

**An investigation into food-away-from-home consumption
in South Africa**

by

Matthew Blick

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**Department of Agricultural Economics, Extension and
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Faculty of Natural and Agricultural Sciences
University of Pretoria
Pretoria
South Africa**

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M. Blick

Pretoria

November 2014

Declaration

I declare that

“An investigation into food-away-from-home consumption in South Africa”

is my own work, that all sources used or quoted have been indicated and acknowledged by means of a complete reference, and that this thesis was not previously submitted by me for a degree at another university.

M. Blick

Date

Abstract

An investigation into food-away-from-home consumption in South Africa

by

Matthew Blick

Degree : MSc (Agric)
Department : Agricultural Economics, Extension and Rural Development
Study leader : Prof. J. F. Kirsten
Co-study leader : Dr B. Abidoye

The food-away-from-home (FAFH) sector in South Africa has continued to increase in popularity. This is illustrated by the increased presence of FAFH in the diets of the country's citizens. However, the sector in South Africa remains un-researched with regard to understanding household preferences and the composition of consumer expenditure. This study analyses the effects of income and socio-demographic variables on FAFH expenditure for South Africa. These results will be useful to the foodservice sector and policy makers in order to identify potential customers, respond to current customers' changing demands and develop marketing and operational strategies, and address important nutrition and health consequences, respectively. Data from Income and Expenditure Surveys (IESs) of 2005/2006 and 2010/2011 of StatsSA (Statistics South Africa) were used to estimate the responsiveness of household FAFH expenditure in South Africa to income and a number of socio-demographic variables.

The IESs contain a large number of households with zero FAFH expenditure observations which means that the use of ordinary least squares (OLS) would result in biased and inconsistent results. Furthermore, omitting households with zero FAFH expenditure, and applying OLS reduces the sample size and consequently the efficiency of estimation. Previous studies made use of the univariate and multivariate

tobit models, the Box-Cox double-hurdle model, a two-step simultaneous model with an adjustment factor and a two-stage process where the second stage is a Generalised Method of Moments (GMM) Within-Group estimator. The majority of studies suggest that double-hurdle models are appropriate for applications where zero expenditure observations are due to abstention or economic factors. The double-hurdle model is more flexible than the tobit model because it allows for the possibility that zero and positive values are generated by different mechanisms. The model used assumes independence between the two hurdles. The first hurdle determines the probability of purchasing FAFH, while the second hurdle determines the amount spent on FAFH.

The double-hurdle models estimated for the IESs of 2005/2006 and 2010/2011 illustrate that households headed by younger White females with a small household size and living in an urban settlement are most likely to purchase FAFH. However, households headed by younger White males with a small household size and living in an urban formal settlement are likely to have the highest expenditure on FAFH. An increase in income positively affects the decision to buy FAFH and the amount spent by participating households.

The APE (average partial effect) was calculated for the income variable. The APE determines the probability of purchasing FAFH and the income elasticities (conditional and unconditional) of expenditure on FAFH by households. The estimated conditional income elasticity of expenditure is 0,27 and the unconditional income elasticity of expenditure is 0,611 for the IES of 2005/2006. While the estimated conditional income elasticity is 0,171 and the unconditional income elasticity is 0,472 for the IES of 2010/2011. The probability of purchasing FAFH is 0,0905 and 0,0568 for the IESs of 2005/2006 and 2010/2011 respectively. The income elasticity of expenditure on FAFH is inelastic and FAFH is a normal good for the average South African household. The small size of the participation elasticities mean that growth in the FAFH sector will be driven by households with existing expenditure.

Future studies should focus on per capita FAFH expenditure, the effect of the lifestage of the individual, rather than age, on FAFH expenditure, FAFH expenditure

for different meals (breakfast, lunch and dinner) and facility types (quick- and full-service restaurants) and the effect of income and socio-demographic factors on FAFH expenditure on different food types (for example beef, chicken, lamb, potatoes and salads).

Keywords: double-hurdle model, food-away-from-home, South Africa, average partial effect

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Chapter 1

Orientation and general background

1.1 Introduction

The food-away-from-home (FAFH) industry incorporates both commercial and non-commercial foodservice sectors. According to Edwards (2013) the commercial foodservice sector includes restaurants (quick- and full-service establishments), taverns and pubs, lodging facilities (hotels, motels and, bed and breakfasts), and recreational places (sports clubs) while the non-commercial foodservice sector consists of school- and tertiary hostels, employee meals, hospitals and other parts of the public sector. Frazão (1999) defines FAFH based on where the foods are obtained and not where they are eaten, thus food-at-home (FAH) and FAFH can be eaten at or away from home. The distinction between FAH and FAFH is based on the level of control a consumer has over the nutritional content of the food. Ready-to-eat foods purchased from retail stores, such as roast chicken and frozen meals do not constitute FAFH because these foods often require additional ingredients and meal preparation, with the consumer having some control over the nutritional quality of the meal. While FAFH is often ready-to-eat and consumed as is with less control and knowledge of the nutritional content. Frazão (1999) makes the point that a precise definition for FAFH is difficult given that different surveys have categorised FAFH differently. The IESs (Income and Expenditure Surveys) conducted by Statistics South Africa classify FAFH as prepared meals purchased from restaurants, cafés, canteens and the likes (Statistics South Africa, 2008b). For the sake of this study and given the fact that the main source of data is StatsSA (Statistics South Africa) we have therefore maintained the definition used by StatsSA.

A common trend among developing countries is an increase in FAFH expenditure as the countries become more developed. An increase in per capita incomes is often accompanied by increases in expenditure on FAFH (Fabiosa, 2008). Furthermore, the sector is important because it serves as an incubator for food-related businesses (Liu *et al.*, 2012).

The FAFH sector in South Africa is exposed to changes brought about by the effects of globalisation, urbanisation, a growing black middle-class and increased participation of women in the labour force. Food consumption patterns in South Africa indicate that the consumption of home cooked meals is decreasing. The consumption of fast foods has increased as household incomes increase and globalisation and westernisation are directing consumption trends (Maumbe, 2010).

The fast food sector in South Africa has evolved from an oligopolistic market structure to a new arrangement consisting of multinational and regional franchises, independent food caterers and informal traders. The majority of fast food businesses are franchises (Maumbe, 2010). Table 1.1 below shows that the income (in nominal terms) of the food and beverage sector in South Africa has grown over the years from 2007 to 2012. Employment and revenue have increased in the fast food sector primarily at the expense of the catering sector.

Table 1.1: The size of the South African Food and Beverage Industry: 2007 and 2012

	2007	2012
Total turnover	R26 604 million	R44 262 million
Contribution by facility type	“Restaurants and Coffee Shops” contributed the bulk of this income (47%), followed by “Fast Food Outlets” (29%) and “Caterers and Catering Services” (25%).	“Restaurants and Coffee Shops” contributed the bulk of this income (49%), followed by “Takeaway and Fast-Food Outlets” (31%) and “Caterers and Other Catering Services” (20%)
Employment by type of facility	181 373 people employed: “Restaurants and Coffee Shops” (51%), “Caterers and Catering Services” (30%) and “Fast Food Outlets” (19%).	192 889 people employed: “Restaurants and Coffee Shops” (52%), “Takeaway and Fast-Food Outlets” (28%) and “Caterers and Other Catering Services” (20%)

Sources: Statistics South Africa, 2007 and 2013a.

Regional franchises such as Steers, Wimpy, Chicken Licken, King Pie and Nando’s hold a dominant market share in the South African quick-service restaurant industry.

These franchises can be found in all major cities and have expanded to other countries in the region, and abroad. Global brands such as KFC and McDonald's are the primary competitors to local brands, although McDonald's does not occupy a dominant position in the quick-service restaurant industry in South Africa. The majority of South Africa's franchises hold vertical associations with producers through centralised wholesalers. Such relationships hold benefits in terms of guaranteed supply, building trust, marketing quality products and the reduction of procurement costs in the long-term (Maumbe, 2010).

A wealth of literature exists on FAFH consumption particularly for the US (for example Cai, 1998; Ham, Hiemstra and Yang, 1998; Hiemstra and Kim, 1995) and China (for example Bai *et al.*, 2010; Min, Fang and Li, 2004; Ma *et al.*, 2006; Liu *et al.*, 2012) but little is known about the FAFH sector in South Africa. The literature addresses many aspects of the FAFH sector, such as health and nutrition, elasticities of consumption and procurement strategies and the factors driving the expansion and direction of the sector.

The wealth of literature on the health and nutrition aspects of consuming FAFH has allowed consumers to become more discerning in their consumption choices. Consumers demand that the food they eat be nutritious, tasty, convenient and healthy. Convenient, high caloric foods are the result of modern lifestyle choices. Consequently obesity has become a common occurrence among individuals in the developed world initiating a consumer trend towards healthier eating options (Schönfeldt and Gibson, 2009). South Africans are also becoming increasingly knowledgeable about the healthfulness of foods they consume. FAFH firms are being forced to adapt to the demands of health conscious consumers. In response to these emerging demands, McDonald's has introduced salads and fruit onto their menus, Nando's promotes its range of healthy options and KFC has introduced reduced-fat wraps (Maumbe, 2010). FAFH constitutes a greater proportion of diets and therefore has important dietary consequences for certain population groups (Lin, Frazão and Guthrie, 1999).

The explosion in the number of fast food restaurants is attributed to a phenomenon called "channel blurring". This occurs at petrol (gas) stations and retail stores which

host fast food franchises. Unfortunately the proliferation in the number of outlets has not translated into increased sales. For example, McDonald's decreased its 2003 near-term growth estimates, in sales, from 15% to 2% (Gogoi and Arndt, 2003). However, actual system-wide sales for 2003 increased 11%, or 5% excluding currency translation (McDonald's, 2003). This indicates that the decreased sales growth predicted did occur, but was slightly better than expected.

In the US, full-service restaurants are expected to increase their market share of the FAFH market segment, but this is dependent on rising incomes and demographic factors. Demand forces will determine whether fast food or full-service restaurants claim a greater market share in the years to come. In a bid to maintain and/or increase their market share, fast food establishments have introduced greater variety on their menus, which includes healthier options, in an attempt to meet consumer demands.

A number of economic and demographic factors have been found to promote increased FAFH consumption, such as rising incomes, increased numbers of working spouses, changing household structures, and urbanisation (Liu, 2011; Stewart *et al.*, 2004; Stewart and Yen, 2004; Bai *et al.*, 2010). The variables which affect FAFH expenditure appear to be common to most countries. Population trends in the US, which include increasing incomes, an aging population, smaller household sizes, and a progressively high proportion of households containing single people or multiple adults without live-at-home children, are likely to affect the supply of FAFH foods and services, and the diet and health of consumers (Stewart *et al.*, 2004).

1.2 Problem statement

Previous studies related to the FAFH sector have dealt with topics related to agri-food supply chains, nutrition and health and the demand for FAFH. Studies on agri-food supply chains have focused on the procurement of raw materials, shifting market power closer to the consumer and the increased negotiating leverage the FAFH sector has over its suppliers as a result of large volumes of agricultural produce being demanded. Nutrition and health topics reflect the demands of

consumers for convenience and health attributes, the increased presence of FAFH in our diets and the link between obesity and FAFH.

According to Lin, Guthrie and Frazão (2002) US citizens consume approximately a third of their calorie intake via FAFH, compared to about 18% in the 1970s. Naturally, health concerns have been raised because a large body of literature supports the notion of FAFH being less healthy than FAH. Lin, Frazão and Guthrie (1999) have shown that FAFH commonly contains greater amounts of fat, saturated fat, cholesterol and sodium, and has lower amounts of fibre and calcium than FAH meals.

The FAFH sector in South Africa is becoming increasingly important because of its increasing presence in the diets of the country's citizens. However, very little work has been performed with regard to the industry in South Africa relating to the effect of income and socio-demographic variables on consumer expenditure. The lack of existing knowledge regarding household FAFH expenditure represents a research gap which will be investigated in this study. This research gap will be investigated by determining (i) the household income elasticities of expenditure for FAFH, (ii) the households' probability of purchasing FAFH, and (iii) how the chosen socio-demographic factors affect FAFH expenditure at household level.

An improved understanding of how income and socio-demographic factors affect FAFH expenditure have become increasingly important because of the changes in food commodity markets, forecasting food demand, predicting the effects of changes in eating patterns on diet and food imports, and the development of effective marketing programmes for both domestic and international restaurant businesses (Min, Fang and Li, 2004). An improved understanding of the effect of income and socio-demographic variables on FAFH expenditure will enable FAFH firms to develop appropriate marketing strategies, anticipate future trends, optimise the use of resources and recognise new business opportunities. Additionally, policy makers could use these results to better understand FAFH consumption which has important nutrition and health consequences (Angulo, Gil and Mur, 2002).

1.3 Research objectives

The overall goal of the study is to determine how income and socio-demographic factors affect household food-away-from-home (FAFH) expenditure in South Africa. The specific goals of the study are to determine (i) the household income elasticities (conditional and unconditional) of expenditure for FAFH, (ii) the households' probability of purchasing FAFH, and (iii) identify how the chosen socio-demographic factors which include household size, settlement type and, age, gender and population group of the household head, affect FAFH expenditure at household level.

The findings of this study can assist firms in the foodservice industry to identify potential customers, respond to current customers' changing demands and develop marketing and operational strategies which are responsive to industry trends and the lifestage in which the industry finds itself (Ham, Hwang and Kim, 2004). Additionally policy makers will be able to use this information to address the nutrition and health implications of FAFH consumption.

1.4 Hypotheses

This study seeks to determine how household FAFH expenditure is influenced by a number of socio-demographic variables and income. This study hypothesises that household FAFH expenditure:

- i. increases as incomes increase;
- ii. is greater for smaller families;
- iii. is greater in urban areas;
- iv. is greater for households headed by younger people;
- v. differs between households headed by different population groups; and
- vi. is greater for male-headed households

Additionally, it is assumed that the household income elasticity of expenditure for FAFH is elastic. This means that FAFH is a luxury good and an increase in income is expected to be accompanied by a relatively larger increase in household FAFH expenditure.

1.5 Research methodology and data

Statistics South Africa's Income and Expenditure of Households Surveys (IESs) for 2005/2006 and 2010/2011 were used. The IESs were designed to collect information on the goods and services acquired by South African households, the different sources of income, and how this income was spent (Statistics South Africa, 2008a and 2012).

This study makes use of the theory of household production (Becker, 1965) to analyse the demand for FAFH. This theory holds that households are both producing and utility-maximising units. This extension of the classical demand theory reflects how prices, income, demographics and time constraints are able to influence a household's purchases of items such as food. Furthermore, this model considers that the costs of consumption comprise the prices and time spent eating the food, preparing the food and subsequent cleaning up. Consequently, a household must take a decision to spend time on all the aspects involved in consuming a meal (i.e. preparing FAH), or outsource some aspects such as preparation and cleaning up (i.e. purchasing FAFH). However, the optimal decision is subject to constraints which include the household's finances, the opportunity cost of the household manager's time and the cooking abilities of the household manager (Stewart *et al.*, 2004).

The IESs of 2005/2006 and 2010/2011 contain a large number of respondents who reported zero FAFH expenditure. Consequently an appropriate model that is able to handle censored data is required to estimate the effect of income and socio-demographic (household size, settlement type and, age, gender and population group of the household head) variables on household FAFH expenditure. Tobit models are preferred to OLS because all the information about the households is used in estimating the regression function. Tobit analysis makes it possible to estimate both quantity responses of households actively consuming (conditional quantity elasticities) and the participation adjustments of exit-entry households (market participation elasticities). OLS would omit the market participation component and would consequently underestimate the total elasticity (McCracken and Brandt, 1987). The exclusion of market participation elasticities is equivalent to assuming that

such households have not purchased, and will never purchase FAFH. This statement is untrue both in reality and theory (Cai, 1998).

However, the tobit model is undesirable for handling zero observations because the same parameters and variables determining the probability of zero and positive outcomes determine the level (Liu, Kasteridis and Yen, 2013). Furthermore, the tobit model assumes that zero observations are standard corner solutions, which are the result of households' inability to afford FAFH (Angulo, Gil and Mur, 2002). This is restrictive because it ignores other factors which may contribute to zero FAFH expenditure, such as preferences for FAH rather than FAFH. Furthermore, the Heckman estimators are poor estimators in cases where identical explanatory variables influence selection and the subsequent outcome (Sartori, 2003). Hurdle models are applicable in situations where zero dependent variable observations are due to a utility maximising choice, where the decision includes both participation and consumption decisions (Humphreys, 2013).

In the event that zero expenditure observations are due to abstention or economic factors, the double-hurdle model should be used (Angulo, Gil and Mur, 2002). The double-hurdle model assumes that FAFH consumption is determined by two decisions, the first is whether or not to consume FAFH (participation decision) and the second is how much to spend given that the decision to purchase FAFH has been made.

The double-hurdle model, attributed to Cragg (1971), has traditionally been used to model household consumption or labour supply decisions containing two equations, which are known as hurdles. The first hurdle determines whether or not a consumer is a participant in the FAFH market, while the second hurdle determines the amount spent by the consumer on FAFH (Moffatt, 2005).

1.6 Outline of study

The rest of this thesis is structured as follows. Chapter 2 provides an overview of the South African food-away-from-home sector. Chapter 3 discusses the demand and consumption of food-away-from-home for South Africa compared to other countries.

Chapter 4 describes the methods used to determine the effects of income and socio-demographic variables on demand for food-away-from-home. Chapter 5 describes the research methodologies used to estimate the effect of income and socio-demographic on FAFH expenditure. This chapter details the data sources, the methods including the theoretical framework, and the econometric and computational processes used. Chapter 6 describes the research findings by examining the correlation between food-away-from-home expenditure and household characteristics, while another section of this chapter discusses the results of estimations for income elasticity of expenditure for FAFH. Chapter 7 concludes the written part of this study with conclusions, recommendations, limitations of the study and recommendations for future research.

Chapter 2

An overview of the South African food-away-from-home sector

2.1 Introduction

South Africa's FAFH sector consists of a number of different companies and associated brands. This chapter illustrates the performance of the FAFH sector in South Africa over a period of time and the possible causes of the patterns observed and future patterns that may occur. This chapter is designed as follows: firstly a number of South African FAFH firms and their associated brands are profiled in Table 2.1 to Table 2.6 in section 2.2, followed by figures illustrating the performance of the South African FAFH sector and South Africa's two leading FAFH firms in section 2.3.

2.2 Who are the role players in the South African food-away-from-home sector?

South Africa has a large number of restaurant chains which can be classified as quick- and full-service establishments. Table 2.1 to Table 2.6 below provide summaries of the top FAFH brands in South Africa according to the types of meals offered. Many of the restaurant brands established in South Africa have entered the regional market by expanding to neighbouring countries such as Mozambique and Zimbabwe, while a few have entered the international marketplace primarily in the Middle East, the United Kingdom and Australia, with mixed success. Famous Brands and Spur Corporation have established themselves as the leading franchised restaurant operations in South Africa. Famous Brands owns 23 brands, 1 881 domestic restaurants and 282 international restaurants (as at 28 February 2013), while Spur Corporation owns only 4 brands, 408 domestic restaurants and 48 international restaurants (as at 30 June 2012). Both firms are listed on the JSE (Johannesburg Stock Exchange) and have similar product offerings such as burgers, fish and pizza.

Table 2.1: Brand profiles of burger-oriented outlets

Company	Brands	Brand profile
Famous Brands	Steers	<ul style="list-style-type: none"> • Famous for flame-grilled beef burgers • In existence for over 50 years • In 1983 the franchising concept was launched • From 1996 to 1999 Steers opened stores in Kenya, Mauritius, Mozambique, Namibia, Zambia, Tanzania and Uganda • London's first Steers restaurant was opened in the first quarter of 2013, during the same period 34 new restaurants were opened, of which 30 were in South Africa
Famous Brands	Wimpy	<ul style="list-style-type: none"> • A leading quick-service restaurant with a wide range of burgers, breakfast and coffee • Established in 1967 in Durban • Introduced all-inclusive franchisee agreements mutually beneficial to both the franchisor and franchisee • Bought by Famous Brands in 2003 • More than 500 franchise stores across South Africa, Botswana and Zambia • More than 40 Wimpy Engen 1-Stops on South African roads
Famous Brands	Black Steer	<ul style="list-style-type: none"> • Established in 1963, well known for their steaks, burgers and ribs • Targets LSM 3 to 6 consumers; the menu includes pap and vleis, boerewors, Russian sausages, stew, flame grilled and fried chicken, burgers, mash and soft drinks • Focuses on large portions and low prices • Outlets in South Africa, Zimbabwe, Israel, Indonesia and Mauritius
Spur Corporation	Captain DoRegos	<ul style="list-style-type: none"> • The DoRego brothers opened the first outlet in Cape Town in the early 70s • More than 70 outlets in South Africa, Lesotho and Mauritius • A range of fish, chicken, burgers, toasted sandwiches, dagwoods and a breakfast menu are offered
McDonald's Corporation	McDonald's	<ul style="list-style-type: none"> • 170 outlets in South Africa's nine provinces • South Africa is among the most successful international markets; a record was set when 30 restaurants were opened in just 23 months • The company sources more than 97% of its ingredients from local suppliers

Source: Analytix Business Intelligence, 2013

Table 2.2: Brand profiles of chicken outlets

Company	Brands	Brand profile
Golden Fried Chicken (Pty) Ltd	Chicken Licken	<ul style="list-style-type: none"> • South African brand established in 1981 • Reported to be the largest non-American fast food fried chicken franchise in the world • 225 outlets nationwide
Yum! Brands	KFC	<ul style="list-style-type: none"> • The most popular fried chicken brand in the world • Since 1997 KFC South Africa has operated under Yum! Brands • More than 500 KFC stores in Southern Africa
Barcelos Flame Grilled Chicken	Barcelos	<ul style="list-style-type: none"> • The first store was opened in 1993 and franchising started in 1998 • 86 outlets in 11 countries • Well-known for its Portuguese flame-grilled chicken
Shoprite Holdings Ltd	Hungry Lion	<ul style="list-style-type: none"> • Established in Stellenbosch in 1997, and is a subsidiary of the Shoprite Group • In little time, the brand had grown to 143 fast food outlets operating in seven countries throughout Southern Africa • Fried chicken remains the brand's focus
Nando's Group Holdings Ltd	Nando's	<ul style="list-style-type: none"> • Started when a small chicken outlet in Johannesburg was purchased in 1987 • About 250 stores throughout South Africa and approximately 500 outlets in 30 other countries • Nando's is famous for their Portuguese style flame-grilled peri-peri chicken • South Africa has the largest number of stores, followed by the UK, Australia and New Zealand with about 175 stores each

Source: *Analytix Business Intelligence, 2013*

Table 2.3: Brand profiles of pie outlets

Company	Brands	Brand profile
King Pie Holdings (Pty) Ltd	King Pie	<ul style="list-style-type: none"> • Established in 1993 and within a year opened 30 local franchises • More than 300 stores can be found in South Africa, Namibia, Mozambique, Zambia and Swaziland • Reported to be the world's largest and most successful pie franchise • Evolved from an ordinary pie outlet to a quick-service restaurant
Bonfit SA (Pty) Ltd	London Pie	<ul style="list-style-type: none"> • The first store was opened in 1994 and has grown to 135 stores nationwide
Pie City Holdings (Pty) Ltd	Pie City	<ul style="list-style-type: none"> • The first store was opened in 1994 and is a home-grown franchise concept developed in South Africa • Franchising began in 1995 • Currently 165 stores in South Africa, 9 in Botswana and 3 in Zambia

Source: *Analytix Business Intelligence, 2013*

Table 2.4: Brand profiles of pizza and Italian-type food outlets

Company	Brands	Brand profile
Famous Brands	Debonairs Pizza	<ul style="list-style-type: none"> Established in 1991 by two university students The Steers Group (now Famous Brands) bought Debonairs Pizza in 1996 The brand benefited from the efficient operating system of the Steers Group Between 2010 and 2011, 31 restaurants were opened, which included its milestone 300th restaurant 330 stores in 16 countries across Africa and the Middle East
Spur Corporation	Panarottis Pizza Pasta	<ul style="list-style-type: none"> Established in 1990 when the Spur Corporation saw a gap in the market for a quality Italian styled pizza-pasta restaurant 52 outlets nationally and six abroad, including Australia and Namibia
Taste Holdings	Scooters Pizza	<ul style="list-style-type: none"> Established in Durban in 2000 followed by 3 stores opening in 2001, in Gauteng, on the same day Currently 136 branches in all nine provinces The second-largest pizza delivery chain in South Africa
Pizza Perfect (Pty) Ltd	Pizza Perfect	<ul style="list-style-type: none"> Established in Johannesburg in 1983 There are more than 89 outlets across South Africa
Roman's Pizza (Pretoria) CC	Roman's Pizza	<ul style="list-style-type: none"> Established in Pretoria in 1993 Ingredients are said to be imported from Greece and Italy
Primi World (Pty) Ltd	Primi Piatti	<ul style="list-style-type: none"> A casual comfort, fine-dining sit down restaurant The menu features Italian inspired dishes but is influenced by the cosmopolitan present, and caters for a variety of occasions and taste preferences The brand aims to provide an electric urban energy with passionate staff
Mimmo's Italian Family Restaurant	Mimmo's Italian Family Restaurant	<ul style="list-style-type: none"> Established in 1993 The initial idea was to establish a personalised pizzeria, and not a brand Became a franchise brand when family and friends became involved in the restaurant More than 60 outlets nation-wide

Source: *Analytix Business Intelligence, 2013*

Table 2.5: Brand profiles of seafood outlets

Company	Brands	Brand profile
Famous Brands	Fish Aways	<ul style="list-style-type: none"> • Established in 1999 and has become South Africa's leading quick-service seafood restaurant • 115 stores in South Africa and one in Windhoek, Namibia
Ocean Basket Franchise Group	Ocean Basket	<ul style="list-style-type: none"> • The first outlet was opened in 1995, in Pretoria, and seated 60 people • Following on the success of the first store, another outlet was opened in Pretoria. During the following 12 months three more stores were opened • On average, eight stores are opened each year • 160 outlets in the Middle East and Europe
Good Things Franchise Group	Something Fishy	<ul style="list-style-type: none"> • Established in South Africa in 1981 • Currently 6 company stores and 100 franchised outlets countrywide and internationally

Source: Analytix Business Intelligence, 2013

Table 2.6: Brand profiles of miscellaneous category outlets

Famous Brands	Mugg and Bean	<ul style="list-style-type: none"> • A coffee themed restaurant franchise • The first store was opened in Cape Town's Waterfront in 1996 • Since the initial store opened in Cape Town, there has been a flurry of store openings around the country • Outlets in Namibia and Botswana • There are 115 restaurants across South Africa and parts of Africa
Spur Corporation	Spur Steak Ranches	<ul style="list-style-type: none"> • The Spur group was listed on the Johannesburg Stock Exchange (JSE) in 1986, at which time 43 franchised Spur Steak Ranches were in existence • Currently there are 245 Spur Steak Ranches in South Africa and 32 international Spur Steak Ranches • Branches in the United Kingdom, Australia and Mauritius
Kauai Group (Pty) Ltd	Kauai	<ul style="list-style-type: none"> • The first store in South Africa was opened in Cape Town in 1996 • Currently 46 full-concept stores nationwide, along with 56 KAUAI In Motion outlets and two KAUAI@School stores
Taste Holdings	Maxi's	<ul style="list-style-type: none"> • Established in 1993 by an entrepreneur who noticed that there was an opportunity in the market for a family restaurant franchise • Scooters Pizza acquired the brand in 2005 when there were 28 outlets • Since the acquisition the number of outlets has grown to 75 • Focused on adding value to consumers through a superior quality food offering, evolving promotions and contemporary appeal

Source: *Analytix Business Intelligence, 2013*

2.3 Performance

The results presented in Figure 2.1 below are derived from the monthly survey of the food and beverages industry. This survey covers a sample of public and private enterprises involved in the preparation of meals and drinks for immediate

consumption in South Africa. This figure illustrates the year-on-year percentage change in income at current prices for the South African food and beverages industry. Although 2009 experienced a number of negative year-on-year percentage changes, the end-of-year total remained positive. This could be explained by the global economic downturn, where consumers were faced with less disposable income (Famous Brands, 2010). Since 2009, all year-on-year percentage changes in income were positive, excluding June 2011 where a slight (1,9%) drop in year-on-year percentage change in income was experienced. The increasing trend of the total year-on-year percentage change for each year suggests that the South African FAFH industry has the potential to expand further.

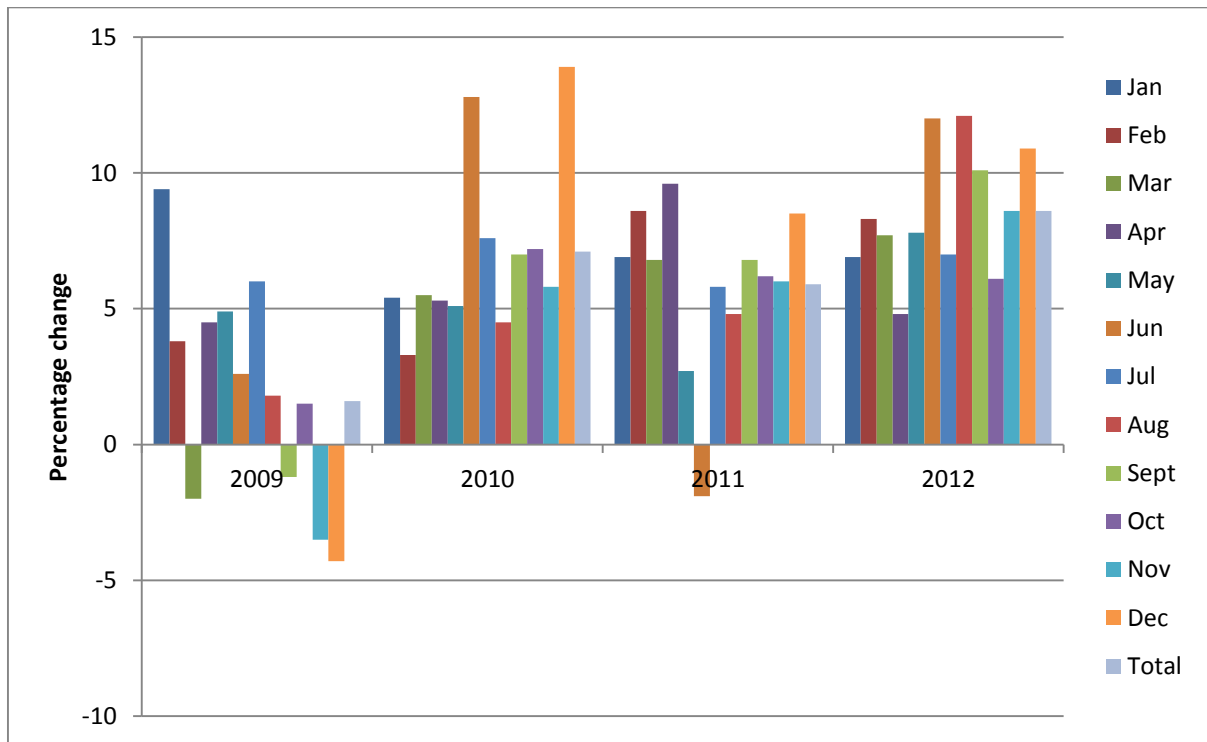


Figure 2.1: Year-on-year percentage change in income for the South African FAFH industry at current prices from 2009 to 2012

Source: Statistics South Africa, 2013b

Note: the year-on-year percentage change in income for the South African FAFH industry at current prices from 2009 to 2012 for January 2013 was 6.2%

Whereas the discussion above and Figure 2.1 refer to the industry as a whole it is useful to illustrate the industry’s performance by reviewing the performance of two of the main players: Famous Brands and Spur Corporation. These two companies were

chosen because of their prominence in the South African restaurant franchising business, the availability of information because of their listings on the JSE (Johannesburg Stock Exchange) and because their business interests do not extend into other business types, such as jewellery, as is the case with Taste Holdings. Figure 2.2 below illustrates that Famous Brands' revenue has been increasing throughout the period from 2008 to 2012.

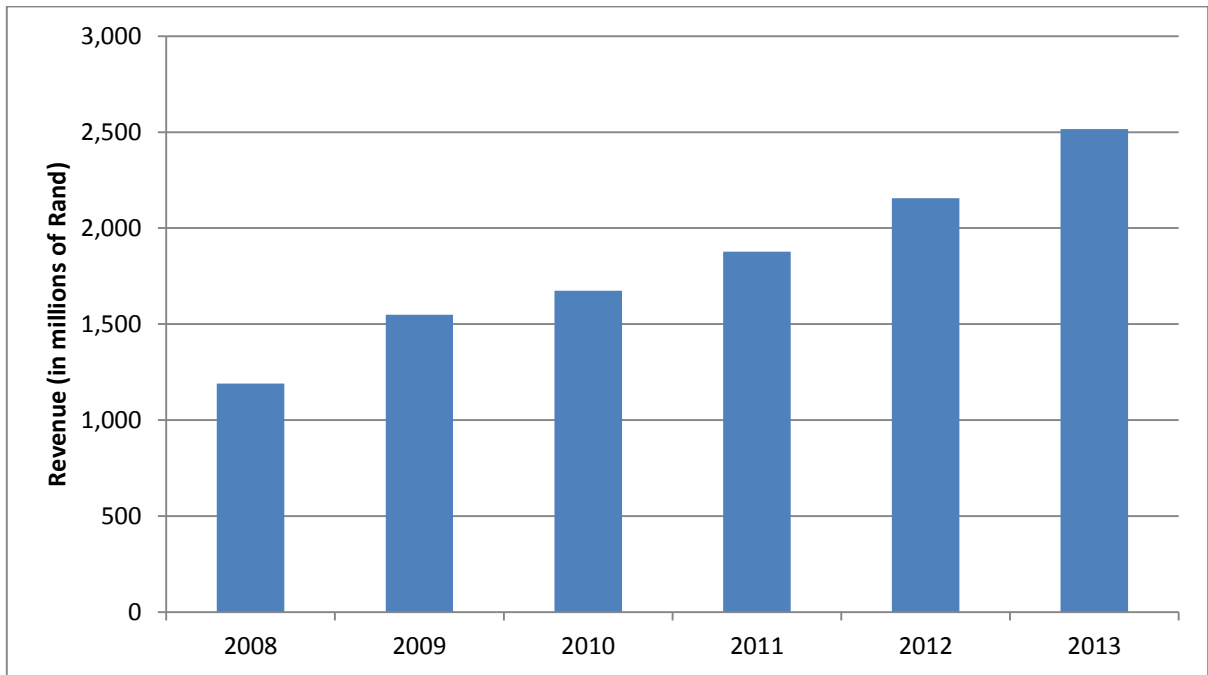


Figure 2.2: Famous Brand's revenue (in millions of Rand) from 2008 to 2013

Source: Famous Brands, 2008-2013, excluding 2009

Figure 2.3 below shows Famous Brands' percentage change in revenue from 2009 to 2013. The significant decrease observed in the percentage change in revenue from 2009 to 2010 was attributed to the global economic downturn experienced at the time, which resulted in reduced consumer spending (Famous Brands, 2010).

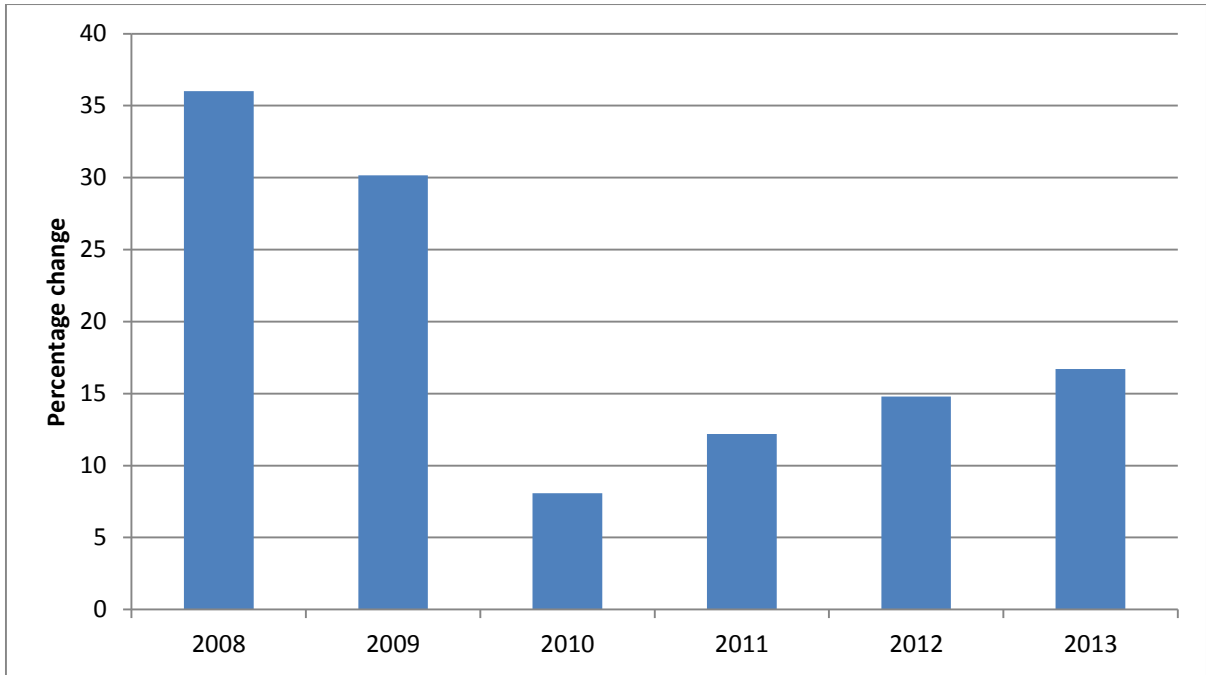


Figure 2.3: Famous Brands' year-on-year percentage change in revenue from 2008 to 2013

Source: Famous Brands, 2008-2013, excluding 2009

Figure 2.4 below shows that operating profits earned by Famous Brands during the period 2008 to 2013 have increased yearly. Operating profit is referred to as “pure profit” because it represents profit after all costs and expenses have been deducted, excluding interest, taxes and preference share dividends.

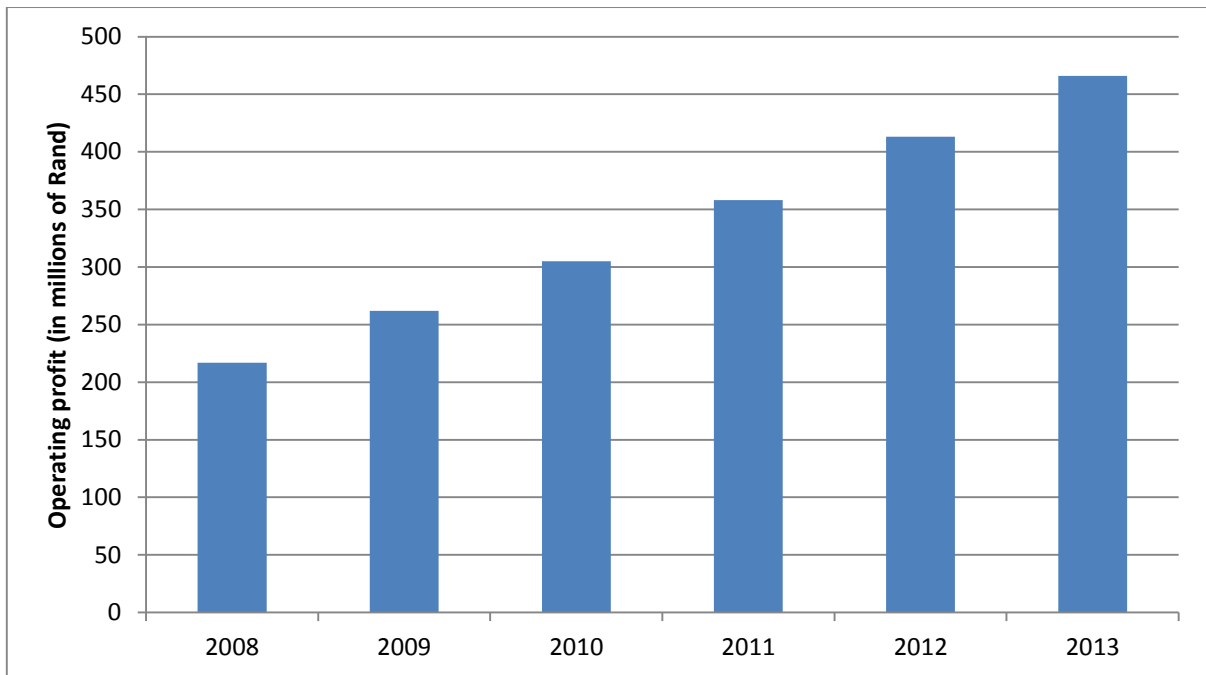


Figure 2.4: Famous Brands' operating profit (in millions of Rand) from 2008 to 2013

Source: Famous Brands, 2008-2013, excluding 2009

Figure 2.5 below illustrates that Spur Corporation's revenue has been increasing from 2008 to 2012 and is likely to continue with this trend in the near future.

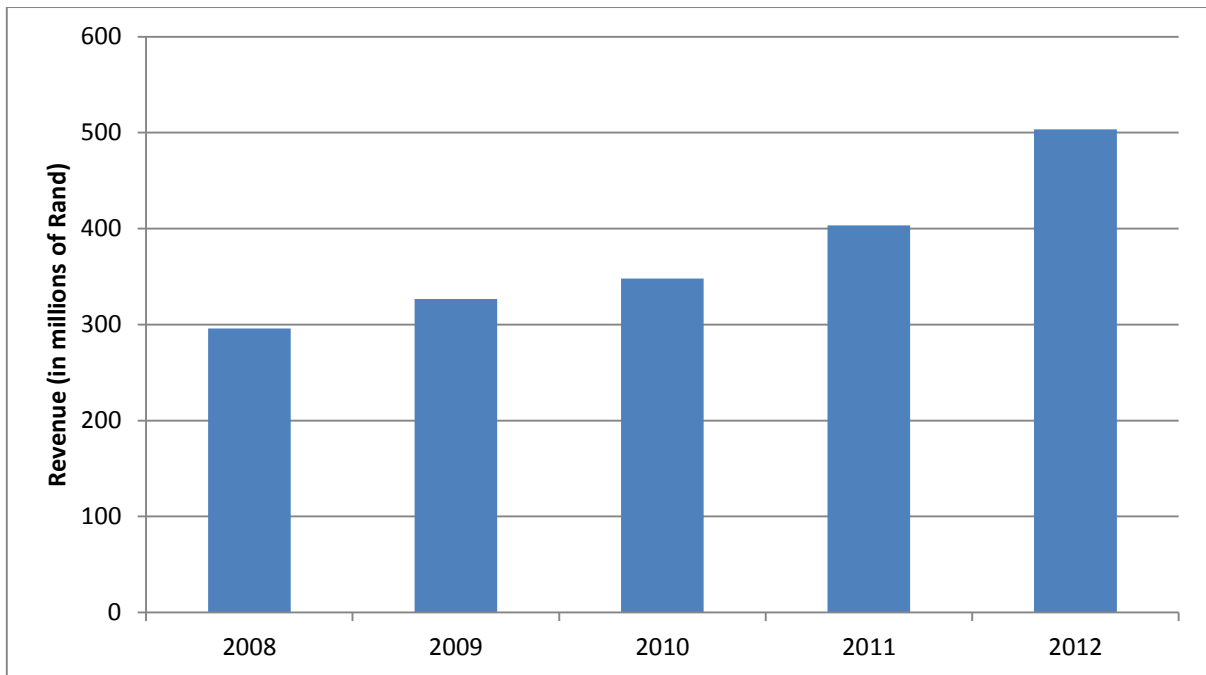


Figure 2.5: Spur Corporation’s revenue (in millions of Rand) from 2008 to 2012

Source: Spur Corporation, 2008-2012

Figure 2.6 below shows that Spur Corporation’s revenue increased only slightly from 2008 to 2009, with a more substantial increase in revenue from 2011 onwards. The slight increase in revenue observed in 2009 and 2010 is attributed to consumers having less disposable income as a result of strained economic conditions experienced at the time. An additional explanation is that the foodservice sector in South Africa is approaching maturity, which means that the market is nearing saturation and revenue generation becomes more difficult. Interestingly, there was a large year-on-year percentage change of income of about 24 in 2012. This could be attributed to increased diversification as a result of purchasing Dorego’s (focuses on value-for-money meals) and the remaining 35% of John Dorey’s (seafood), and marketing strategies such as the million Spur family card members which account for 27% of local Spur restaurant turnover and the ‘Unreal Breakfast’. (Spur Corporation, 2012).

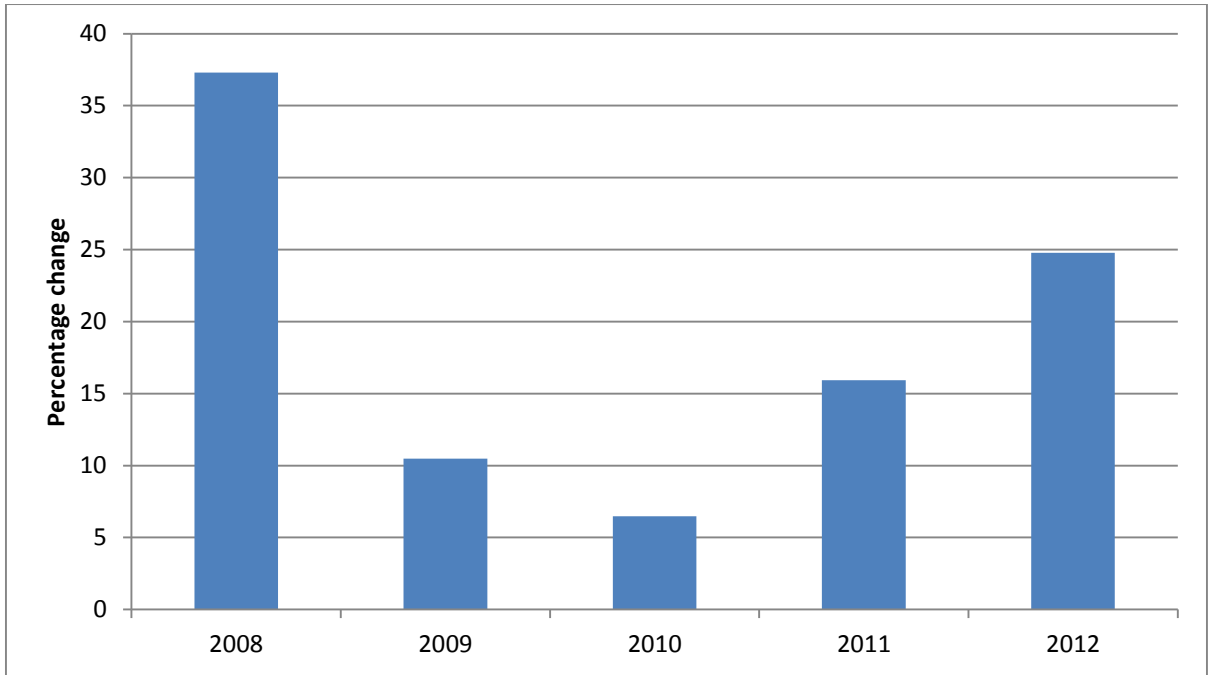


Figure 2.6: Spur Corporation's year-on-year percentage change in revenue from 2008 to 2012

Source: Spur Corporation, 2008-2012

Figure 2.7 below shows that operating profit of Spur Corporation before finance income had an increasing trend, although a slight drop was observed in 2011.

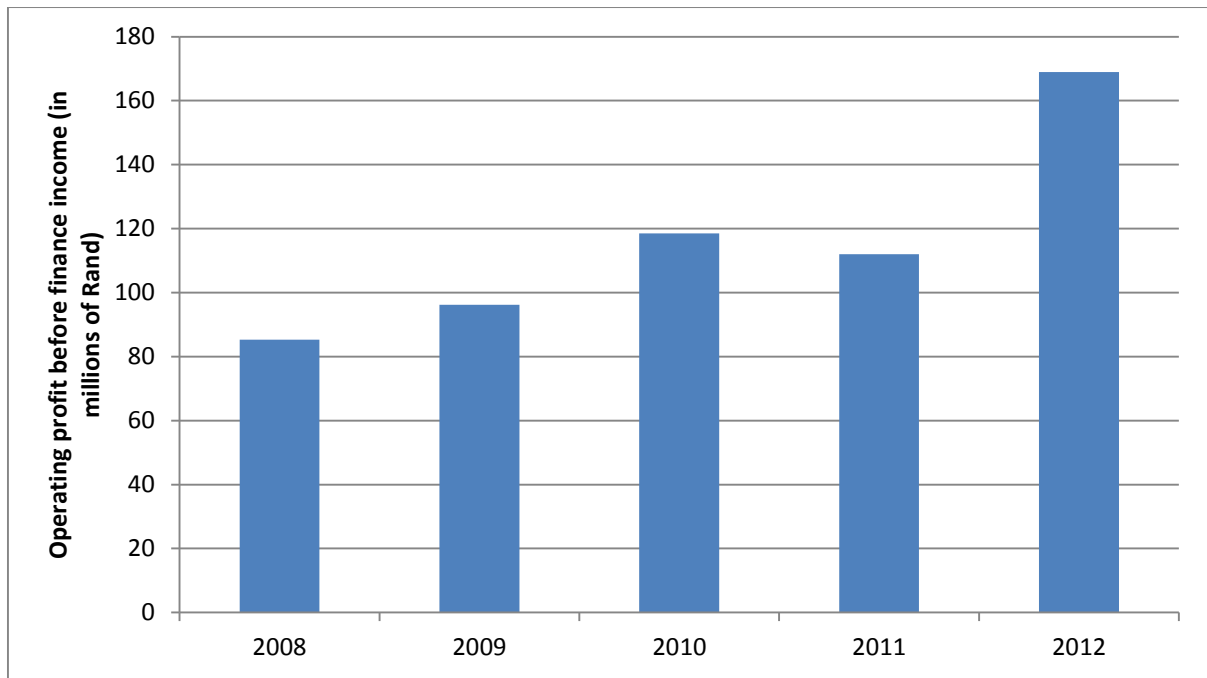


Figure 2.7: Spur Corporation's operating profit before finance income (in millions of Rand) from 2008 to 2012

Source: Spur Corporation, 2008-2012

Figure 2.8 below was constructed to compare the performance of the two leading companies with the industry at large. From the figure it is evident that the industry experienced its lowest point in 2009, the year of the global economic downturn, while Spur Corporation and Famous Brands experienced their lowest points a year later. The industry increased its revenue over the period from 2009 to 2010 with a subsequent drop in 2011 followed by another increase in 2012. In contrast Spur Corporation's and Famous Brands' percentage change in revenue has increased from their lowest points in 2010. This figure illustrates that Famous Brands and Spur Corporation are generating more revenue year-on-year than most firms in the FAFH industry.

Although the industry has experienced difficult conditions in the past few years, industry role players remain optimistic about the industry's future in South Africa. Difficult trading conditions experienced in the past few years and currently, have been attributed to a decline in economic certainty in the country and the continued decrease in disposable income. This consequently decreases consumer sentiment and spending. The upper income segment remains resilient, however the middle

income segment, which is the primary market for the foodservice industry, is under increasing pressure (Famous Brands, 2013 and Spur Corporation, 2012).

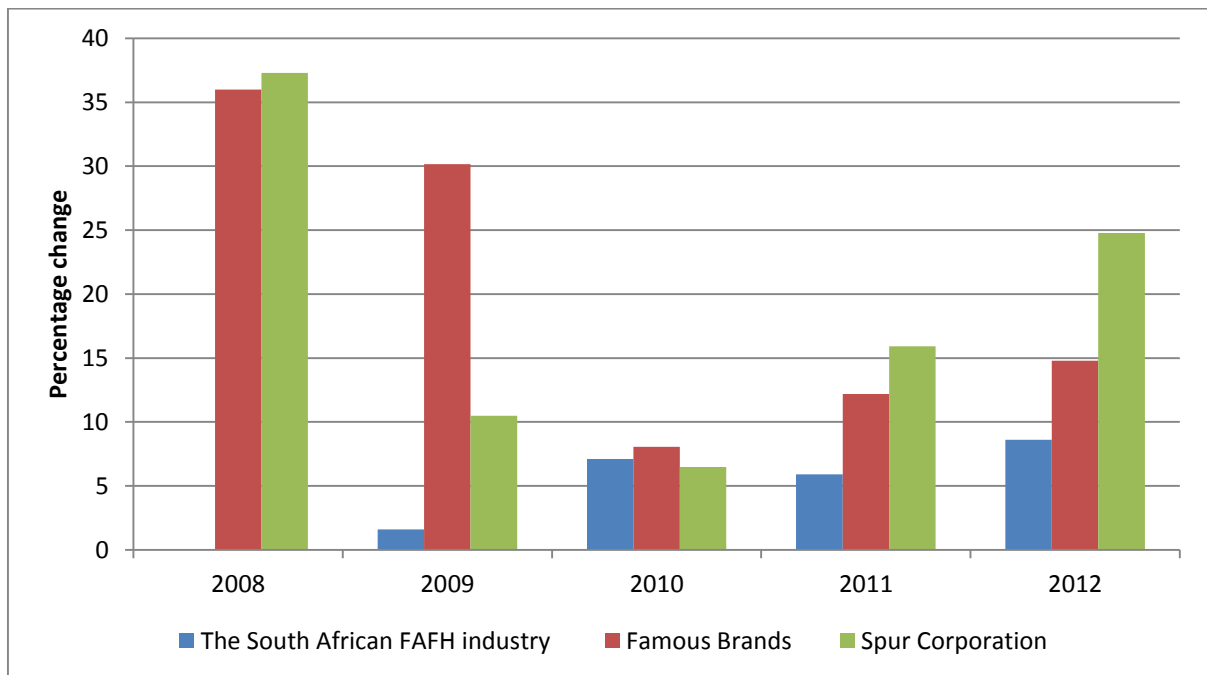


Figure 2.8: Year-on-year percentage change in revenue for the South African food and beverage Industry, Famous Brands and Spur Corporation

Source: Famous Brands, 2013; Spur Corporation, 2012; Statistics South Africa, 2013b

The annual reports of Spur Corporation and Famous Brands have indicated that the period of global economic downturn placed their businesses under strain given that consumers were faced with rising costs of living. This left consumers with less disposable income and consequently caused them to become more cautious of their spending resulting in reduced FAFH expenditure. However, these companies remain optimistic about the industry's future growth potential in South Africa, and have described the growing black middle-class, with their disposable income, as a significant source of future growth (Famous Brands, 2013; Spur Corporation, 2012).

2.4 Conclusion

The performance indicators of the sector at large and Famous Brands and Spur Corporation indicate that FAFH expenditure is sensitive to income, more specifically

disposable income. This is especially evident in 2009 when both Famous Brands and Spur Corporation experienced significant declines in their year-on-year percentage change in revenue. In 2009 Famous Brands experienced one of their most difficult trading years which was said to be due to unfavourable economic elements and the global economic downturn. Locally, consumers had less disposable income because of high interest rates, food inflation, and increases in the price of fuel, energy and transport.

The next chapter discusses the most significant economic and socio-demographic factors that affect the consumption of FAFH. The text discusses the effect of these factors in foreign countries, while the figures illustrate the effect of these factors on FAFH consumption in South Africa.

Chapter 3

A cross-country comparison of demand and consumption of food-away-from-home

3.1 Introduction

The demand for FAFH is influenced primarily by income and a number of socio-demographic factors, which includes household size, family composition, age, education, race, region and urbanisation. This chapter illustrates the significance of most of these factors with studies performed in other countries and then compares the findings of these studies to figures constructed from Analytix Business Intelligence's report on the South African fast food sector. It is important to note that Analytix Business Intelligence's report also includes full-service restaurants, and thus the title of the report is not reflective of the extent of the analysis. Thus as far as Analytix Business Intelligence's report is concerned, fast food will refer to FAFH purchased at both full-service and fast food outlets. Furthermore, full-service and fast food outlets comprise the majority of FAFH sales in South Africa. This is important because these figures illustrate the relationship between the factors reported to influence FAFH consumption in other countries and FAFH consumption in South Africa.

3.2 Global trends in demand for food-away-from-home

Studies reveal that economic and socio-demographic factors have an important bearing on FAFH consumption, such factors include: household size, family composition, age, education, race, region and urbanisation (Kinsey, 1983; Lee and Brown, 1986; Lippert and Love, 1986; Nayga and Capps, 1992; Redman, 1980; Stewart *et al.*, 2004). Kaufman and Kumcu (2011) note that Americans spent less on FAFH during the 2007 to 2009 recession, which was characterised by high unemployment, declining incomes, comparatively high food prices and federal food and nutrition programmes.

Increasing FAFH demand has encouraged the development of foodservice industries, and affected the manner in which food producers, processors and retailers operate (Mihalopoulos and Demoussis, 2001). Understanding these developments is, not surprisingly, important for anticipating future changes.

A number of studies have shown that globally, FAFH expenditures have been on the rise at the expense of FAH expenditure. An example of this is in urban China, where the share of expenditure on food has declined from 90% to 84% between 1995 and 2001, while expenditure on FAFH rose from 10% to 16%. Overall, total FAH expenditure has decreased by 5% while total FAFH expenditure increased by 63% during this period. The growth observed in the FAFH sector in China indicates that the sector is becoming increasingly important, consequently there is a great demand for information relating to the composition and current and future levels of FAFH consumption (Ma *et al.*, 2006).

Chinese households have been found to be more income elastic compared to US households. This means that the income elasticity of demand for FAFH by Chinese households is more sensitive to changes in income compared to US households. This is evidenced by Stewart and Yen (2004) who found that the income elasticities of expenditure for fast- and full-service restaurants are 0,288 and 0,632 respectively, using US Bureau of Labor Statistics. In comparison, China has a larger income elasticity of around 1, and the robust nonparametric estimation results show that the income elasticity is still on the rise (Min, Fang and Li, 2004).

Ham, Hwang and Kim (2004) report that the Korea National Statistical Office found that FAFH average monthly expenditures, per household, in Korea, have increased from US\$6,80 in 1985 to US\$135 in 2000. Further, FAFH expenditures in Korea have increased by 400% during the period of 1986 to 2000, and FAFH expenditure accounted for approximately 39% of total food expenditure, while this figure stood at just 8,9% in 1986. The radical changes observed in the Korean food market which have resulted in a speedy increase in FAFH expenditures, is attributed to swift economic growth and socio-demographic changes. The foodservice industry in Korea has grown rapidly compared to that of the US. Sales from the foodservice industry

increased from US\$2,9billion in 1984 to US\$25,8billion in 2000. The number of restaurants in Korea has grown from 196 565 in 1981 to 405 544 in 2000.

Demographic changes similar to those of the US are being experienced in Korea, where incomes are increasing, more women are employed, there is an increase in the number of car owners and families are becoming smaller. Cross-country characteristics are important for international restaurant chain and foodservice companies to understand because demographic and socio-economic profiles influence FAFH expenditure (Ham, Hwang and Kim, 2004).

Angulo, Gil and Mur (2002) studied the effect of household characteristics on FAFH expenditure in Spain. They found that households headed by a highly-educated, young, male, and living on a salary in a large town are more likely to purchase FAFH. Conversely, for households headed by an unschooled female or an individual older than 55, and for those households with more than half of its members older than 60 years, increases in income promotes greater than proportional increases in FAFH expenditure. FAFH consumption is positively correlated to the education level of the household head.

According to LaVecchia (1999) almost 50% of US households reported that they were cooking fewer meals than they did two years ago. Americans are spending a greater proportion of their incomes on FAFH, nearly half of their food expenditures are spent on snacks and meals at foodservice facilities such as restaurants, hotels and schools. This is illustrated by the fact that expenditure has risen by almost 58% from 1992 (US\$263 billion) to 2002 (US\$415 billion). However, when accounting for business cycles and inflation, food expenditures spent on snacks and meals at foodservice facilities such as restaurants, hotels and schools has increased by approximately 23% from 1992 to 2002 (Stewart *et al.*, 2004).

It is expected that expenditure on FAFH in the US will continue to increase annually at about 1,2% in real (inflation-adjusted) terms (Blisard, Variyam and Cromartie, 2003). This annual increase will be driven by rising incomes and demographic developments, such as smaller household sizes. However, there is uncertainty as to what foodservice facilities will meet the demands of consumers. There is a vast range

of foodservice firms competing for consumers' dollars, for example full-service restaurants, fast food franchises, hotels, retailers, places of recreation, bars and vending machines. However, full-service and fast food establishments constitute the bulk of sales with 39,9% and 37,9% respectively, of sales in 2002. Full-service restaurants offer greater variety on their menus, while fast food restaurants offer convenience (Stewart *et al.*, 2004). Consequently strategic locations are significant in securing sales and as more outlets open per area, demand is likely to be promoted (Jekanowski, Binkley and Eales, 2001).

Liu, Kasteridis and Yen (2013) found that income, work hours, race, education, geographic region and household composition are important determinants of FAFH expenditures. While increased levels of education was associated with greater expenditures on lunch and dinner.

Cherlin (2010) illustrates that demographic factors responsible for stimulating FAFH demand in the US have changed drastically during the 2000s. Such factors include greater numbers of: single-parent households, Hispanic and Asian immigrants and the aged in the population. The persistence of demographic changes is likely to fuel the demand for FAFH. The convenience factor has also been shown to be significant in determining FAFH expenditure (Mihalopoulos and Demoussis, 2001; Stewart *et al.*, 2004). As household managers work long hours outside of the household, fast food is a convenient option granted that it is accessible. Byrne, Capps and Saha (1998) have illustrated that fast food expenditure increases as the household manager works longer hours in the labour force. Comparatively, dining at full-service restaurants may take as much time as preparing, eating and cleaning up after a meal at home. However, there does not appear to be a distinct theoretical or empirical relationship between a household's demand for full-service restaurant dining and its time constraints (Stewart *et al.*, 2004).

Household structure is proposed as a factor that influences FAFH expenditure because of socialisation opportunities and time constraints. The trend in household structures is towards single-person households, single-parent families and households with multiple adults without a live-at-home child (Stewart and Yen, 2004). Figure 3.1 below, illustrates that mature singles, mature couples, mature families and

single-parent families have the lowest shares of fast food purchasers in South Africa. On the whole, all lifestage categories exhibited an increase in the number of fast food purchasers over the period from 2008 to 2012. This trend is likely due to demographic changes such as increasing incomes, greater participation of women in the workforce and an increase in car ownership.

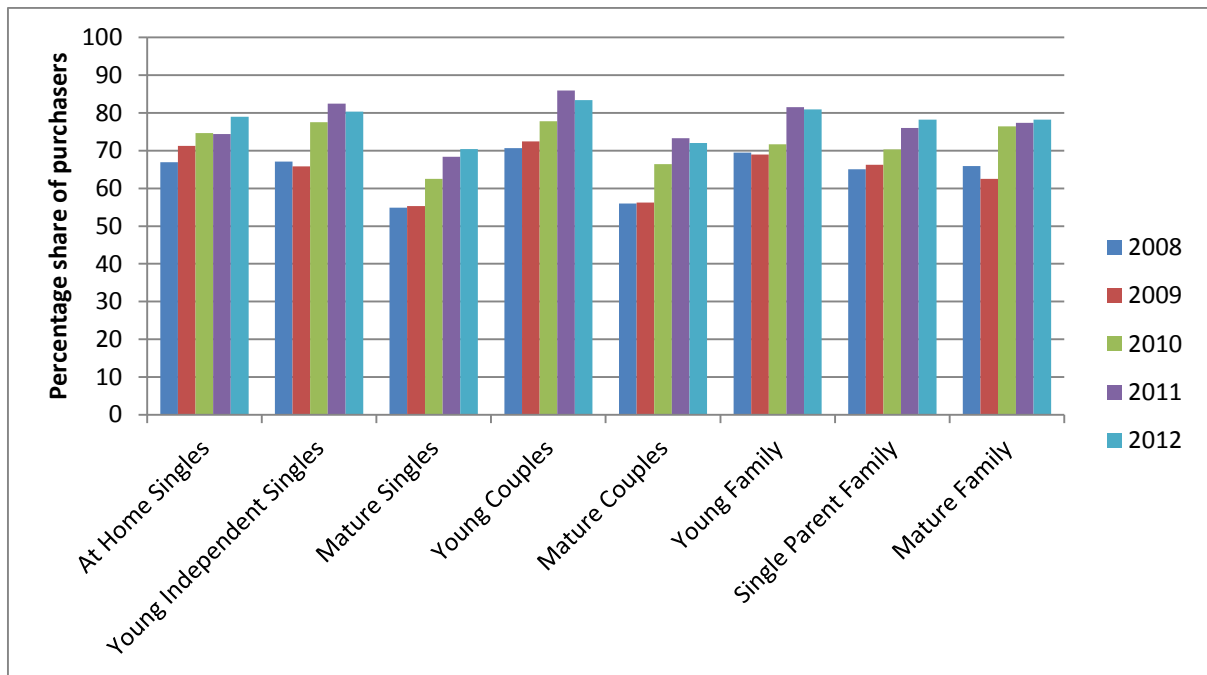


Figure 3.1: Fast food purchasers by lifestage in South Africa from 2008 to 2012

Source: *Analytix Business Intelligence, 2013*

The FAFH sector in South Africa has also been exposed to changes in the socio-demographic factors which encourage the consumption of fast foods. These changes are being brought about by the effects of globalisation, urbanisation, a growing black middle-class and increased participation of women in the labour force (Maumbe, 2010). This trend is illustrated by Figure 3.2 below, which shows that between 2008 and 2012 the percentage of people that had never personally purchased fast food had dropped substantially. Furthermore, the most significant growth originated from consumers who made monthly purchases. The increase in the number of fast food purchases is attributed to demographic changes such as more singles, increasing incomes, longer work hours and urbanisation.

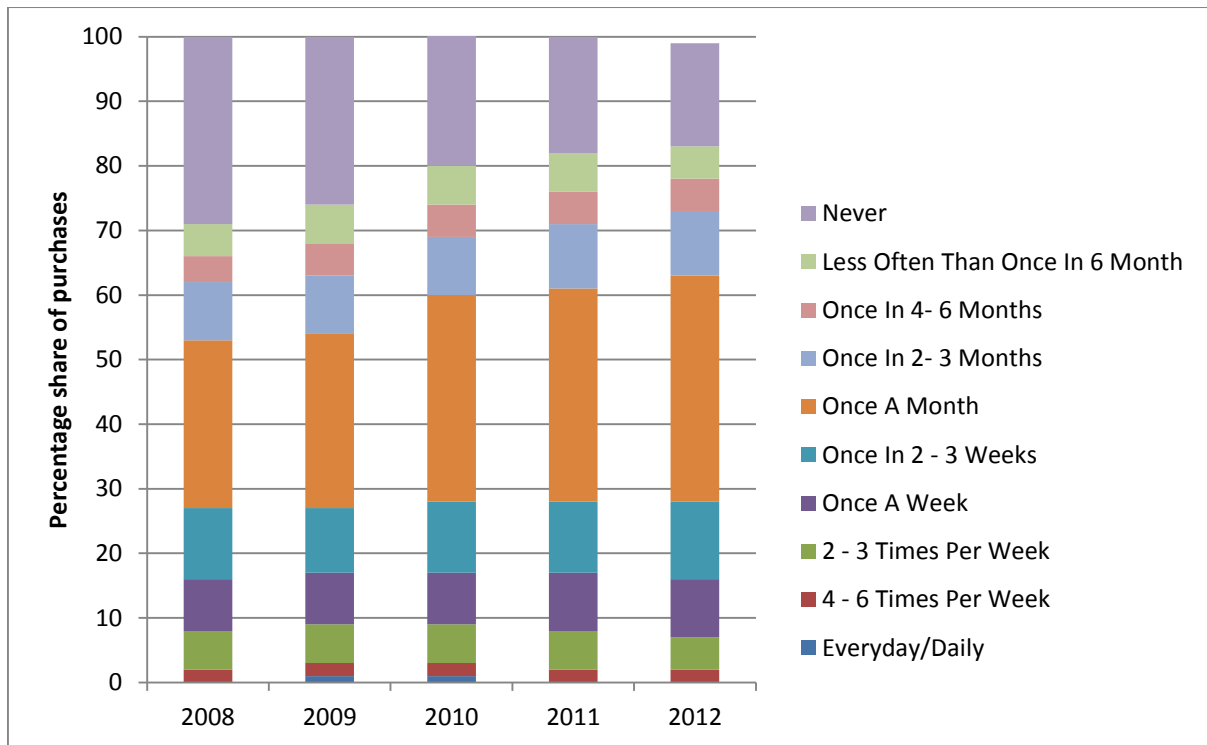


Figure 3.2: Frequency of fast food purchases in South Africa from 2008 to 2012

Source: Analytix Business Intelligence, 2013

3.3 Influence of income on food-away-from-home demand

Many studies have found a positive relationship between income and the consumption of FAFH, such as Prochaska and Schrimper (1973), McCracken and Brandt (1987), Yen (1993), Gould and Villarreal (2006) and Bai *et al.* (2010). Higher income households typically spend more on products and services such as leisure, variety, dining facilities (for example waiters), ambience and alcohol service (Stewart *et al.*, 2004). FAFH is a type of leisure activity in which leisure is defined as the time spent outside of the labour force and household production (Stewart *et al.*, 2004). Higher income households have been shown to spend more at full-service and fast food restaurants and on snacks, with expenditure at full-service restaurants being most responsive to changes in income (McCracken and Brandt, 1987; Byrne, Capps and Saha, 1998). Unemployed persons in Spain are the least likely to purchase FAFH (Angulo, Gil and Mur, 2002). Liu, Kasteridis and Yen (2013) found income to be significant in determining expenditure on all types of meals (breakfast, lunch and

dinner), suggesting that the future of the FAFH sector is coupled to macroeconomic conditions.

Rising incomes are seen as the most significant influence in determining consumption patterns. This can be seen in China where FAFH expenditure has increased dramatically with rising incomes. Real expenditure on FAFH has trebled from 30,5 billion yuan in 1991 to 98,4 billion yuan in 1999. However, the quantity of food consumed is likely to be less affected. Per capita incomes have risen by 43% from 1995 to 2001. In general, wealthier consumers in China did not spend significantly more on food. Data from China's Household Income Expenditure Survey indicates that FAFH demand has been the primary cause of changes in urban food expenditure patterns. Further, income growth affects the level and composition of FAFH expenditure (Ma *et al.*, 2006). In the US, average annual household FAFH expenditure was \$3 370 or 41% of the average household food budget in 2011 (U.S. Department of Labor, Bureau of Labor Statistics, [no date b]), compared to \$1 320 (29% of the average household food budget) in 1984 (U.S. Department of Labor, Bureau of Labor Statistics, [no date a]).

Ma *et al.* (2006) show that FAFH demand increases faster than income growth for different income groups. Income growth determines the constituents of expenditure. This is illustrated by the fact that the consumption of meat is significantly greater for higher earning segments. Further, expenditure on meat is greater when eating out (35%) than when at home (28%), while the opposite is true for vegetables, grains and fruit.

Figure 3.3 below, illustrates that the LSM (Living Standard Measure) category plays a role in the consumption of FAFH in South Africa because the share of fast food purchasers in each LSM category increases as the LSM category increases. If the LSM is seen as a proxy for income, then the demand for fast food increases as incomes increase. The share of purchasers in the lower LSM categories has increased the most followed by the middle LSM categories and finally the higher income LSM categories. This is attributed to healthier food baskets in South Africa costing 69% more than standard baskets (Temple and Steyn, 2011). This means that

people with lower incomes are likely to purchase less healthy alternatives such as fast food.

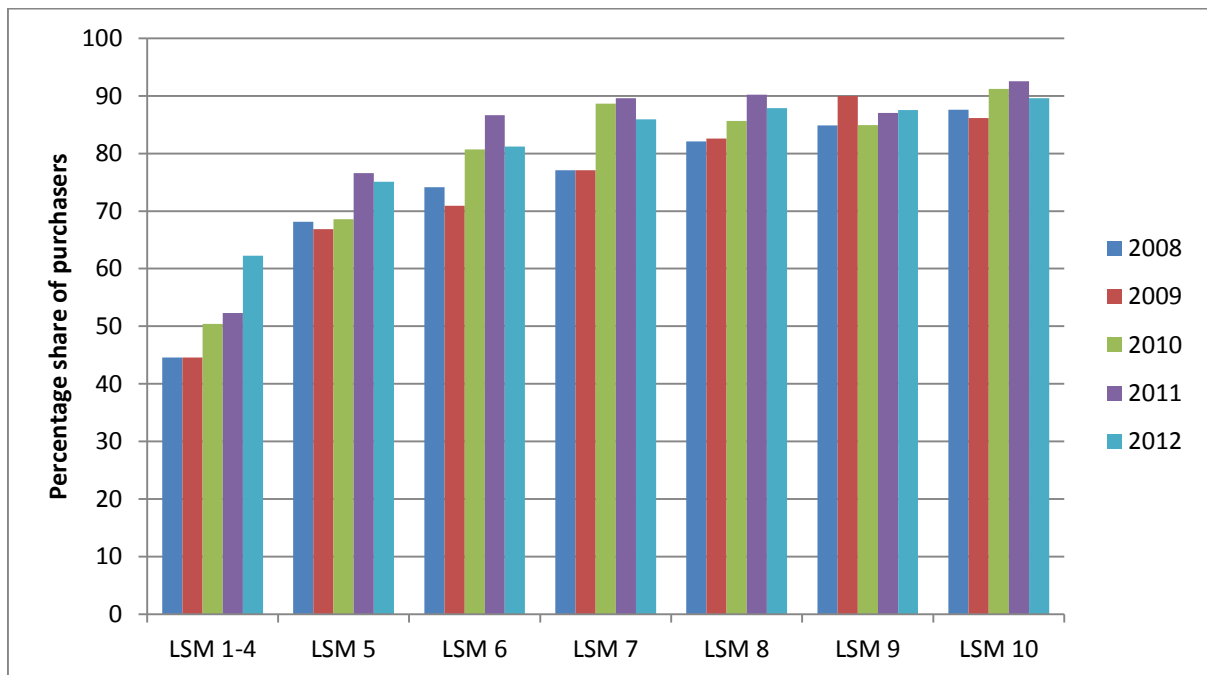


Figure 3.3: Fast food purchasers by LSM (Living Standard Measure) in South Africa from 2008 to 2012

Source: Analytix Business Intelligence, 2013

3.4 Influence of household size on food-away-from-home demand

Gould and Villarreal (2006) found that FAFH expenditure in urban China is positively related to income and inversely related to household size. Min, Fang and Li (2004) confirm that household size is a key determinant in determining FAFH consumption in China. It is expected that households with more members will find preparing meals at home more economical than FAFH, which was illustrated to be true by McCracken and Brandt (1987). Bulk purchases of food items can save larger households money because the per-unit cost of food is reduced with larger pack sizes. Contrary, single-person households are likely to have the highest cost, monetary and time, to eat at home (Stewart *et al.*, 2004).

Figure 3.4 below, illustrates that the number of fast food purchases made, decreases as the number of people bought for increases. This is akin to the notion that FAFH

demand decreases as the number of people in a household increases. There have been no significant changes in the share of purchases according to the number of people bought for.

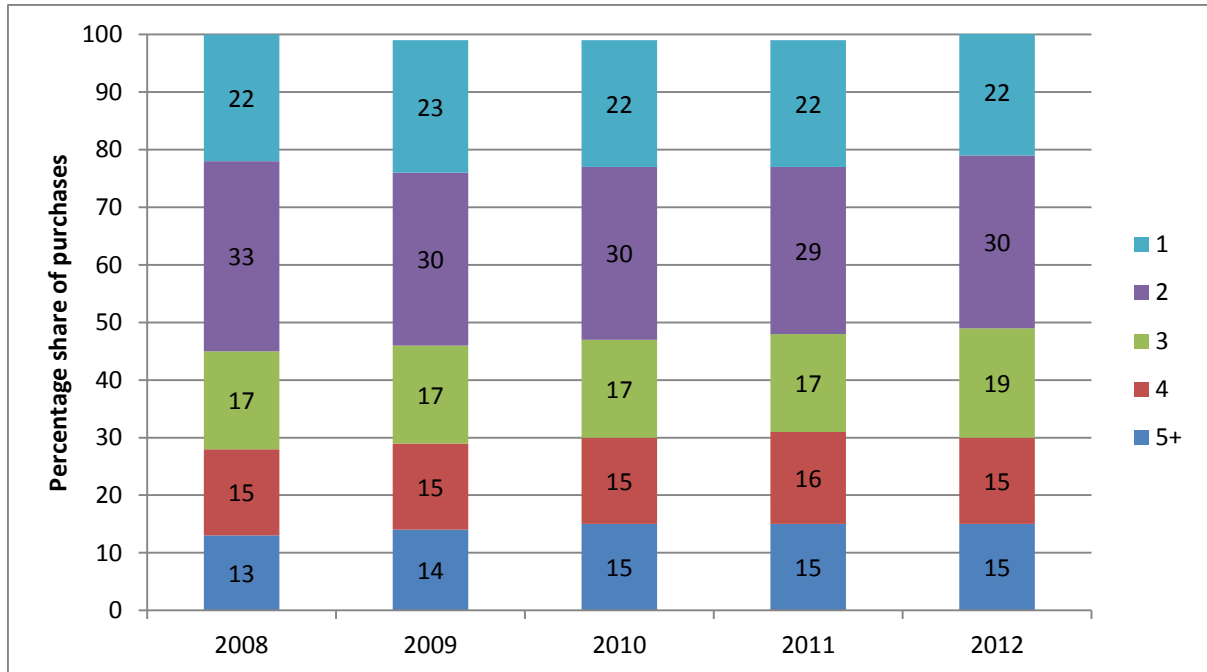


Figure 3.4: How many people did you buy fast food for at your last visit? 2008 to 2012

Source: *Analytix Business Intelligence, 2013.*

3.5 Influence of gender of the household head on food-away-from-home demand

Previous studies (Ham, Hwang and Kim, 2004; Binkley, 2005; Nayga and Capps, 1994) have found that women are less likely to spend on FAFH than males. However, Nayga and Capps (1992) demonstrate that as participation by women in the labour force increases FAFH expenditure increases. Angulo, Gil and Mur (2002) found that FAFH consumption in Spain is greater for males than females because of the significant percentage of women working within the home. The gender profile of fast food purchasers in South Africa is illustrated by Figure 3.5 below, which shows that there is no significant difference in the share of fast food purchasers between male and female consumers and that the share of female fast food purchasers for the period of 2008 to 2012 has increased, while the share of male fast food purchasers

decreased from 2011 to 2012. This could be due to increased participation of women in the workforce which means that there is less time for meal preparation, and higher incomes which allow for increased spending on FAFH, which includes fast food.

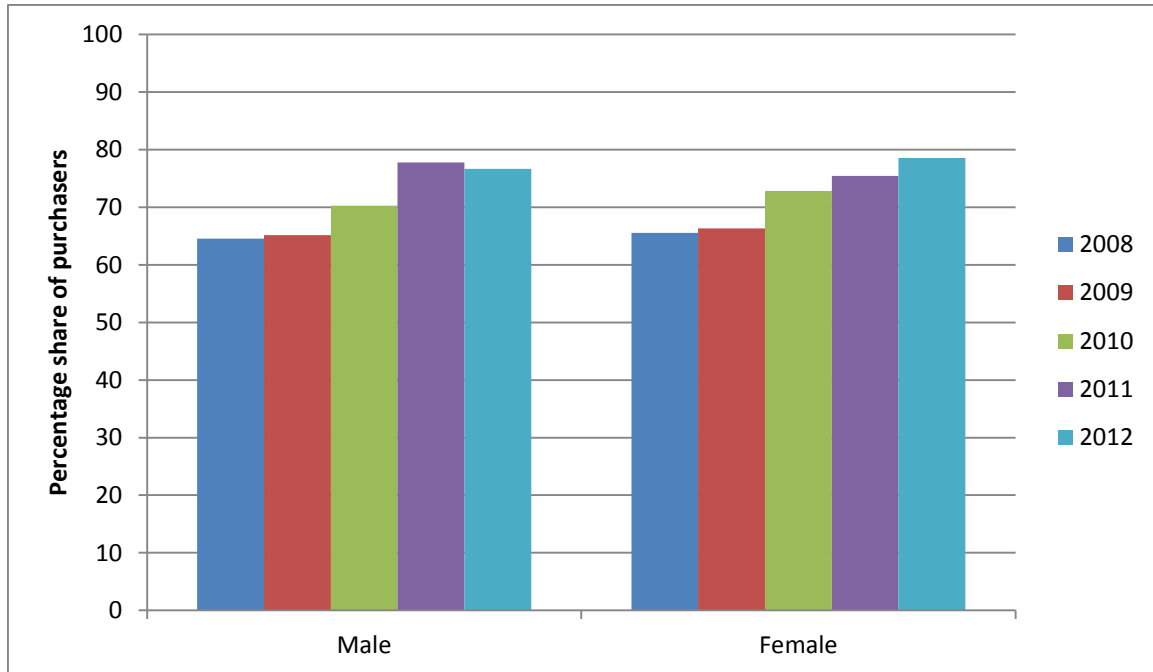


Figure 3.5: Fast food purchasers by gender (2008-2012)

Source: *Analytix Business Intelligence, 2013*

3.6 Influence of population group of the household head on food-away-from-home demand

Previous studies suggest that there is a difference in FAFH expenditure between different population groups because of different eating habits, tastes and access to foodservice establishments (Liu, 2011; Stewart *et al.*, 2004). Figure 3.6 below shows that Indians had the highest share of fast food purchasers, followed by Whites, Blacks and then Coloureds. It is interesting to note that the share of Black fast food purchasers has increased, the share of Coloured purchasers has alternately decreased and increased, the share of Indian purchasers has mostly remained constant, and the share of White purchasers has alternately decreased and increased with a decreasing trend evident over the period of 2008 to 2011. The increasing share of Black fast food purchasers could be explained by a growing black middle-class. In the case of South Africa, income levels are largely stratified by

population group, and as such population group as a factor influencing consumption may be less appropriate than income levels. Population group may be more appropriate with regard to the consumption of different meals (for example chicken, pork and beef).

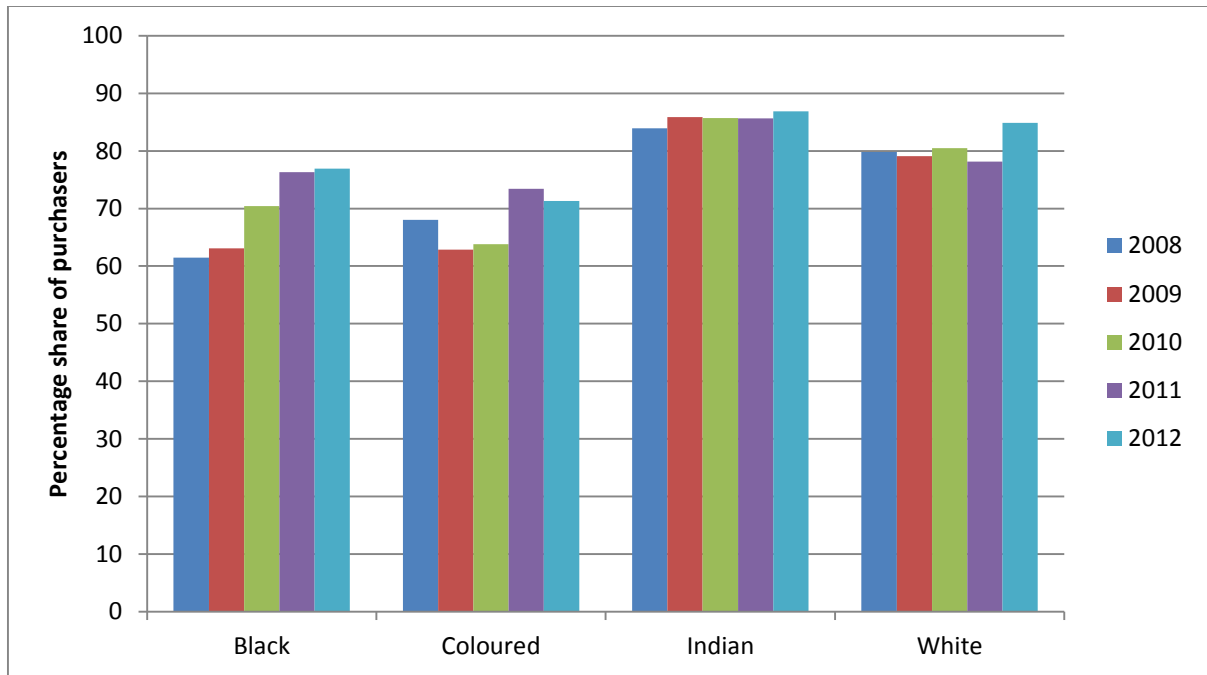


Figure 3.6: Fast food purchasers by population group in South Africa from 2008 to 2012

Source: *Analytix Business Intelligence, 2013*

3.7 Influence of settlement type on food-away-from-home demand

A number of studies have concluded that the settlement type in which a person or household resides in, is a significant determinant of FAFH expenditure (Liu, 2011; Binkley, 2005; Bezerra *et al.*, 2013). An increasing population and movement of people into urban areas during the 1990s have caused FAFH expenditure in China to rise rapidly. Furthermore, urban population growth has been the primary driver of increased food expenditure given that per capita food expenditures have grown slowly. The change in the composition of urban food expenditures has been attributed to FAFH demand (Ma *et al.*, 2006). Urban residents are likely to have higher FAFH expenditures because of their greater access to FAFH facilities (for example McCracken and Brandt, 1987; Prochaska and Shrimper, 1973; Yen, 1993).

Spanish households living in towns with a population of between 10 001 and 50 000 persons were found to be the most likely to purchase FAFH, followed by the largest towns having a population of more than 500 000 people (Angulo, Gil and Mur, 2002). This is probably influenced by the presence of fast food outlets and restaurants in these towns. Furthermore, it is possible that FAFH establishments are located in urban centres because there are more people. This trend is also observed in South Africa, where urban residents constitute the bulk of fast food purchasers. Figure 3.7 below, can be used to demonstrate the relationship between FAFH consumption and access to it in South Africa. The chart shows that urban centres have a greater share of fast food purchasers than rural areas and that on the whole fast food purchasers have been increasing over the period from 2008 to 2012, excluding settlements with less than 500 persons where the share of fast food purchasers has been decreasing. This could be explained by the economies in these community types shrinking as a result of businesses closing down or relocating (National Planning Commission, 2011). Thus there are no outlets where fast food can be purchased.

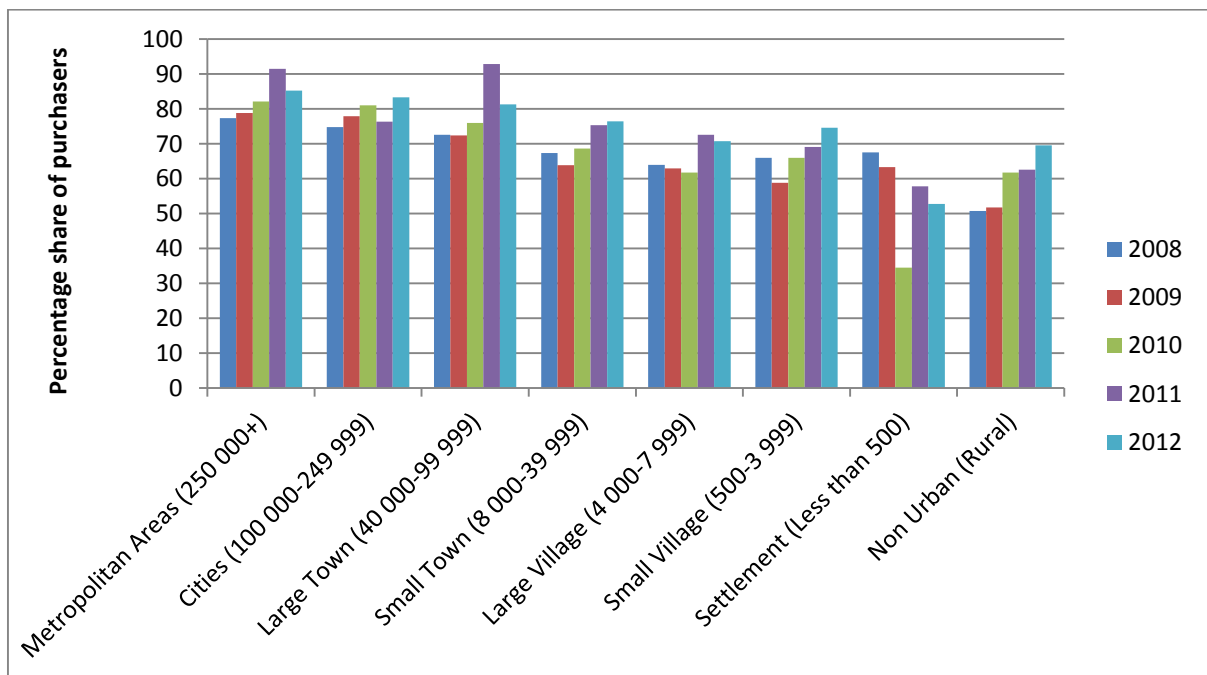


Figure 3.7: Fast food purchasers by community type for South Africa from 2008 to 2012

Source: Analytix Business Intelligence, 2013

3.8 Influence of age of the household head on food-away-from-home demand

Empirical studies have found that age is a significant determinant of FAFH expenditure. Younger people spend comparatively more on fast food restaurants than full service restaurants, while the opposite is true for older people (Byrne, Capps and Saha, 1998). However, the age factor is complicated because there is uncertainty as to whether or not different generations will retain their eating habits or not. It is likely that an elderly person in 2050 will not have the same expenditure patterns as an elderly person in 2013 (Stewart *et al.*, 2004). Ma *et al.*, (2006) found that age also affects the relationship between income and FAFH demand in urban China. The expenditure elasticities for the demand of FAFH is highest for individuals over 50 (2,28), however, a decreasing trend is observed from younger people less than 20 (1,71) to older people between the ages of 36 and 50 (1,68). Additionally, if the income of individuals over 50, in Spain, falls, they will most likely reduce their demand for FAFH (Angulo, Gil and Mur, 2002).

Although younger generations may have less knowledge of food preparation, they have a greater variety of prepared foods and convenience appliances to assist with the preparation of FAH (Stewart *et al.*, 2004). Stewart and Yen (2004) make the point that households with older managers are likely to cook more meals if learning improves the efficiency of preparing meals at home. This means that younger managers may purchase more convenient options such as fast food. Surprisingly, Blisard (2001) found that different generations maintain similar FAH eating habits at the same points in their lives. Figure 3.8 below, illustrates that the share of fast food purchasers in South Africa by age category is similar to the findings of Ma *et al.* (2006) because younger people, from 20 to 50 years old, purchase more FAFH than older people who are over 50 years old. Similarly, Angulo, Gil and Mur (2002) found that Spanish households headed by a person younger than 55 are most likely to purchase FAFH. Furthermore, the share of fast food purchasers has increased for all age categories over the period from 2008 to 2012.

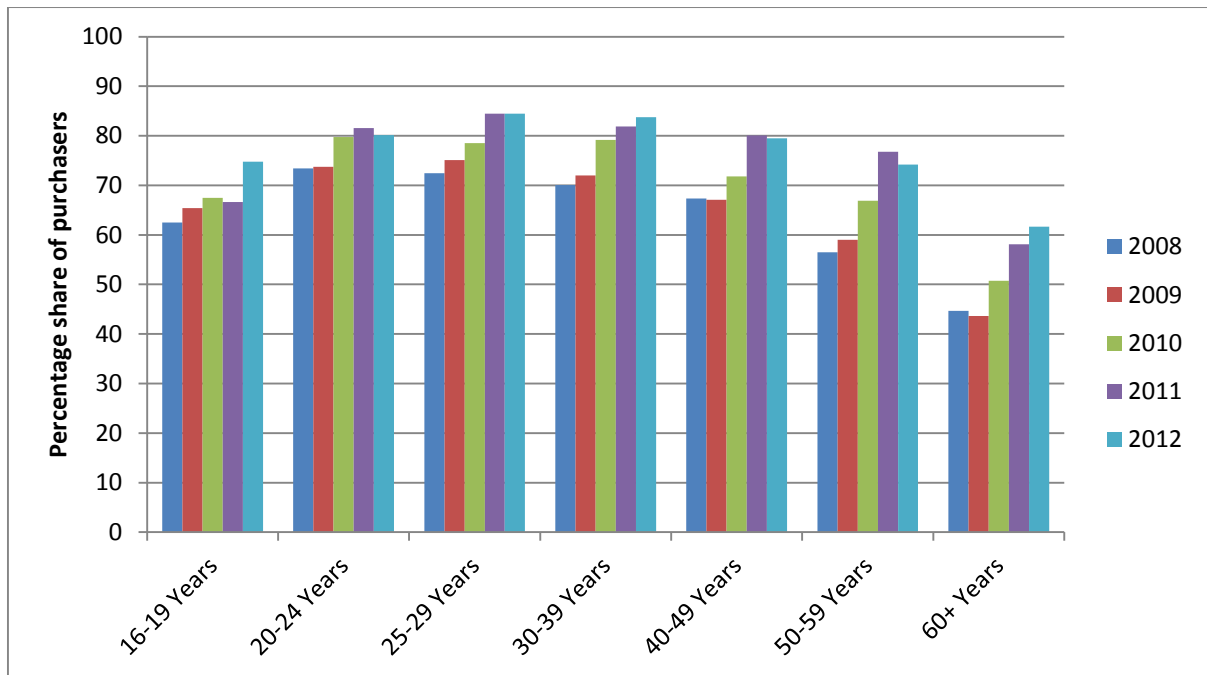


Figure 3.8: Fast food purchasers by age group in South Africa from 2008 to 2012

Source: *Analytix Business Intelligence, 2013*

3.9 Conclusion

Globally, FAFH expenditure is increasing. This has been attributed to rising incomes, urbanisation, changing household characteristics (such as working women, single-parent households, smaller families, couples without children and singles) and immigration. In China, urban population growth has been the primary driver of increased food expenditure given that per capita food expenditures have grown slowly.

Studies reveal that economic and socio-demographic factors have an important bearing on FAFH consumption, such factors include: household size, family composition, age, education, race, region and urbanisation. South Africa has also been exposed to changes in the demographic factors which stimulate the demand for FAFH and is illustrated by the trend in household structures where single-person households, single-parent families and households with multiple adults without a live-at-home child comprise the majority of the adult population and consequently the

majority of fast food purchasers. Furthermore, the number of people purchasing fast food in South Africa has increased over the period of 2008 to 2012.

The LSM (Living Standard Measure) category plays a role in the consumption of fast food in South Africa because the share of fast food purchasers increases as the LSM category increases. If the LSM is seen as a proxy for income, then the demand for fast food increases as incomes increase. The number of fast food purchases in South Africa decreases as the number of people bought for increases. This is akin to the notion that FAFH demand decreases as the number of people in a household increases. Gender does not appear to significantly influence the demand for fast food.

Population group plays a role in the consumption of fast food in South Africa because the share of fast food purchasers according to population group differs between groups. Urban centres in South Africa have a greater share of fast food purchasers than rural areas.

The next chapter examines the findings of previous studies with respect to the effects of income and socio-demographic variables on demand for FAFH. The findings of previous studies estimating the income elasticity of expenditure are covered. The income elasticity of expenditure for FAFH is an important measure because it determines which stage of the industry lifecycle an industry is operating in and whether a good is a luxury or normal good. This has important consequences for firms in the FAFH industry because findings of this nature can assist firms in the foodservice industry to identify potential customers, respond to current customers' changing demands and develop marketing and operational strategies which are responsive to industry trends and the lifestage in which the industry finds itself. Additionally, policy makers will be able to use this information to address the nutrition and health implications of FAFH consumption.

Chapter 4

Review of methodologies used to determine the effects of income and socio-demographic variables on demand for food-away-from-home

4.1 Introduction

This chapter reviews the methods used to estimate the demand elasticities for FAFH expenditure in studies conducted for other countries. The theoretical models used to explain the composition of consumer expenditure on FAFH include the household production theory (Becker, 1965; Lancaster, 1971) and the discrete random utility theory (Pudney, 1989). The data sources used consist primarily of household level surveys. The econometric processes used include the tobit model, univariate and multivariate tobit models, Box-Cox double-hurdle models and a linear model.

4.2 Methodologies used to evaluate the effects of income and socio-demographic factors on food-away-from-home expenditure

Ma *et al.* (2006) used both univariate and multivariate tobit models to conduct their analyses of FAFH expenditure for urban China. Individual FAFH expenditure was recorded using a survey conducted by the authors. The authors conclude that the differences between the univariate and multivariate tobit models are not too great such that the two sets of estimates are inconsistent.

Bai *et al.* (2010) explored the FAFH market in Beijing with reference to the effects of wealth, time and “free” meals. The authors surveyed respondents to obtain a data set. A modified Becker (1965) household production and consumption model was applied. A Box-Cox double-hurdle model was estimated to investigate household expenditure on FAFH and its determinants in Beijing. The authors consider FAFH consumption to be determined by two decisions, the first is whether or not to consume FAFH (participation decision) and the second is how much to spend given

that the decision to dine out has been made. This two-step decision feature of consumption results in the zero expenditure observations on FAFH being censored. Min, Fang and Li (2004) investigated the factors affecting FAFH expenditure for China using household-level survey data. The theory of household production (Becker, 1965) is used to derive the FAFH consumption function by maximising household utility conditional on certain constraints. Empirically estimating FAFH expenditure, in cases where there are a large number of zero expenditure observations requires that a tobit-type or a more general double-hurdle model be used. The survey data for China contains very few (less than 3%) zero FAFH expenditure observations. This is said to be due to FAFH expenditure in China being an annual amount. The estimation results of a tobit model and a simple linear model (using OLS) are almost identical. As a result, there is no need to use a censored regression model to estimate the effects of income and socio-demographic factors on FAFH expenditure for China.

Fabiosa (2008) studied the FAFH consumption expenditure pattern in Egypt. The study made use of the Egypt Integrated Household Survey (EIHS) conducted in 1997. Household production theory (Becker, 1965; Lancaster, 1971) was used as the theoretical basis for analysing the demand for FAFH. A standard univariate tobit model was used to estimate the demand model for FAFH expenditure because many survey respondents reported zero FAFH expenditure.

Ham, Hwang and Kim (2004) made use of the utility-maximising household production-consumption theory (Lancaster, 1971) as the basis for comparing Korean and US FAFH expenditure. Tobit analysis was used because it is suggested as an appropriate and preferred technique for analysing censored data. The authors note that the tobit model estimates both the quantity responses of households actively consuming (conditional quantity elasticities) and the participation adjustments of exit-entry households (market participation elasticities).

Angulo, Gil and Mur (2002) made use of household production theory (Becker, 1965; Lancaster, 1971) to analyse the demand for FAFH because time is seen as an important variable in this study. The two-stage process suggested by Chamberlain (1984) was used to address the problem of including censored dependent variables

in the panel data framework. This technique simultaneously copes with serial correlation, unobserved heterogeneity, the censored nature of the dependent variable and the presence of endogenous regressors.

Stewart *et al.* (2004) made use of Becker's (1965) theory of household production to determine how income and socio-demographic factors affect FAFH expenditure for the US. Household level data from the CES (Consumer Expenditure Survey) was used. Shonkwiler and Yen's (1999) two-step method that estimates multiple equations simultaneously while accounting for zero-censoring was used.

Stewart and Yen (2004) used household data from the CES (Consumer Expenditure Survey) to investigate whether directing health concerns at a single segment of the industry such as fast food outlets, is acceptable or whether a more balanced view of the FAFH industry is needed. With this in mind, the authors sought to determine whether US citizens will increase their expenditure on fast food or full-service offerings. One assessment is that full-service restaurant sales will grow relatively faster than fast food sales. This is based on the assumption that population trends in the US, such as rising incomes, an aging population and smaller household sizes favour expenditure at full-service restaurants. A new full-information maximum likelihood procedure was used to estimate a system of censored expenditure equations which supported this assumption.

Stewart and Yen (2004) noted that the multivariate tobit system proposed by Amemiya (1974) accommodates censored dependent variables in an equation system, but has potentially limiting parametric restrictions because censoring is governed by the same stochastic process that determines the level of the dependent variables. The authors used a full-information maximum-likelihood (FIML) estimator because it is a more efficient alternative to the two-step estimator proposed by Shonkwiler and Yen (1999).

Liu, Kasteridis and Yen (2013) investigated the differentiated effects of economic and socio-demographic factors on FAFH expenditures by type of meal among households in the US. The empirical model is derived by extending the discrete random utility theory (Pudney, 1989). CES (Consumer Expenditure Survey) data was

used to estimate a multivariate sample selection procedure for the systems of expenditures on breakfast, lunch and dinner. A sample selection system was used in adherence to Yen (2005) and Stewart and Yen (2004) to estimate the system of expenditures to accommodate censoring in the dependent variables, to improve statistical efficiency of parameter estimates and to capture the interaction among different types of meals. The authors stated that the tobit model is undesirable for handling zero observations because the same parameters and variables determining the probability of zero and positive outcomes determine the level.

4.3 Conclusion

Household production theory is used as the theoretical basis for analysing the demand for FAFH in almost all the studies conducted. In this case, households maximise utility in the consumption of home produced goods subject to a household production function, time constraint and income constraint. The standard demand functions for market goods used as inputs in household production are derived from the solution to this optimisation problem. These demand functions can be expressed in terms of expenditures when multiplied by their respective prices.

Estimating how income and socio-demographic factors affect FAFH expenditure using OLS, which is a form of classical linear regression, leads to biased and inconsistent results when there are a large number of households with zero FAFH expenditures. Consequently the tobit and double-hurdle model have been suggested as appropriate in such circumstances. However, it has also been stated that estimating how income and socio-demographic factors affect FAFH expenditure using the standard tobit model is inappropriate as this model is undesirable for handling zero observations because the same parameters and variables determining the probability of zero and positive outcomes determine the level. The standard tobit model is only appropriate when zero expenditure observations are caused by economic factors such as high prices or low income (corner solution). The linear tobit is unsuited to model the effect of income and socio-demographic factors on FAFH expenditure patterns because the data is not normally distributed and expenditure data is often better modelled as lognormal. The two-stage model is only appropriate when a suitable exclusion restriction exists in the cross-sectional data. The double-

hurdle model should be used if zero expenditure observations are due to abstention or economic factors.

The next chapter details the data sources and methods used to estimate how income and socio-demographic variables affect FAFH expenditure patterns for South Africa. The data used is derived from the Income and Expenditure Surveys (IESs) of 2005/2006 and 2010/2011, which is conducted by Statistics South Africa and collects household-level income and expenditure information that is nationally representative. Becker's (1965) theory of household production is used as the theoretical basis to analyse the FAFH market when running a regression of FAFH expenditure. This theory is appropriate for estimating the effect of income and socio-demographic variables on FAFH expenditure because it reflects how prices, income, demographics and time constraints are able to influence a household's purchases on items such as food. Furthermore, this model considers that the costs of consumption comprise the prices and time spent eating the food, preparing the food and subsequent cleaning up. The tobit model and OLS were found to be unsatisfactory for handling zero expenditure observations of the dependent variable, while the two-stage model could not be considered because there are no appropriate exclusion restrictions in the data. This resulted in the double-hurdle model being selected. This model states that FAFH consumption is determined by two decisions, the first is whether or not to consume FAFH (participation decision) and the second is how much to spend, given that the decision to dine out has been made.

Chapter 5

Research methodology

5.1 Introduction

Data from Statistics South Africa's IESs of 2005/2006 and 2010/2011 were used to analyse the effect of income and socio-demographic variables on household FAFH expenditure for South Africa. This study makes use of survey data which means that a large number of respondents reported zero FAFH expenditure. Consequently an appropriate model that is able to handle censored data is required to estimate the effect of income and socio-demographic variables on FAFH expenditure. The double-hurdle model was chosen to estimate the effect of these variables on household FAFH expenditure for South Africa.

5.2 Data sources

Data from Statistics South Africa's Income and Expenditure of Households Surveys (IESs) of 2005/2006 and 2010/2011 were used to estimate the effect of income and socio-demographic variables on household FAFH expenditure for South Africa. The expenditure values that were used from the IESs of 2005/2006 and 2010/2011 had been deflated by Statistics South Africa (Statistics South Africa, 2008a and 2012).

The survey sample for the IESs of 2005/2006 and 2010/2011 is a representation of South African households. The IES of 2005/2006 had a sample realisation of 22 617 households, while only 21 079 households were used to estimate the double-hurdle model. The IES of 2010/2011 had a sample realisation of 27 665 households, while only 25 328 households were used to estimate the double-hurdle model. These surveys included domestic households, holiday homes and all households in workers' residences such as mining hostels and dormitories for workers. It did not include institutions such as hospitals, prisons, old-age homes, student hostels and dormitories for scholars. Furthermore, boarding houses, hotels, lodges and guest houses were also excluded (Statistics South Africa, 2008a and 2012).

The IESs of 2005/2006 and 2010/2011 were based on the diary and recall method (Statistics South Africa, 2008a and 2012). The acquisition approach was used to gather information on household expenditure. This approach accounts for the total value of all goods and services acquired, regardless of whether they were consumed or not, during a particular period, regardless of whether or not they were partly or wholly paid for during the period of collection (Statistics South Africa, 2008a and 2012). The differences and similarities between the IESs of 2005/2006 and 2010/2011 are exhibited in Appendix A.

5.3 Methodology

5.3.1 Introduction

This study makes use of the theory of household production (Becker, 1965) to analyse the demand for FAFH in South Africa. This extension of classical demand theory reflects how prices, income, demographics and time constraints are able to influence a household's purchases on items such as food (Stewart *et al.*, 2004).

The tobit model assumes that the type and quantity of consumption occur simultaneously. However, the tobit model is considered restrictive because it only allows for a zero observation due to economic factors (Angulo, Gil and Mur, 2002). Hurdle models are applicable in situations where zero dependent variable observations are due to a utility maximising choice, where the decision includes both participation and consumption decisions (Humphreys, 2013). Cragg's (1971) double-hurdle alternative to the tobit for corner-solution models has been used to model household consumption. Cragg's double-hurdle model is a more flexible alternative to the tobit model because it allows the outcomes to be determined by separate processes by including a probit model in the first hurdle and a truncated normal model in the second hurdle (Burke, 2009). The first hurdle determines the probability of a household purchasing FAFH, while the second hurdle determines the amount spent by the consumer on FAFH.

The dependent variable is household FAFH expenditure, measured in Rand, spent by the household during the sampling period which has been annualised in the IESs

of 2005/2006 and 2010/2011. The independent variables in the regression include the households' annual income, age of the head, size, gender of the head, population group of the head and settlement type. Following the estimation of Cragg's double-hurdle model, the APEs (average partial effects), which included the probability that household FAFH expenditure is greater than zero, the conditional expected value of household FAFH expenditure and the unconditional expected value of household FAFH expenditure, for the income variable and income decile groups were estimated for each IES period.

5.3.2 Theoretical framework

The theory of household production (Becker, 1965) holds that households are both producing and utility-maximising units. This extension of classical demand theory reflects how prices, income, demographics and time constraints are able to influence a household's purchases on items such as food. Furthermore, this model considers that the costs of consumption comprise the prices and time spent eating the food, preparing the food and subsequent cleaning up. Consequently, a household must make a decision to spend time on all the aspects involved in consuming a meal (i.e. preparing FAFH), or outsource some aspects such as preparation and cleaning up (i.e. purchasing FAFH). However, the optimal decision is subject to constraints which include the household's finances, the opportunity cost of the household manager's time and the cooking abilities of the household manager.

5.3.3 Econometric procedures

The large number of zero FAFH expenditure observations requires that the censored dependent variable receive appropriate treatment. Estimating a model for FAFH expenditure where a large number of zero expenditure observations are present faces significant econometric problems. Ordinary least squares (OLS), which is a form of classical linear regression results in biased and inconsistent results because of the large number of households where FAFH expenditures may be zero. OLS would reduce the sample size by removing those households where FAFH consumption is zero, thus reducing the sample size and consequently the efficiency of estimation (McCracken and Brandt, 1987).

Angulo, Gil and Mur (2002) note that the three primary reasons for zero expenditure observations are: (i) consumers are unable to purchase the product at current prices and income levels (corner solution), (ii) the survey period is too short for reporting expenditure amounts (infrequency of purchase) and, (iii) consumers have no interest in purchasing the product (abstention). The survey period for the IES is a year, thus the infrequency of purchase rationale is not appropriate for this study. The tobit model is convenient, however its inherent weakness is that the choice of $y > 0$ and the value of y , given that $y > 0$, is determined by the same vector of parameters. This means that the sign of a certain determinant's marginal effect will be the same on both the probability that $y > 0$ and the expectation of y , conditional or otherwise (Burke, 2009). The standard tobit model can be represented by

$$y_i = \begin{cases} 0, & \text{if } y_i^* \leq 0 \\ y_i^*, & \text{if } y_i^* > 0 \end{cases}$$

and

$$y_i^* = \alpha + X_i\beta + \varepsilon_i,$$

where y_i^* is a latent variable representing household FAFH expenditure; and x is a set of explanatory variables. The explanatory variables used in this study include households' income, size, age of the head, gender of the head, population group of the head and the settlement type. β is a vector of parameters to be estimated while ε_i is the independently identically distributed error with mean of zero and variance of sigma (Cameron and Trivedi, 2010). Independent double-hurdle models are estimated for this study.

Cragg (1971) provided a different option which incorporates the probit model to determine the probability that $y > 0$ and the truncated normal model for given positive values of y ,

$$f(w, y | x_1, x_2) = \{1 - \Phi(x_1\gamma)\}^{1(w=0)} [\Phi(x_1\gamma) (2\pi)^{-\frac{1}{2}} \sigma^{-1} \exp\{-(y - x_2\beta)^2 / 2\sigma^2\}] / \Phi\left(\frac{x_2\beta}{\sigma}\right)^{1(w=1)}$$

where w is a binary indicator equal to 1 if y is positive and 0 otherwise. It is important to observe that in Cragg's model the probability of $y > 0$ and the value of y , given $y > 0$, are now determined by different mechanisms (the vectors γ and β ,

respectively). Additionally, elements x_1 and x_2 have no restrictions which allows for the possibility that each decision is determined by a different vector of explanatory variables.

Cragg's model makes it possible to obtain the same probabilities and expected values as with the tobit model by means of an updated functional form. The following equations follow the notation of Burke (2009). The probabilities regarding whether y is positive are:

$$P(y_i = 0 | x_{1i}) = 1 - \Phi(x_{1i}\gamma) \quad (1)$$

$$P(y_i > 0 | x_{1i}) = \Phi(x_{1i}\gamma) \quad (2)$$

The expected value of y , conditional on $y > 0$ is

$$E(y_i | y_i > 0, x_{2i}) = x_{2i}\beta + \sigma \times \lambda(x_{2i}\beta/\sigma) \quad (3)$$

where $\lambda(c)$ is the inverse Mills ratio (IMR)

$$\lambda(c) = \phi(c)/\Phi(c)$$

where ϕ is the standard normal probability distribution function and Φ is the standard normal cumulative distribution function. The unconditional expected value of y is

$$E(y_i | x_{1i}, x_{2i}) = \Phi(x_{1i}\gamma) \{x_{2i}\beta + \sigma \times \lambda(x_{2i}\beta/\sigma)\} \quad (4)$$

The partial effect of an independent variable, x_j , around the probability that $y > 0$, for a particular observation is

$$\frac{\partial P(y > 0 | x_1)}{\partial x_j} = \gamma_j \phi(x_1 \gamma) \quad (5)$$

where γ_j is the element of γ representing the coefficient on x_j . Equations (1), (2), and (5) are the same as the probabilities and partial effect from a probit regression of w on x_1 .

The partial effect of an independent x_j on the expected value of y , given $y > 0$, is

$$\frac{\partial E(y_i | y_i > 0, x_{2i})}{\partial x_j} = \beta_j \left[1 - \lambda\left(\frac{x_2 \beta}{\sigma}\right) \left\{ \frac{x_2 \beta}{\sigma} \right\} + \lambda\left(\frac{x_2 \beta}{\sigma}\right) \right] \quad (6)$$

where β_j is the element of β representing the coefficient on x_j . Equations (3) and (6) are equal to the expected values and partial effect from a truncated normal regression of y on x_2 , noting that the effect is conditional on y being positive.

The partial effect of an independent x_j on the unconditional expected value of y is somewhat trickier, because it depends on whether x_j is an element of x_1, x_2 or both.

First, if x_j is an element of both vectors, the partial effect is

$$\frac{\partial E(y|x_1x_2)}{\partial x_j} = \gamma_j \phi(x_1\gamma) \times \left\{ x_2\beta + \sigma \times \lambda\left(\frac{x_2\beta}{\sigma}\right) \right\} + \Phi(x_1\gamma) \times \beta_j \left[1 - \lambda\left(\frac{x_2\beta}{\sigma}\right) \left\{ \frac{x_2\beta}{\sigma} + \frac{\lambda x_2\beta}{\sigma} \right\} \right] \text{ if } x_j \in x_1, x_2 \quad (7)$$

If x_j is only determining the probability of $y > 0$, then $\beta_j = 0$, and the second term on the right-hand side of (7) falls away. Conversely, if x_j is determining the value of y , given that $y > 0$, then $\gamma_j = 0$, and the first right-hand side term in (7) falls away. In either circumstance, the marginal effect will remain a function of parameters and explanatory variables in both hurdles of the regression.

5.3.4 Computational processes

The variables that were used in the 2005/2006 and 2010/2011 regressions are consistent with those that appear in previous work. The dependent variable is lognormal household FAFH expenditure (in 2005/2006 and 2010/2011 Rand). The explanatory variables include: (i) lognormal household income (in 2005/2006 and 2010/2011 Rand); (ii) a gender dummy of the household head (0=Male and 1=Female); (iii) population group of the household head (1=African/Black, 2=Coloured, 3=Indian/Asian and 4=White); (iv) age of the household head, (v) household size; (vi) and settlement type being Rural or Urban in the IES of 2005/2006, and Urban formal, Urban informal, Traditional area and Rural formal in the IES of 2010/2011.

The base categories used in the regressions include Male for the gender of the household head dummy variable, African/Black for the population group of the household head categorical variable and Urban for the settlement type dummy variable in 2005/2006 and Urban formal for the settlement type categorical variable in 2010/2011.

The consumption and income amounts in the IESs of 2005/2006 and 2010/2011 that were used had already been annualised and deflated/inflated to March 2006 and 2011 prices respectively, using the Consumer Price Index (CPI). The COICOP (classification of individual consumption according to purpose) code lists were used to identify the household FAFH expenditure amounts, which are aggregated for the 2010/2011 period and are classified into different categories in the 2005/2006 data (Statistics South Africa, 2008a and 2012). Annualised consumption and income amounts were separated into different income and expenditure types, represented by codes. These separated amounts were aggregated to obtain total amounts.

After constructing the necessary variables, tables comparing FAFH expenditure to the households' characteristics were constructed, followed by estimating Cragg's double-hurdle model for each IES period. Subsequently, the APE (average partial effect), reported as elasticities, was calculated for the income variable. The APE determines the probability of purchasing FAFH and the income elasticities (conditional and unconditional) of expenditure on FAFH.

Chapter 6

Research findings

6.1 Introduction

Cragg's double-hurdle model was used to estimate the effect of income and socio-demographic variables on household FAFH expenditure for South Africa. This chapter discusses FAFH expenditure by providing a descriptive analysis of the effect of the chosen socio-demographic variables and income on FAFH expenditure in South Africa. Furthermore, the household income elasticity of expenditure for FAFH is estimated. This is an important measure because it determines the maturity of an industry, which is important for developing appropriate marketing strategies.

6.2 Correlation between food-away-from-home expenditure and household characteristics

Table 6.1 below shows that for the IESs of 2005/2006 and 2010/2011 annual household FAFH expenditure initially decreases as income increases and then increases. A significant increase in expenditure at higher levels of income is observed. The comparatively high value of household FAFH expenditure for income decile 1 could be attributed to these households receiving social support in the form of feeding schemes at schools and community centres, and receiving company sponsored meals when they are employed. These meals are often prepared by private catering firms. On the whole, household FAFH expenditure increases as income increases. This was expected given that many studies (for example Yen, 1993; Ma *et al.*, 2006; Bai *et al.*, 2010; Ham, Hwang and Kim, 2004) have found that FAFH expenditure increases with increasing incomes. Additionally, Table 6.1 shows that the budget share of FAFH expenditure, on the whole, decreases as the income decile increases.

Table 6.1: Food-away-from-home expenditure by income decile expressed in Rand

Income decile	IES of 2005/2006			IES of 2010/2011		
	Mean income value	Mean value of FAFH expenditure	Budget share of FAFH expenditure	Mean income value	Mean value of FAFH expenditure	Budget share of FAFH expenditure
1	4 337,20	316,80	0,027	4 573,94	621,70	0,029
2	9 198,25	180,18	0,010	12 860,71	566,43	0,020
3	12 187,97	121,74	0,0069	18 480,79	583,67	0,019
4	15 639,42	197,65	0,0085	25 587,86	576,94	0,016
5	20 134,79	142,30	0,0053	33 807,17	666,17	0,016
6	25 881,04	189,64	0,0054	47 652,90	877,73	0,017
7	35 232,96	255,82	0,0063	68 221,03	1 076,41	0,016
8	53 507,29	358,25	0,0059	101 549,30	1 589,00	0,018
9	96 525,54	632,58	0,0055	179 883,80	2 444,13	0,015
10	308 796,30	1 356,95	0,0038	485 340,50	4 864,14	0,015

Table 6.2 below shows that household FAFH expenditure, on the whole decreases with increasing age of the household head. However, age category 1 (0-16 years old) for both the IES of 2010/2011 is the notable exception, where the head of the household would be considered a minor, and as such would likely depend on grants or support from others to survive. Stewart and Yen (2004) make the point that households with older managers are likely to cook more meals if learning improves the efficiency of preparing meals at home. This means that younger managers may purchase more convenient options such as fast food. Ma *et al.* (2006) found that in urban China, people from 20 to 50 years old consume more FAFH than people who are over 50 years old. Similarly, Angulo, Gil and Mur (2002) found that Spanish households headed by a person younger than 55 are most likely to purchase FAFH.

Table 6.2: Food-away-from-home expenditure by age category expressed in Rand

Age category	IES of 2005/2006	IES of 2010/2011
	Mean value of FAFH expenditure	Mean value of FAFH expenditure
1 (0-16 years)	972,04	526,42
2 (17-19 years)	637,96	1 084,81
3 (20-24 years)	589,50	1 173,75
4 (25-29 years)	598,25	1 673,51
5 (30-39 years)	479,77	1 426,18
6 (40-49 years)	402,29	1 501,34
7 (50-59 years)	319,58	1 186,23
8 (60-65years)	243,56	850,16
9 (>65 years)	171,82	714,30

Table 6.3 below shows that on the whole household FAFH expenditure decreases with increasing household size. Household size category 21 for the IES of 2005/2006 and categories 11 and 14 for the IES of 2010/2011 are the noticeable exceptions to the overall trend, however there are comparatively less observations in these categories. The overall relationship between household size and FAFH expenditure is in agreement with Gould and Villarreal (2006) who found that FAFH expenditure in urban China is positively related to income and inversely related to household size, and Min, Fang and Li (2004) who confirm that household size is a key factor in determining FAFH consumption in China. The explanation for this relationship is that households with more members will find preparing meals at home more economical than FAFH, which was illustrated to be true by McCracken and Brandt (1987). Bulk purchases of food items can save larger households money because the per-unit cost of food is reduced with larger pack sizes. Contrary, single-person households are likely to have the highest cost, monetary and time, to eat at home (Stewart *et al.*, 2004).

Table 6.3: Food-away-from-home expenditure by household size expressed in Rand

Household size	IES of 2005/2006	IES of 2010/2011
	Mean value of FAFH expenditure (per household)	Mean value of FAFH expenditure (per household)
1	732,85	1 512,93
2	496,03	1 332,29
3	357,09	1 344,27
4	358,97	1 351,99
5	238,30	1 083,99
6	154,07	953,35
7	148,72	770,53
8	101,78	740,39
9	88,23	776,93
10	97,97	573,82
11	131,41	1 227,97
12	61,04	447,80
13	104,97	858,65
14	56,33	2 067,09
15	93,61	555,82
16	61,19	770,86
17	40,67	513,13
18	23,13	0
19	87,18	0
20	85,20	318,60
21	1 236,00	0

Table 6.4 below shows that male-headed households are likely to spend more on FAFH than female-headed households. This is supported by previous studies (Ham, Hwang and Kim, 2004; Binkley, 2005; Nayga and Capps, 1994) which have found that women are less likely to spend on FAFH than males.

Table 6.4: Food-away-from-home expenditure by gender of the household head expressed in Rand

Gender	IES of 2005/2006	IES of 2010/2011
	Mean value of FAFH expenditure	Mean value of FAFH expenditure
Male	482,73	1 499,27
Female	245,67	901,87

Table 6.5 below shows that White-headed households are likely to have the highest expenditure on FAFH, followed by Indian/Asian-, Coloured-, and finally African/Black-headed households. Previous studies suggest that there is a difference in FAFH expenditure between different population groups because of different eating habits, tastes and access to foodservice establishments (Liu, 2011; Stewart *et al.*, 2004). The results obtained for the IESs of 2005/2006 and 2010/2011 are different to those appearing in Analytix Business Intelligence's report. This can be explained by the differences in the data used. The IESs contain income and expenditure information at the household level while Analytix Business Intelligence's report contains information on the number of purchasers, not the Rand amounts of purchases made, for each population group. Furthermore, the IESs contain information on total FAFH expenditure, while Analytix Business Intelligence's report analyses fast food purchases only.

Table 6.5: Food-away-from-home expenditure by population group of the household head expressed in Rand

Population group	IES of 2005/2006	IES of 2010/2011
	Mean value of FAFH expenditure	Mean value of FAFH expenditure
African/Black	254,90 (30,49% of households purchased FAFH)	878,36 (36,17% of households purchased FAFH)
Coloured	357,31 (31,56% of households purchased FAFH)	1 503,03 (38,34% of households purchased FAFH)
Indian/Asian	706,42 (40,80% of households purchased FAFH)	2 005,03 (36,32% of households purchased FAFH)
White	1 358,80 (59,98% of households purchased FAF)	4 237,68 (56,95% of households purchased FAFH)

Table 6.6 below shows that for the IES of 2005/2006 urban households are likely to have greater expenditure on FAFH than rural households while for the IES of 2010/2011 urban formal households are expected to have the highest expenditure on FAFH, followed by households in urban informal, rural formal and finally traditional areas. Thus, urban households spend more on FAFH than rural households. Urban residents are likely to have higher FAFH expenditures because of their greater access to FAFH facilities (for example McCracken and Brandt, 1987; Prochaska and Shrimper, 1973; Yen 1993).

Table 6.6: Food-away-from-home expenditure by settlement type of the household expressed in Rand

IES of 2005/2006		IES of 2010/2011	
Settlement type	Mean value of FAFH expenditure	Settlement type	Mean value of FAFH expenditure
Urban	532,14	Urban formal	1 712,32
Rural	181,97	Urban informal	729,86
		Traditional area	537,04
		Rural formal	850,35

6.3 Regression analysis

Table 6.7 below illustrates the results of Cragg's double-hurdle model performed for the IES of 2005/2006. The probit regression illustrates which variables affect the decision to purchase FAFH. The truncated normal linear regression illustrates which variables affect the amount of expenditure on FAFH. Therefore, households headed by younger White females with a small household size and living in an urban settlement are most likely to participate in the FAFH market. However, households already purchasing FAFH headed by younger White males with a small household size and living in an urban settlement are likely to have the highest expenditure on FAFH. An increase in income is small and positive with regard to participation in the FAFH market and expenditure on FAFH by participating households.

The results of the probit regression show that an increase in income increases the predicted probability of purchasing FAFH. Increases in the age of the household head and household size decrease the probability of purchasing FAFH. A female-

headed household has a higher predicted probability of purchasing FAFH than a male-headed household. White-headed households have the highest predicted probability of purchasing FAFH, followed by African/Black-, Coloured- and finally Indian/Asian-headed households. Households in urban settlements are likely to have the highest predicted probability of purchasing FAFH, followed by households in rural settlements. The gender of the household head variable was not significant in determining the probability of purchasing FAFH.

The results for the truncated normal linear regression show that household FAFH expenditure is predicted to increase by 27 cents when the income variable increases by one Rand, *ceteris paribus*. Household FAFH expenditure is predicted to decrease by 0,9% for a yearly increase in the age of the household head, *ceteris paribus*. Household FAFH expenditure is predicted to decrease by 10,8% for each member increase in a household, *ceteris paribus*. Household FAFH expenditure for a female-headed household is predicted to be 18,1% less than when the head of the household is a male, *ceteris paribus*. Household FAFH expenditure for an African/Black-headed household is predicted to be 22,4% less than a Coloured-, 43,4% less than an Indian/Asian- and 47,2% less than a White-headed household, *ceteris paribus*. Household FAFH expenditure for a household in an urban settlement is predicted to be 26,9% more than a household in a rural settlement, *ceteris paribus*. All variables were significant in determining the amount of household FAFH expenditure.

Table 6.7: Results of Cragg's double-hurdle model performed for the IES of 2005/2006

VARIABLES	Decision to purchase FAFH	Expenditure	sigma
LOG(Income)	0,272*** (0,00959)	0,270*** (0,0144)	
Age	-0,00886*** (0,000610)	-0,00944*** (0,00106)	
Household size	-0,0458*** (0,00388)	-0,108*** (0,00677)	
Female	0,0194 (0,0194)	-0,181*** (0,0327)	
Coloured	-0,187*** (0,0289)	0,224*** (0,0492)	
Indian/Asian	-0,208*** (0,0717)	0,434*** (0,112)	
White	0,116*** (0,0369)	0,472*** (0,0510)	
Rural	-0,265*** (0,0203)	-0,269*** (0,0358)	
Constant	-2,498*** (0,0988)	3,919*** (0,153)	1,288*** (0,0108)
Observations	21 079	21 079	21 079

Standard errors in parentheses

*** p<0,01, ** p<0,05, * p<0,1

Table 6.8 below illustrates the results of Cragg's double-hurdle model performed for the IES of 2010/2011. The results illustrate that households headed by younger White females with a small household size and living in urban formal settlements are most likely to participate in the FAFH market. However, households already purchasing FAFH headed by younger White males with a small household size and living in an urban formal settlement are likely to have the highest expenditure on FAFH. An increase in income is small and positive with regard to participation in the FAFH market and household expenditure by participating households.

The results of the probit regression show that an increase in income increases the likelihood of purchasing FAFH. Increases in the age of the household head and household size decrease the probability of purchasing FAFH. A female-headed household has a higher predicted probability of purchasing FAFH than a male-headed household. White-headed households have the highest predicted probability of purchasing FAFH, followed by African/Black-, Coloured- and finally Indian/Asian-headed households. Households in urban formal settlements are likely to have the highest predicted probability of purchasing FAFH, followed by households in traditional areas, urban informal and rural formal settlements. The gender of the household head variable was not significant in determining the probability of purchasing FAFH.

The results for the linear regression show that the household FAFH expenditure is predicted to increase by 17 cents when the income variable increases by one Rand, *ceteris paribus*. Household FAFH expenditure is predicted to decrease by 0,6% for a yearly increase in the age of the household head, *ceteris paribus*. Household FAFH expenditure is predicted to decrease by 4% for each member increase in a household, *ceteris paribus*. Household FAFH expenditure for a female-headed household is predicted to be 14,5% less than when the head of the household is a male, *ceteris paribus*. Household FAFH expenditure for an African/Black-headed household is predicted to be 17% less than a Coloured-, 40% less than an Indian/Asian- and 59,4% less than a White-headed household, *ceteris paribus*. Household FAFH expenditure for a household in an urban formal area is predicted to be 31,3% more than a household in an urban informal area, 43,7% more than a household in a traditional area and 26,5% more than a household in a rural formal area, *ceteris paribus*. All variables were significant in determining household FAFH expenditure.

Table 6.8: Results of Cragg's double-hurdle model performed for the IES of 2010/2011

VARIABLES	Decision to purchase FAFH	Expenditure	sigma
LOG(Income)	0,156*** (0,00643)	0,171*** (0,00890)	
Age	-0,00943*** (0,000553)	-0,00572*** (0,000849)	
Household size	-0,00871** (0,00378)	-0,0402*** (0,00574)	
Female	0,00290 (0,0172)	-0,145*** (0,0252)	
Coloured	-0,0935*** (0,0280)	0,170*** (0,0406)	
Indian/Asian	-0,291*** (0,0618)	0,400*** (0,0918)	
White	0,223*** (0,0331)	0,594*** (0,0417)	
Urban informal	-0,149*** (0,0341)	-0,313*** (0,0517)	
Traditional area	-0,134*** (0,0204)	-0,437*** (0,0312)	
Rural formal	-0,474*** (0,0464)	-0,265*** (0,0779)	
Constant	-1,421*** (0,0707)	5,893*** (0,100)	1,165*** (0,00839)
Observations	25 328	25 328	25 328

Standard errors in parentheses

*** p<0,01, ** p<0,05, * p<0,1

6.4 Estimating the household income elasticity of expenditure for food-away-from-home

The estimated income elasticities of household FAFH expenditure and the probability of purchasing FAFH for the IES of 2005/2006 were estimated over the full range of income values and according to income decile groups. The probability of purchasing

FAFH was found to be 0,0905. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,905%. The unconditional elasticity was found to be 0,611. This means that for every 10% increase in household income, household FAFH expenditure increases by 6,11%. The conditional elasticity estimated was found to be 0,270. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 2,70%. This means that an average household in the sample considers FAFH to be a normal good.

The lowest income decile group, which consists of income deciles 1 to 3, had an unconditional elasticity of 0,031. This means that for every 10% increase in household income, household FAFH expenditure increases by 0,31%. The conditional elasticity was found to be 0,0305. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 0,305%. The probability of purchasing FAFH was found to be 0,0036. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,036%.

The middle income decile group, which consists of income deciles 4 to 7 had an unconditional elasticity of 0,0637. This means that for every 10% increase in household income, household FAFH expenditure increases by 0,637%. The conditional elasticity was found to be 0,0176. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 0,176%. The probability of purchasing FAFH was found to be 0,01. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,1%.

The high income decile group, which consists of income deciles 7 to 10 had an unconditional elasticity of 0,16. This means that for every 10% increase in household income, household FAFH expenditure increases by 1,6%. The conditional elasticity was found to be 0,0725. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 0,725%. The probability of purchasing FAFH was found to

be 0,0236. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,236%.

The estimated income elasticities of household FAFH expenditure and the probability of purchasing FAFH for the IES of 2010/2011 were estimated over the full range of income values and according to income decile groups. The probability of purchasing FAFH was found to be 0,0568. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,568%. The unconditional elasticity was found to be 0,472. This means that for every 10% increase in household income, household FAFH expenditure increases by 4,72%. The conditional elasticity estimated was found to be 0,171. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 1,71%. This means that an average household in the sample considers FAFH to be a normal good.

The lowest income decile group, which consists of income deciles 1 to 3 had an unconditional elasticity of 0,198. This means that for every 10% increase in household income, household FAFH expenditure increases by 1,98%. The conditional elasticity was found to be 0,0622. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 0,622%. The probability of purchasing FAFH was found to be 0,0244. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,244%.

The middle income decile group, which consists of income deciles 4 to 7 had an unconditional elasticity of 0,237. This means that for every 10% increase in household income, household FAFH expenditure increases by 2,37%. The conditional elasticity was found to be 0,0746. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 0,746%. The probability of purchasing FAFH was found to be 0,0292. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,292%.

The high income decile group, which consists of income deciles 7 to 10 had an unconditional elasticity of 0,313. This means that for every 10% increase in household income, household FAFH expenditure increases by 3,13%. The conditional elasticity was found to be 0,107. This means that for every 10% increase in household income, for households that are already spending on FAFH, household FAFH expenditure increases by 1,07%. The probability of purchasing FAFH was found to be 0,0384. This means that for every 10% increase in household income, participation in the FAFH market will increase by 0,384%.

The estimated elasticities reveal that household FAFH expenditure in South Africa is inelastic. This means that FAFH was a normal good (necessity) for the 2005/2006 and 2010/2011 IES periods. This may be explained by the fact that healthier food substitutes cost more. For example, Temple and Steyn (2011) illustrate that a healthier food basket in South Africa costs 69% more than the standard basket. Consequently people with lower incomes are likely to purchase less healthy alternatives, which may include fast food. According to Min, Fang and Li (2004) income elasticity is a measure of the maturity of the FAFH sector which means that South Africa's FAFH sector had already reached its full potential, at least, since the 2005/2006 IES period.

The conditional elasticities computed for the IES of 2005/2006 reveal that the high income group is most responsive to increases in income followed by the low income group and then the middle income group. While the probability and unconditional elasticities reveal that the high income group is most responsive to increases in income followed by the middle and then the low middle income group. The probability, conditional and unconditional elasticities computed for the IES of 2010/2011 reveal that the high income group is most responsive to increases in income followed by the middle and then the low income group. This is consistent with other studies (for example Ma *et al.*, 2006).

6.5 Summary

Table 6.9 below compares the estimated elasticities, for both IES periods, to those of studies conducted for other countries. This table shows that the unconditional

elasticities of expenditure for FAFH in South Africa are most similar to that of Beijing and the USA, performed by Stewart *et al.* (2004), while the conditional elasticities are most similar to that of Beijing and urban China, performed by Ma *et al.* (2006). The probability elasticities computed for South Africa are significantly smaller than those of the studies conducted for other countries. This means that growth in the FAFH sector in South Africa will be driven by households with existing expenditure. A possible explanation for this is the high number of unemployed persons in South Africa, which means that there are limited numbers of new participants entering the FAFH market. On the whole, the probability of purchasing FAFH and the income elasticities of expenditure for FAFH are smaller for South African households when compared to the other studies implying that household FAFH expenditure for South Africa is less affected by changes in income.

Direct comparisons can be performed between South Africa and urban China (Liu *et al.*, 2012), urban China (Ma *et al.*, 2006) and Spain. Expenditure on FAFH for the average South African household is less responsive to changes in income when compared to urban China and Spain. Interestingly, the elasticities estimated for the earlier periods, for both urban China and South Africa, are more elastic than those of the later periods, excluding the conditional elasticity for urban China. This could imply that FAFH is being eaten more regularly than in previous years. The output of the results for estimating the elasticities for the IESs of 2005/2006 and 2010/2011 can be found in Appendix B and Appendix C, respectively.

Table 6.9: A cross-country comparison of elasticities

	Probability of purchasing FAFH			Conditional elasticity			Unconditional elasticity		
South Africa 2005/2006 (this study)	0,0905			0,270			0,611		
South Africa 2010/2011 (this study)	0,0568			0,171			0,472		
China (Min, Fang and Li, 2004)							Large city	Mid-small city	
							0,826	0,947	
Urban China (Liu <i>et al.</i> , 2012)	0,105			0,639			0,743		
Urban China (Ma <i>et al.</i> , 2006)	1,30			0,44			1,74		
Beijing, China (Bai <i>et al.</i> , 2010)	UR	R		UR	R		UR	R	
	0,12	0,15		0,32	0,46		0,43	0,61	
Spain (Angulo, Gil and Mur, 2002)							0,799		
USA (Liu, Kasteridis and Yen, 2013)	B	L	D	B	L	D	B	L	D
	0,949	1,159	1,395	0,269	1,144	2,045	0,243	1,027	1,740
USA (Stewart <i>et al.</i> , 2004)							Full-service	Fast food	
							0,64	0,32	

Note: UR (Unrestricted model), R (Restricted model), B (Breakfast), L (Lunch), D (Dinner)

Chapter 7

Conclusion and recommendations

7.1 Summary of the study

The FAFH sector in South Africa is becoming increasingly important because of its increasing presence in the diets of the country's citizens. However, very little work has been performed with regard to the industry in South Africa relating to consumer expenditure. The lack of existing knowledge regarding household FAFH expenditure represents a research gap which is investigated in this study.

The overall goal of the study is to determine the effect of income and socio-demographic factors on household FAFH expenditure for South Africa. The specific goals of the study are to determine (i) the household income elasticities (conditional and unconditional) of expenditure for FAFH, (ii) the households' probability of purchasing FAFH, and (iii) identify how the chosen socio-demographic factors which include household size, settlement type and, age, gender and population group of the household head, affect FAFH expenditure at household level.

Statistics South Africa's IESs of 2005/2005 and 2010/2011 were used. The IESs are designed to collect information on the goods and services acquired by South African households, the different sources of income, and how this income was spent.

The performance of the South African foodservice sector is analysed over a period of time to determine the possible causes of the patterns observed. This section was included because the results of the estimated regressions may provide greater clarity with regard to the industry trends observed and future trends. The performance indicators, for the most part, revealed that the two leading companies (Famous Brands and Spur Corporation) are facing deteriorating trading conditions because consumer sentiment and spending declined. This has been attributed to economic uncertainty and decreased levels of disposable income. Additionally, the middle-

class, which is the primary target market for the foodservice sector has been particularly adversely affected.

Studies reveal that economic and socio-demographic factors have an important bearing on FAFH consumption; such factors include household size, family composition, age, education, race, region and urbanisation. South Africa has also been exposed to changes in the demographic factors which stimulate the demand for FAFH, and is illustrated by the trend in household structures where single-person households, single-parent families and households with multiple adults without a live-at-home child comprise the majority of the adult population and consequently the majority of fast food purchasers. Furthermore, the number of people purchasing fast food in South Africa has increased over the period of 2008 to 2012.

If the LSM (Living Standard Measure) category is seen as a proxy for income, then the demand for fast food increases as incomes increase. This is illustrated by comparing the share of fast food purchasers for each LSM category, from LSM 1-4 to LSM 10, in 2012. The share of fast food purchasers for each LSM category was 62,23%; 75,07%; 81,20%; 85,93; 87,90%; 87,56% and 89,61% for LSM 1-4, LSM 5, LSM 6, LSM 7, LSM 8, LSM 9 and LSM 10, respectively. For the IESs of both periods household FAFH expenditure, on the whole, increases as income increases.

Fast food purchases in South Africa decrease as the number of people bought for increases. This is akin to the notion that FAFH demand decreases as the number of people in a household increases. Household FAFH expenditure for the IESs of both periods was found to be inversely related to household size. Gender does not appear to significantly influence the demand for fast food in South Africa because the difference in the share of fast food purchasers between the genders was not great. However, male-headed households were found to spend more than female-headed households for both IES periods.

In 2012, Indians had the highest share of fast food purchasers with 87% of the total adult population purchasing fast food, followed by Whites (85%), Blacks (77%) and then Coloureds (71%). It is interesting to note that the percentage of Black fast food purchasers has been increasing year-on-year from 2008 to 2012. In the case of

South Africa, income levels are largely stratified by population group, and as such population group as a factor influencing consumption may be less appropriate than income levels. For the IESs of both periods White-headed households had the highest expenditure on FAFH, followed by Indian/Asian-, Coloured-, and finally African/Black-headed households.

Urban centres in South Africa have a greater share of fast food purchasers than rural areas. For the IES of 2005/2006 urban households are more likely to participate in the FAFH market, and participating households in urban areas are likely to have greater FAFH expenditures than households in rural areas. For the IES of 2005/2006 urban households had greater expenditure on FAFH than rural households while for the IES of 2010/2011 urban formal households had the highest expenditure on FAFH, followed by households in urban informal, rural formal and finally traditional areas.

The findings of previous studies estimating the income elasticity of expenditure for FAFH are covered to determine the theoretical basis and the econometric procedures used to determine the effect of income and socio-demographic factors on FAFH expenditure. The income elasticity of expenditure for FAFH is an important measure because it determines which stage of the industry lifecycle an industry is operating in and whether a good is a luxury or normal good. This has important consequences for firms in the FAFH industry because it determines what strategies should be used.

The income elasticity of expenditure for FAFH is elastic in both Korea and China where rapid economic growth has led to a significant increase of FAFH expenditure in a relatively short period of time, and is inelastic in Egypt, the US and Spain, where economic growth has not been so precipitous. This emphasises the significant effect of income in determining FAFH expenditure patterns globally. This study determined that the income elasticity of household FAFH expenditure for South Africa is inelastic. The estimated probabilities of households purchasing FAFH was found to be 0,0905 and 0,0568 for the IESs of 2005/2006 and 2010/2011 respectively. The estimated conditional and unconditional elasticities were found to be 0,27 and 0,611, and 0,171 and 0,472 for the IESs of 2005/2006 and 2010/2011 respectively.

Household production theory is used as the theoretical basis for analysing the demand for FAFH in most of the previous studies reviewed. Consequently, Becker's (1965) theory of household production was used as the theoretical basis to analyse the FAFH market when running a regression of FAFH expenditure. This theory holds that households maximise utility in the consumption of home produced goods subject to a household production function, time and income constraint.

The large number of zero FAFH expenditure observations in the IESs of 2005/2006 and 2010/2011 required that the effect of income and socio-demographic factors on FAFH expenditure were estimated using a model that affords appropriate treatment to the censored dependent variable. OLS leads to biased and inconsistent results, while the tobit is not suitable for handling zero expenditure observations due to abstention or economic factors. Therefore, Cragg's double-hurdle model was used. Cragg's double-hurdle model is a more flexible alternative to the tobit model because it allows the outcomes to be determined by two separate processes by including a probit model in the first hurdle and a truncated normal model in the second hurdle.

7.2 Conclusions

This study is important because it provides information on the factors that determine FAFH expenditure at a time when significant changes are occurring in the global food market, and under the current socio-economic circumstances in South Africa. A study investigating how income and socio-demographic factors affect FAFH expenditure for South Africa has not been previously performed. Understanding how income and socio-demographic factors affect FAFH expenditure is fundamental for predicting and adjusting to changes in food commodity markets and food demand, developing appropriate marketing plans for FAFH firms and to identify and target specific household-types which are most at risk of suffering from ill health and poor nutrition due to consuming large amounts of FAFH, which is known to be less healthful than FAH. Consequently these results will be useful to the foodservice sector and policy makers in South Africa, in order to identify potential customers, respond to current customers' changing demands and develop marketing and operational strategies, and address important nutrition and health consequences, respectively.

The majority of results in this study are in agreement with previous studies. Income was positively correlated to participating in the FAFH market and the amount spent on FAFH, male-headed households are likely to have greater FAFH expenditures than female-headed households, FAFH expenditures are likely to differ between households headed by different population groups, decrease as the age of the household head increases, decrease as households become larger, and be greater for households in urban areas than those in rural settings.

Income, age of the household head and household size were found to be significant in determining participation and FAFH expenditure for both IES periods. Gender of the household head was not significant in determining participation in the FAFH market for both IES periods, but was significant in determining expenditure in both periods. All categories of the population group of the household head and settlement type variables were significant in determining participation and FAFH expenditure amounts for both IES periods.

An increase in income was found to increase the households' likelihood of purchasing FAFH and households' FAFH expenditure. An increase in household size and age of the household head was found to decrease households' likelihood of purchasing FAFH and FAFH expenditure. Female-headed households are more likely to purchase FAFH, and if they do purchase FAFH, they are likely to have smaller FAFH expenditures than male-headed households.

White-headed households are most likely to purchase FAFH, followed by African/Black-, Coloured- and finally Indian/Asian-headed households. However, household expenditure is likely to be highest for White-headed households followed by, Indian/Asian-, Coloured- and African/Black-headed households. For the IES of 2005/2006 urban households are more likely to participate in the FAFH market, and participating households in urban areas are likely to have greater FAFH expenditures than households in rural areas. For the IES of 2010/2011 households in urban formal settlements are most likely to purchase FAFH followed by traditional, urban informal and rural formal settlements, and households in urban formal settlements are likely to have the greatest FAFH expenditures, followed by households in rural formal, urban informal and traditional area settlements.

The results of the regressions suggest that the socio-demographic factors that affect FAFH expenditure in South Africa are for the most part the same as those affecting expenditure in other parts of the world. Furthermore, the opposite signs and different levels of significance of the gender of the household head variable illustrate the importance of using the double-hurdle model as opposed to the more restrictive tobit model. Considering the household socio-demographic factors (i.e. the age of the head, size, gender of the head, population group of the head and settlement type), South African foodservice companies would be able to apply similar business models to those of international firms to market their products, but need to consider the less pronounced role income plays in determining whether or not households participate in the market. However, differences will exist because of South Africa's multicultural population, which is not found to such an extent in countries such as South Korea.

On the whole, the estimated elasticities show that expenditure on FAFH is more responsive to increases in income for high income households compared to low income households. The additional demand conditional on purchasing FAFH is more influential than the participation effect. This means that growth in the South African FAFH market will primarily be driven by consumers with existing expenditure.

Household FAFH expenditure in South Africa is inelastic. This means that FAFH was a normal good (necessity) for the 2005/2006 and 2010/2011 IES periods and that South Africa's FAFH sector had already reached its full potential, at least, since the 2005/2006 IES period. FAFH being a normal good for the average South African household may be explained by the fact that healthier food substitutes cost more. Consequently people with lower incomes are likely to purchase less healthy alternatives, which may include fast food.

7.3 Recommendations

The estimations performed show that the South African FAFH sector is operating in a mature market. This means that the marketing strategies used should focus on brand diversification, competitive pricing regimes to equal or defeat competitors, using intensive centralised distribution centres or drop unprofitable outlets. Additionally, major growth in the sector will come from increased expenditure by households

already spending on FAFH, which would require the sector, at large, to consider lower priced, and healthier and more full-service offerings to cater for lower and higher income households respectively. However, FAFH firms have stated that consumers may say they want more healthy meals options, but do not purchase these options, causing firms to discontinue these meal options.

Policy makers need to acknowledge that expenditure on FAFH is inelastic, thus lower income households that are already consuming FAFH are likely to consume less healthier alternatives such as fast food. This is of concern because individuals susceptible to overeating are likely to become obese and suffer from other nutrition related illnesses.

The results of this study indicate that households headed by younger White males with small household sizes and living in urban formal settlements need to be targeted for nutrition education. This is especially important considering the trend of increasing FAFH consumption. This requires nutrition policy, education, and promotion strategies to prioritise improving the nutritional quality of FAFH and consumers' food choices. This education should include warnings of the often higher levels of sodium, cholesterol and saturated fats present in FAFH meals, and advice on healthier FAFH meal options such as fruits, vegetables and grilled or baked rather than fried foods. At present it seems that consumers value the nutritional content of FAH more so than FAFH. In a developing country such as South Africa, the availability of FAFH is an additional worry as far as nutrition and health is concerned. This is because FAFH can be purchased from both informal and formal vendors. Furthermore informal vendors charge lower prices, which makes FAFH readily accessible to lower income earners. A healthy diet may be prohibitively expensive for most South Africans. Therefore, the ingredients used and the method of preparation used in less healthy FAFH options needs to be monitored, such that households that are unable to afford healthier options do not consume food that has significant adverse health risks.

7.4 Limitations of the study

This study is limited to studying the effect of income and socio-demographic factors on aggregate FAFH expenditure for South Africa. This means that different meals

(breakfast, lunch and dinner) and facility types (fast food and full-service) are not differentiated in this study.

7.5 Recommendations for future research

This is the first study estimating the effect of income and socio-demographic factors on household FAFH expenditure for South Africa. This means that more focused studies could take place in the future. Future studies should focus on per capita FAFH expenditure, the effect of the lifecycle of the individual rather than age on FAFH expenditure, FAFH expenditure for different meals (breakfast, lunch and dinner) and facility types (quick- and full-service restaurants) and the effect of income and socio-demographic factors on FAFH expenditure on different food types (for example beef, chicken, lamb, potatoes and salads). However, such studies which are of a more specific nature would require improved and more focused data collection by Statistics South Africa.

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Appendix A: Differences and similarities between the IESs of 2005/2006 and 2010/2011

Distinguishing Features		IES 2005/2006	IES 2010/2011
Sample size		24 000 DUs	31 419 DUs
Sample realisation		22 617 households	27 665 households
Methodology		Diary and recall	Diary and recall
Household questionnaire		Five modules	Four modules
Diaries		Four weekly diaries	Two weekly diaries
Expenditure data collection approach	Goods	Acquisition approach	Acquisition approach
	Services	Payment approach	Payment approach
	Own production	Consumption approach	Consumption approach
Survey period		One year – September 2005 to August 2006	One year – September 2010 to August 2011
Reference period: Food expenditure		September 2005 to August 2006	September 2010 to August 2011
Visits per household		Six	Four
Classification of expenditure items		Classification of Individual Consumption According to Purpose (COICOP)	COICOP

Source: Statistics South Africa, 2012.

Appendix B: Average Partial Effects (APE) of the LOG(Income) and the LOG(Income decile groups) for the IES of 2005/2006

VARIABLES	Decision to purchase	Expenditure	
	FAFH	Conditional	Unconditional
	Probability		
LOG(Income)	0,0905*** (0,00408)	0,270*** (0,0170)	0,611*** (0,0225)
LOG(Income decile group 1)	0,0036**1 (0,00157)	0,0305*** (0,00944)	0,0310*** (0,00931)
LOG(Income decile group 2)	0,0101*** (0,000828)	0,0176*** (0,00531)	0,0637*** (0,00565)
LOG(Income decile group 3)	0,0236*** (0,000845)	0,0725*** (0,00496)	0,160*** (0,00476)
Observations	21 079	21 079	21 079

Standard errors in parentheses

*** p<0,01, ** p<0,05, * p<0,1

Appendix C: Average Partial Effects (APE) of the LOG(Income) and the LOG(Income decile groups) for the IES of 2010/2011

VARIABLES	Decision to	Expenditure	
	purchase FAFH	Conditional	Unconditional
	Probability		
LOG(Income)	0,0568*** (0,00279)	0,171*** (0,0101)	0,472*** (0,0236)
LOG(Income decile group 1)	0,0244*** (0,00426)	0,0622*** (0,0131)	0,198*** (0,0333)
LOG(Income decile group 2)	0,0292*** (0,00351)	0,0746*** (0,0134)	0,237*** (0,0288)
LOG(Income decile group 3)	0,0381*** (0,003)	0,107*** (0,0119)	0,313*** (0,0237)
Observations	25 328	25 328	25 328

Standard errors in parentheses

*** p<0,01, ** p<0,05, * p<0,1