

All the respondents agreed that the industry performed very well especially in relation to the variables being measured. It was also revealed that

the industry has been able to venture into a variety of products such as Fresh milk, Extended Shelf Life milk (ESL), Ultra High Temperature milk (UHT), buttermilk, curdled, yoghurt and other fermented milk, in which Namibia had no production capacity or competitive advantage vis-viz imports of such products. Namibia Dairies is exports to the markets like Angola, Botswana DRC RSA and Zambia

the industry also stimulated other value chains activities mainly upstream investment irrigation scheme for fodder production

With regards to competitive imports however, the respondents pointed out that the policy was not effective in curbing the inflow as the industry remained challenged with the surge in imports of milk products.

While all confirmed that jobs were created 3 out of 5 doubted the figure cited by the Labour statistics reports. Indicating that the number of jobs indicated are extremely low and seem to have

All the experts interviewed responded that the industries performed generally well, but the challenges remained especially with regards to dairy industry, they indicated that the challenges faced by the dairy industry could be beyond IIP policy

**3. If the performance of the protected industries has been positive since the implementation of IIP policy, do you think that positive performance is attributed to IIP policy?**

Indeed the IIP played a bigger role in the industries under consideration

All the respondents contended that the IIP policy had played a major role in the establishment and the performance of the industry

The Respondents agreed that indeed the IIP was big catalyst for the performance of the industry but as to whether the policy was sufficient is another question

All the respondents agreed that to some degree, both the industries could not have been sustainable during the last 8 years without the government intervention through IIP hence the performance of the industries could be attributed to the IIP policy

**4. Did IIP policy achieve the intended objective of employment creation, increased production, & exports, reduced imports and the overall competitiveness of the targeted industries?**

All the respondents cited that on the basis of the number of jobs created in two industries, the level of production achieved as reflected by the figures produced by the NSI, the objectives of the IIP policy is toward the industries concerned is partially achieved. The officials concerned pointed out that, the pasta industry is particular a success case study for IIP as the performance observed so far suggest that the industry can stand on its own even after the cease of the IIP policy.

With regards to the Dairy industry, the respondents raised concerns with regards to the effectiveness of the IIP policy on competitive imports citing that the Ministry of Trade and industry has been flooded with complaints over the surge in imports which threaten to cause injury to the domestic industry.

Overall, the respondents expressed satisfactions over what was achieved in the dairy industry while it was under the protection but conclude that the challenges faced by the industry need a redesign on the strategy

There was a general agreement that IIP has indeed achieved government objective in the pasta industry. The respondents pointed out that a number of jobs were created in industry, especially with the expansion of the Namib Mills depots and the entrance of Bokomo PTY in 2008 which are the only player in the industry. The respondents also alleged that the number of jobs as reported could be under estimated.

The source further alleged that production has tremendously increased as a result of expansions of new depots by Namib mills and the entrance of Bokomo.

With regards to the level of imports, the experts from the industry competitive imports are not a threat to the industry as they only occupy 2% of the domestic market share. The revealed that pasta imports are not going the retailers but are mostly supplied to hospitality and tourism sector which is mostly hotels and restaurants.

Overall competitiveness has enhanced as the industry has established a strong domestic market base and conquered SACU and SADC regional market

The interviewed experts of the industry all concurred that the IIP assisted to establish the dairy industry and as a result employment creation increased production and exported were noted in the industry. The interviewee have however viewed that while the IIP was successful in-terms of the above stated variables, the policy failed to curb the level of imports in the country and this they said could be explained by the increased value of imports of dairy products as evident from the imports data (1992 to 2012). This they explained that it could be caused by approach taken to implement the IIP policy which was based on progressive reduction approach meaning the IIP implemented as to be at 40 % and it was to phase down until it reaches zero by 2012 when it supposed to have expired.

On competitiveness, the respondents it is difficult to say that to say that the IIP has not achieved competitiveness in the dairy industry because competitiveness can be influenced by so many factors that are not mentioned to be part of this study. They pointed out that IIP assisted to provide a competitive advantage to the local products in the domestic market price for domestically produced products e.g. liter of fresh milk would retailer price between N\$ 14.70 to N\$15.60, while the same imported product would cost around N\$18.90 with 40% added, without the duty, it could have been N\$12.66 which is much lower than the domestically produced product.

All the respondents viewed that although the figures on imports do not indicate a downward slope in imports of dairy products, the policy has made an impact especially in providing a competitive advantage to the local products in the domestic market which they did not have before the implementation of IIP policy.

They further claimed that the effectiveness of IIP policy on the dairy industry should be looked within the context of the maturity of the industry. In this case, it been contended that the Dairy industry has been barely formalized before the application of the IIP policy. Today however, the industry is formally recognized, and has been able to compete within the domestic market and record exports notably to the neighbouring countries

<p><b>5. In your view, what are the challenges does this policy has to:</b></p> <ul style="list-style-type: none"> <li>a. The protected industries-</li> <li>b. Government-</li> <li>c. Other role players</li> </ul>	<p>The government has the responsibility of also ensuring that consumers are not worse off in the process. Hence efforts are done to make sure that the policy is designed to be effective and that consumers are not left to suffer.</p>			
<p><b>i. Do you think the IIP policy is an effective tool for economic management? And if not, how can the policy be re-designed to be more effective?</b></p>	<p>Yes, but the policy should be tailor made for each industry based on the uniqueness of the industry</p>	<p>All the respondents concurred that , the policy is very crucial to allow developing industry to catch up with the already existing competitive but the government can consider alternative instrument such as a quota or subsidy to implement the IIP policy</p>	<p>All the respondents agreed that the policy is very critical to nurture infant industries in the developing countries, but different instruments such as quota should be explored</p>	<p>The respondents agreed , the policy is very important but consideration should also be given to other players and the consumers to make sure that no one is worse off because of this policy</p>

**Appendix 3: Profiles of interview respondents**

<b>Name</b>	<b>Occupation</b>	<b>Organisation</b>
Ms. Annascy Mwanyangapo	Deputy Permanent Secretary	Ministry of Trade and Industry
Ms. Patricia Liswaniso	Deputy Director: Trade Promotion	Ministry of Trade and Industry
Mr. Bernd Rothkegel.	Director of Planning and Marketing	Ministry of Agriculture, Water and Forestry
Mr Festus Nghifenwa	Director of Economic Planning	Ministry of Finance
Ms Martha Sheehama	Senior Economic Policy Advisor	National Planning Commission
Ms. Patricia Hoekseman	Group Manager: Corporate Relations	Namibia Dairies (PTY) LTD
Mr. Hubertus Hamm	Production Manager	Namibian Dairy industry
Mr. Willie Roux	Chairman	Dairy Producers Association
Mr. Tim Marais	Sales & Marketing Manager	Bokomo Namibia (PTY) LTD
Mr. Koos Ferreira	Group CEO	Namib Mills (PTY) LTD
Mr. Hennie Fourie	Chief Executive Officer	Namibia Manufacturing Associations
Mr. Tarah Shaanika	Chief Executive Officer	Namibia Chambers of Commerce and Industry
Mr. Eden Tate Shipanga	Lecture: Economics	Polytechnic of Namibia
Ms Rejoice Karita	Senior Trade Advisor	Agricultural Trade Forum
Ms. Raboti Ndiita	National Coordinator	National Trade Forum