MØAHOV

Mastergradsstudium i økonomi og administrasjon – Foretaksledelse

Consumption patterns for salmon and herring in Russia, with focus on factors influencing the total consumption frequency.

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-
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Sammendrag

Oppgaven er en kvantitativ, deskriptiv studie av sild og laksekonsum i Russland. Målet med oppgaven er å øke kunnskapsnivået rundt Russland som marked, og avdekke hvilke faktorer som påvirker konsumentens atferd.

Utgangspunktet for oppgaven er data samlet inn på vegne av Eksportutvalget for fisk, over en fire års periode. Det blir årlig utført omfattende spørreundersøkelser av respondenter i Moskva og St. Petersburg, for å øke kunnskapsnivået rundt markedspotensialet og best mulig utnytte dette.

Teorier vedrørende konsumatferd blir brukt for å forklare resultatene, sammen med tidligere forskning på lignende problematikk.

Statistikkprogrammene SPSS og Stata har blitt brukt for å estimere modeller som anslår en positiv eller negativ påvirkning på konsumfrekvensen av sild og laks.

Resultatene viste blant annet at demografiske variabler hadde en svakere påvirkning på konsumfrekvensen enn antatt. Preferansevariabler derimot, hadde en sterk påvirkning på konsumet av både sild og laks. Det var imidlertid vanskelig å anslå klare trender, da resultatene for hvert av årene ga ulike utslag på konsumfrekvensen.

Abstract

The thesis is a quantitative and descriptive study, aiming to increase the knowledge about consumption of salmon and herring in Moscow and St.Petersburg. Data collected for Norwegian Seafood Export Council (NSEC), have been used in order to establish a consumption pattern over a four-year period.

The theoretical framework has been concentrated around understanding consumer behaviour, learning about possible factors influencing final behaviour.

Using the statistical software SPSS and Stata, models were estimated in order to find positive or negative influence from a number of independent variables to the dependent variables, consumption frequency.

The findings showed among others that demographic variables played a less important role in determining consumption frequency, than assumed. Variables measuring preferences had a strong impact on consumption frequency of both herring and salmon. However we see differences in their influence depending on the years.

On the basis of the results, opportunities are created for marketing activities in order for Norwegian exporters to increase their market shares in Russia.

Preface

As a part of my master degree in business administration, with specialization in business management, I have written my master thesis during the spring of 2009.

First and foremost I want to thank my tutor, Ragnar Tveterås for great guidance and support during the whole process. His professional contributions have been important for the final product.

I would also like to thank the Norwegian Seafood Export Council and Kristin Lien for sharing valuable data and information necessary for making the thesis complete.

Last, but not least I want to thank my classmate Vytis Antanas Bogdanas for being a good support and friend during my work with the thesis. He has been an excellent discussion partner, and has taken the time to listen to my frustrations and challenges on my way in completing the thesis.

Stavanger, June 2009

Kjersti Sirnes Birkeland

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1. Introduction

My master thesis will explore how the Russian market demand and consumption for salmon and herring has developed over a four year period. The choice of master thesis is based on my growing interest in trying to understand the mechanisms of the Russian seafood market, inspired by previous courses during my master degree.

Through my work I will hopefully obtain a deeper understanding of the mechanisms of the market, and more knowledge about the Russians' eating habits, preferences and attitudes towards herring and salmon. I am also interested in learning about the possible differences between Moscow and St.Petersburg. Based on this my thesis will be:

"Can we find differences in consumption patterns of salmon and herring between Moscow and St.Petersburg? Who eats the different species, and can we estimate a trend for this consumption pattern"?

Variables such as attitude, perceptions and demographic factors can influence consumption in different ways, and for marketers it is essential to acquire knowledge about which factors that influence the final buying and consumptions decision, and whether or not these factors can be changed by e.g. advertising or information campaigns.

For Norwegian exporters to develop further in a market and improve their market shares, it is of great importance that their marketers know how to reach potential consumers, and which factors determine whether or not the consumers' perceptions about a specific fish specie is positive or negative.

In order to explore my thesis, I will use data collected by the Norwegian Seafood Export Council (NSEC). Since 2003 they have conducted comprehensive surveys in Moscow and St.Petersburg in order to learn more about the Russian market and to be able to control their existing market activities in the most profitable way.

According to NSEC, there is a perception that Moscow has a higher consumption of fish than St.Petersburg, especially salmon.

1.1 The structure of the thesis

The assignment will first present background information the development of Norwegian export of seafood and a presentation of Norwegian Seafood Export Council. Further on information about Russia, including economic situation, cuisine and market trends will be described. A presentation of relevant theories will be given, followed by previous research. It will then present the research design, data collection and sample, followed by descriptive analysis. Information about the data analysis method used follows. Furthermore, it will provide the results, a discussion, and finally the conclusion, including suggestions for further work and limitations with the research.

2. Background

Norway is one of the world's largest exporters of seafood and has experienced a significant growth the last years. We export seafood for millions of NOK to all over the world. Some of it is sold to big markets like France and Russia, and some smaller markets like Ghana (EFF, 2009b).
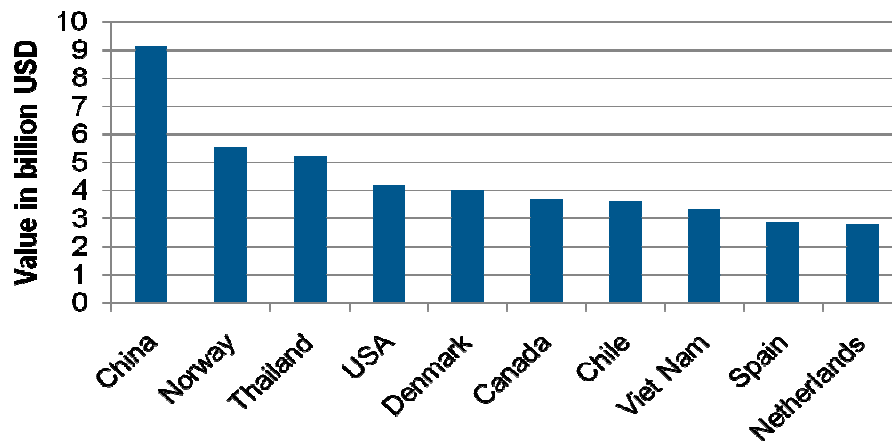
Figure 2.1: The largest export nations of seafood in 2006 (EFF, 2009b).

As the chart shows, Norway is among the export countries generating the highest values. Since 2006 the exporters experienced increased growth (EFF, 2009b). 2008 was a great year for Norwegian export, and the increase from 2007 to 2008 was valued at 2,3 billions NOK (EFF, 2009b).

In the chart below we see how the values of export have increased between 1993 and 2008. The diagram differentiates between aquaculture and wild caught fish, but we see that the distribution between them are almost equal (EFF, 2009b). Farmed fish have become more common, and it has been more accepted by the consumers in recent years (EFF, 2009b).
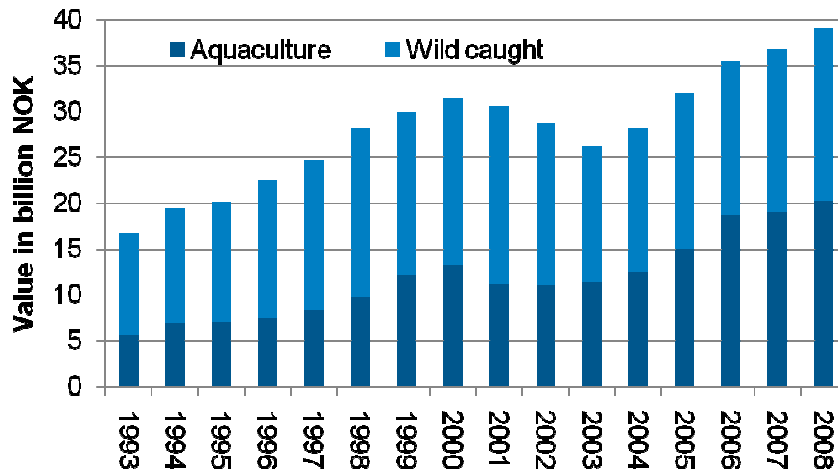
Figure 2.2 : The development of wild caught fish and aquaculture the last 15 years (EFF, 2009b)

2.1 Norwegian seafood in Russia

NSEC recently celebrated 10 years of marketing activities in Russia. Since the beginning of their work, Russia has grown to be the second largest market for Norwegian seafood. The chart below shows a growing development.
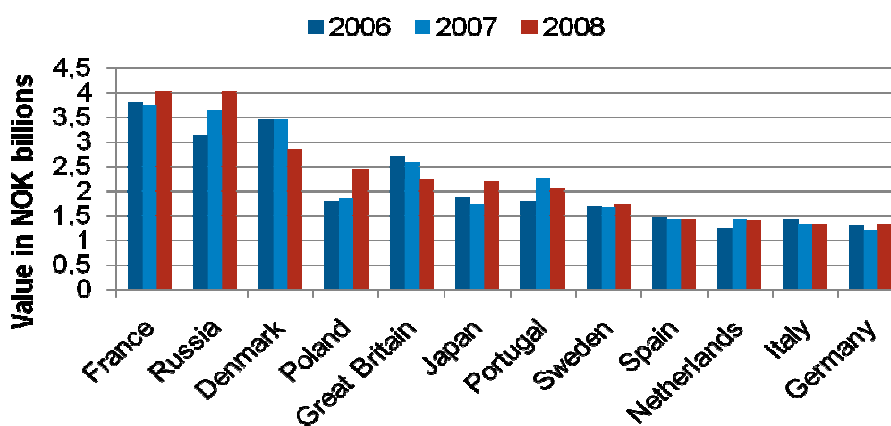
Figure 2.3: The most important markets for Norwegian export of seafood (EFF, 2009b).

In 2006, NSEC actively started marketing of seafood also outside the big cities of Moscow and St.Petersburg. In the regions the distribution is improving and more and more supermarkets are establishing outside the big cites. The growing Russian economy has given

the inhabitants improved living conditions and increased income. This gives them better opportunities to explore new and more expensive seafood (EFF, 2006).

2.2 Salmon and herring export

Salmon and herring which is the main focus of this thesis show how important the Russian market is for Norway.

Herring have traditionally been an important part of the Russian diet, but from the chart below we see a decrease in demand from 2007 to 2008. This could be put in context with the increased income level in Russia and new possibilities for trying new and exotic food. Although there are decreases in the values gained from export of herring, Russia still has a strong position as the most important market for Norway.
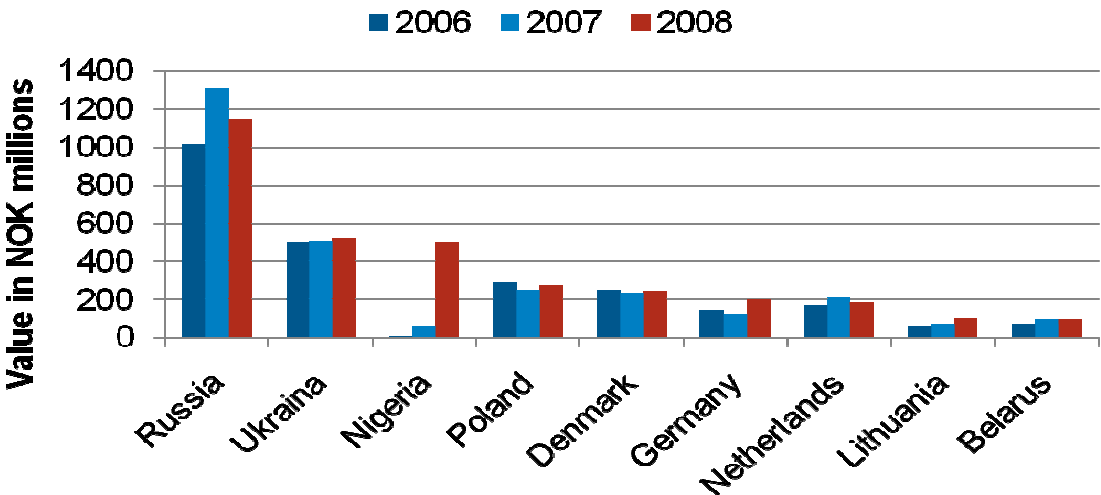
Figure 2.4: Countries of importance for the Norwegian export of herring (EFF, 2009b).

For salmon we find a different pattern. We see that France is the country representing the highest values for Norway, followed by Poland and Denmark. Still we see a growing demand from Russia the last three years. The values gained for Norwegian exporters from the trade with Russia are growing distinctively.
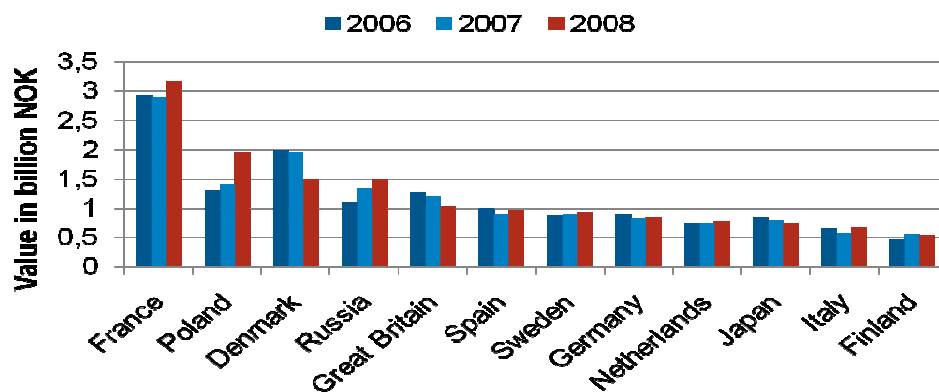
Figure 2.5: Countries of importance for the Norwegian export of salmon (EFF, 2009b).

2.3 Trends for Norwegian export

In 2009 the positive trend has continued and in the first quarter of 2009 Norway experienced a 15% growth in export of seafood compared to the same period last year (EFF, 2009a). Although the total export values have increased, there are big differences between the species sold. For salmon, trout, herring and mackerel we find an increasing demand, while cod is one of the species experiencing decreasing demand (EFF, 2009a). Higher volumes and increased price are the reasons for the growth in positive values (EFF, 2009a).

2.4 Norwegian Seafood Export Council

NSEC is a special interest organisation established in 1991 for Norwegian seafood with the aim to promote Norwegian seafood and products to potential costumers. The management in NSEC is appointed by the Ministry of Fisheries and Coastal Affairs and it is financed through a charge paid by Norwegian exporters (EFF, 2008).

A major part of NSEC's work is branding of Norwegian fish and strengthening positive perceptions of the Norwegian products. Other areas of work are securing equal competition conditions with competitors and contributing to sustainable fisheries.

They also frequently publish statistics and information about sales and export, and are an important contributor in advising and supporting Norwegian exporters in gaining their market potential. Their work is to constantly supervise markets and maintain the already established markets.

NSEC conducts their work in four main areas: marketing, market information, market access and information and PR. Their main interest is to create interest and demand for Norwegian seafood, both in Norway and the rest of the world. In the marketing areas, NSEC focuses on reaching out to different markets, through advertising and campaigns on the different species in both restaurants and retail outlets. All the necessary information about customers, markets and trends is gained from frequent surveys on different species and from different markets. This information is crucial for the work of NSEC, and through newsletters and market reports, they can easily share the information with both suppliers and customers.

2.5 Background information about Russia – market potential

Russia is a federation consisting of 140,702,096 inhabitants (CIA, 2009). The capital is Moscow, while St. Petersburg is the second largest city. The history of Russia tells us a story about many changes and different authorities. The common feature though is the attempt to adapt to western traditions, cultures and lifestyle. The latest crucial change was the dissolution of the Soviet Union in 1989, which led to an open-market economy, and a more democratisation of the country (Treadwell & Pridemore, 2004).

Russia has often been in conflict with other countries and their government. After the dissolution of the Soviet Union, Russia has experienced many positive changes. One of them is a closer contact with its neighbouring countries, which makes the foundation for long term collaboration and trade easier. In size the country is very large, and this could make fast and efficient transportation and distribution of consumer goods difficult.

Some of the apparent changes in Russia during the last ten years are the developments in the retail business. The more traditional marketplaces like street trade and open markets are being replaced by large foreign retail chains like Metro and Auchan.

The establishment of these large retailers is pushing prices and making it difficult for smaller operators to survive.

However, it also can offer a wider selection of food to their consumers, and especially fresh food is appreciated. Cooperation with foreign suppliers like seafood exporters from Norway or Chile is easier for the large retailers than the small ones, and the high volume traded, gives a significant turnover for both retailer and supplier.

2.5.1 Moscow

Moscow is the capital of Russia and one of the biggest cities in the world, with about 10 million inhabitants (CIA, 2009). The last ten years, the majority of the Russian value creation has been located in Moscow, and a growing number of multi-national companies have established themselves here. The city has developed rapidly in recent years, and have among others adopted more modern retail formats, making the city more westernized (TCG, 2004). Both large shopping centres and hypermarkets have been positively accepted in Moscow, and with a growing share of the inhabitants earning good wages, the growth is continuing.

2.5.2 St. Petersburg

The city is the second largest in Russia, with its 4.7 million inhabitants (CIA, 2009). Their geographical proximity to Scandinavia is often referred to as "Russia's gates to Europe." The industry sector has a strong position in St.Petersburg and the surrounding region, making the city attractive for foreign investors (TCG, 2004). The majority of the oil and gas companies are located here, along with several financial and industrial industries.

The establishment of retail chains is also apparent in St.Petersburg, changing the traditional grocery stores and discounters position in the city. There are registered changes in the consumer patterns according to the new establishment, and this can further change the consumer preferences (TCG, 2004). Norwegian salmon is regularly available in the new established retailers in both St.Petersburg and Moscow, and a wide selection of it, increases the opportunity for Russian consumers to choose Norwegian seafood (TCG, 2004).

2.6 The economic situation in Russia

Since the collapse of the Soviet Union and the many changes of president, Russia has experienced positive economic growth. Due to both rising oil prices in recent years and the political situation, Russia has since 1998 increased their GDP and experienced an approximate 7 % annual growth in its economy (CIA, 2009). Vladimir Putin's election in 2000 led to implementation of reforms both in the banking and the labour sector improving existing living conditions for the population. (CIA, 2009)

Due to the positive growth, Russia is becoming a more important financial actor in the global economy (CIA, 2009). Energy and raw materials are their most significant export goods, and an increased demand for these goods have lead to a general improvement in poverty in addition to a growing middle class.

Russian GDP is distributed among the three following sectors: agriculture (4.1 %), industry (41.1 %) and service sector (54.8 %) (CIA, 2009). The industry sector is comprehensive and include production of coal, oil and gas, metals and a wide range of machine building like aircraft, agriculture machinery and scientific instruments (CIA, 2009). After the Soviet era, Russia has seen a shift from an agriculture industry to a more industry based one, with focus on its great share of natural resources.

During the last 6 years, personal income has, increased with approximately 10 %, though at a slower rate in 2008. This economic growth is also apparent in the collected data where we over a four year period see a significant change between the income outcomes. Shift in social classes may possibly influence the food consumption trends in Russia, with increased awareness with regards to fresh high quality food.

Russia experienced a growing economy until the global financial crisis hit them, leading to fall in the oil prices and loss of income (CIA, 2009). The stock market fell by nearly 70 %, and the crisis is likely to influence the private consumer's economy and their ability to buy fresh products and more expensive food (CIA, 2009). Since our data is mostly from the years before the finical crisis I will not focus on this as an explanatory factor.

2.7 Marked trends for salmon and herring

A thorough background survey conducted in 2003 and 2004 for the NSEC underlines the positive development in Russia (TCG, 2004). Important trends revealed a growing interest for healthy eating, quality food and fresh products. Younger people want food that is quick, easy and of high quality. Due to the economic growth, more market players see potential in the Russian markets and especially the larger cities are noticing a radical change in the retail market. Both national and international supermarkets chains are being established in the biggest cities, and consequently there is a decline in small shops, kiosks and open markets.

According to the TCG report from 2004, there is an increasing demand for high quality food, especially fresh fish. More and more Russians spend their spare time outdoors, often in combination with a picnic or barbecuing. This creates possibilities for marketing salmon as a quick and easy meal and creates new market openings. Young people are more likely to adopt new trends, and are an important target in both marketing and research.

The shopping habits of the Russians have changed in accordance to the growth of super and hyper markets. A short description of the different shopping alternatives is giving in the following section (InfoServicesInternational, 2004):

Wet market
This kind of markets are characterised by their selection of fresh food, like fish and poultry. The markets is characterised by big open halls, with sales booths. Stronger hygiene demands the recent years, have lead to a decrease in the number of wet markets.

Universam
Originally self-serve supermarkets established during the Soviet Union, but now appears more modernized and with a wider selection than previously. They are developing into a style similar to supermarkets

Super /hyper markets:
A typically Western style stores, including a great selection of fresh products. These types of stores have experienced a rapid growth the last years in both Moscow and St.Petersburg.

Grocery stores:

These stores have are more specialized than other stores, and with focus on fresh products of high quality in addition to a smaller selection of more common and packaged food like sugar and coffee.

Which store that is preferred by the respondents is shown in the following graph, separating between years and cities.
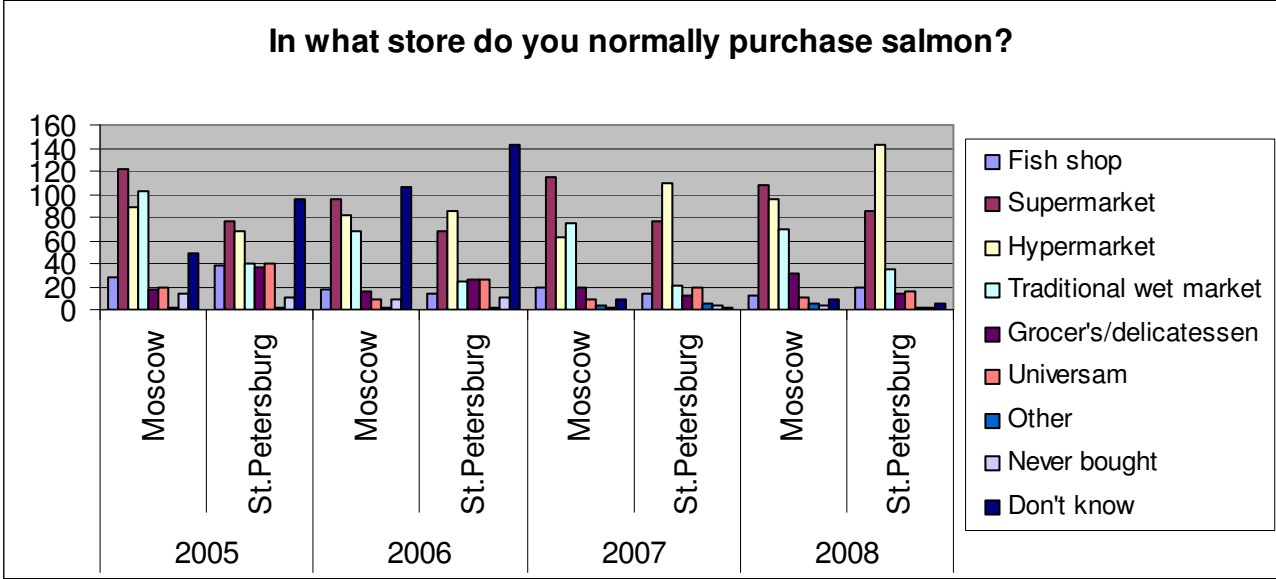
Figure 2.6: Number of respondents buying salmon in a selection of stores

The graph shows a significant change in where the respondents' purchase their salmon. The development has been most apparent in St.Petersburg, where super/hypermarket almost has replaced the fish shops and traditional wet markets. In Moscow however, there are still many of the respondents preferring wet markets when buying salmon.

For herring, the trends are not that apparent. Although supermarket is the preferred store for many of the respondents, fish shop and delicatessen also represent a big share of the selected stores. It is clear that supermarket is preferred by the majority of Moscow – respondents.
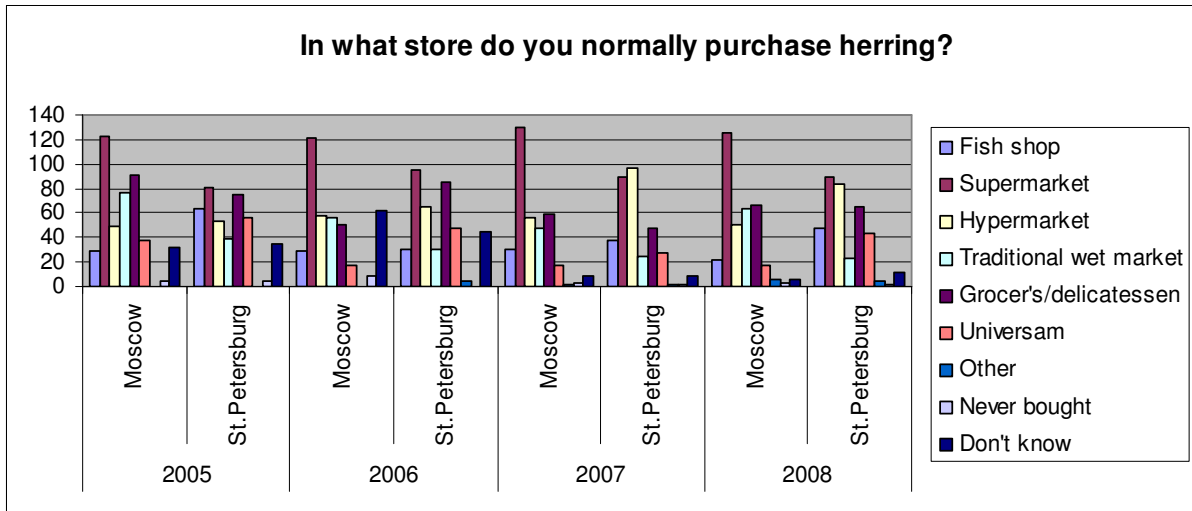
Figure 2.7: Number of respondents buying herring in the selected stores

This may be due to the long tradition for eating herring, that the respondents stick to the familiar source for herring, and that they are satisfied with the prize and selection they achieve in the traditional stores. According to Wright, Nancarrow & Kwok (2001), food preferences are closely linked to the cultural traditions in each country. The personal interaction that is more common in traditional shops can be an important factor that influences the respondents' choice of store.

The trend of consumers demanding fresh and high quality food can be the result of increased income in the average family, in combination with more knowledge about healthy lifestyle and eating habits.

Increased income gives the households better opportunities to buy and consume healthy and high quality food. The numbers below have not been adjusted according to inflation rate.
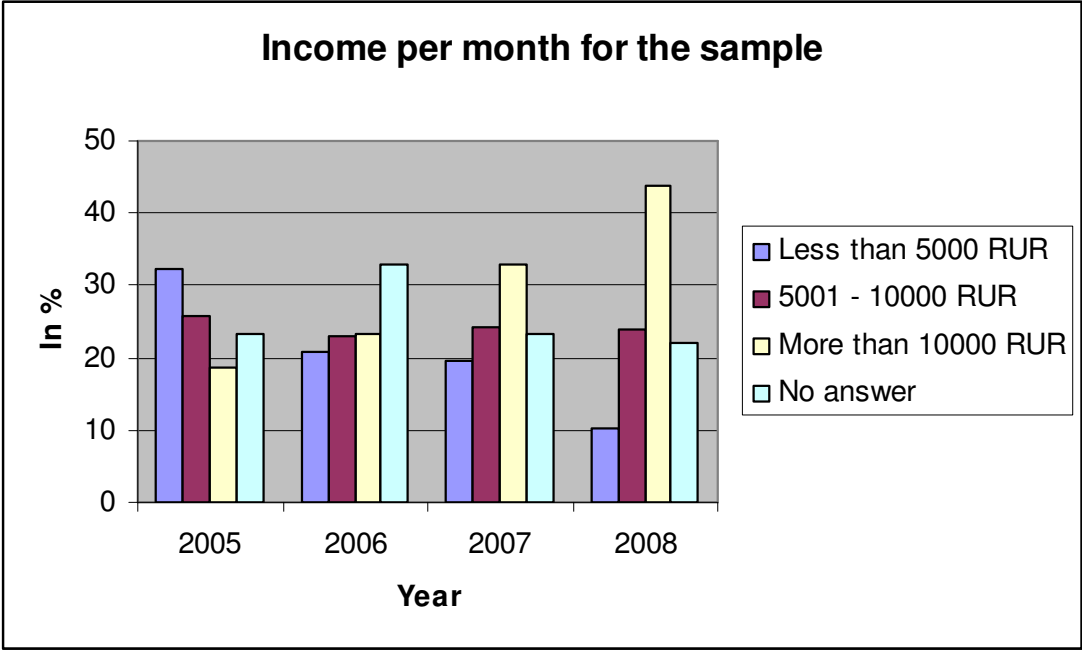
Figure 2.8 : Development of the respondents income from 2005 – 2008 (in percent)

2.8 Russian cuisine

The country has over the years had great variety in their diets, sometimes as a result of different leaderships. During the reign of Peter the Great, for instance, the country went through a westernization, including adopting some of the European food traditions (Civitello, 2004). France has influenced the country with their food, which is particularly reflected in different types of pies and pastries. Blini, which is a small pancake, topped with caviar was typically an upper-class dish. Soup in Russia have long traditions and is a big part of their diet and cultures. Vodka has also strong traditions in the Russians food culture, and different flavours like aniseed, mint and vanilla made it popular (Civitello, 2004).

The food supply in Russia is as in most countries, influenced by the climate. Traditionally, cabbage, beets, onions and potatoes have been the most common vegetables that were able to grow in the Russian climate (Civitello, 2004). In more modern times, import have made the selection of vegetables and fruit much wider, but still we find the following dishes in many Russian home and restaurants (McWilliams & Heller, 2003):

Blini – small pancakes, often filled with caviar
Borsch – soup consisting of beets and cabbage
Pirozhki – pastries filled with meat
Shchi – soup consisting of cabbage

For many elderly people these traditional dishes are a natural part of their diet and are preferred over newer and more unfamiliar food.

2.8.1 Meal habits

Based on a quality survey conducted by Honakanen & Voldnes (2006) we learn that the most of the Russians eat approximately 3 meals a day: breakfast, dinner and supper. Their dinner is often what we consider lunch in Norway, and is eaten at work. Many of the respondents reported that it was difficult to make time to prepare supper in the weekdays, and it often consisted of semi-fabricated product. Due to long working hours and a long way between home and work, the traditional suppers made from scratch were postponed to the weekends (Honkanen & Voldnes, 2006).

For salmon and herring we see different ways of both preparing and eating.

2.8.2 Salmon

We usually differentiate between fresh/frozen and salted/smoked salmon. Traditionally Russians eat salted or smoked salmon. Fresh salmon is considered to be more expensive and is more used as a festive food, and is not yet considered a regular part of the Russian diet. Currently fresh salmon is often bought for home salting, and for eating it for instanced baked. New trends are however increased awareness of the health benefits from fresh fish, and the high quality it represents (TCG, 2004). There are also indicators that salmon is a more regular part of outdoor activities, like barbecues and picnics (TCG, 2004).

2.8.3 Herring

Herring is often used as a snack or appetizer, or as a lunch meal with potatoes and onions and in different kinds of salads. Herring is often associated with vodka as side dish, an old Russian tradition. Although herring is considered traditional food in Russia, many of the respondents in the qualitative survey, did not include herring in their descriptions of traditional food (Honkanen & Voldnes, 2006).

A popular dish made by herring is, "herring under fur coat," which is a traditional Russian salad. A qualitative survey conducted on behalf of the NSEC, reveals that many Russians think that herring only can be prepared in the traditional ways, like in salads, sandwich with black bread and in combination with potatoes and pickled products (QualtiativeQuest, 2007). The same survey also reveals that the consumers want quick and easy meals and recipes where they do not need a lot of ingredients. They also unveil resistance towards new combinations of herring, and were most satisfied with combinations consisting of vegetables, egg and pickled vegetables (QualtiativeQuest, 2007).

3. Theoretical framework

In trying to establish a connection between the findings in my thesis and the established theories concerning my area of work, a presentation will be given of three important contributions in trying to understand a consumer's behaviour. Numerous theories try to explain the consumers' mindset and actions, and what influence their buying behaviour.

3.1 Daniel McFadden

Daniel McFadden (1986) presented a "black box" that showed what parts of the consumer thoughts it is possible to measure and what parts that are less approachable for the marketers

The theory describes how consumer makes their decisions, and how different factors will influences their choices. The theory also tries to explain the importance of knowledge about "the black box" for marketers, and how optimizing this can give results in increased sales figures.

His "black box" diagram gives a good indication for the many factors that influence the consumers' final decisions. The oval boxes show theoretical or latent variables. This could be the consumer's perceptions about fish and their preference regarding for example taste or type of fish. The square boxes are variables that can be directly observed and measured, this could be for instance their historical experience or the available market information. The intention of the model is to give an understanding of all the factors influencing the final market behaviour. Knowledge about this theory and model can help marketers influence the consumer's choices.

General economic theory assumes that the consumer behaviour is a result of maximization of their preferences (McFadden, 1986). McFadden (1986) is making an attempt to model the black box in order to give the marketers a quantitative forecast to use in their work. The theory was originally used only with field data, but McFadden (1986) is attempting to use the model in new and more innovative ways, using market research data. The aim of the model is

to quantify research data into probability and sales values, and in that way forecast market behaviour for the selected product.
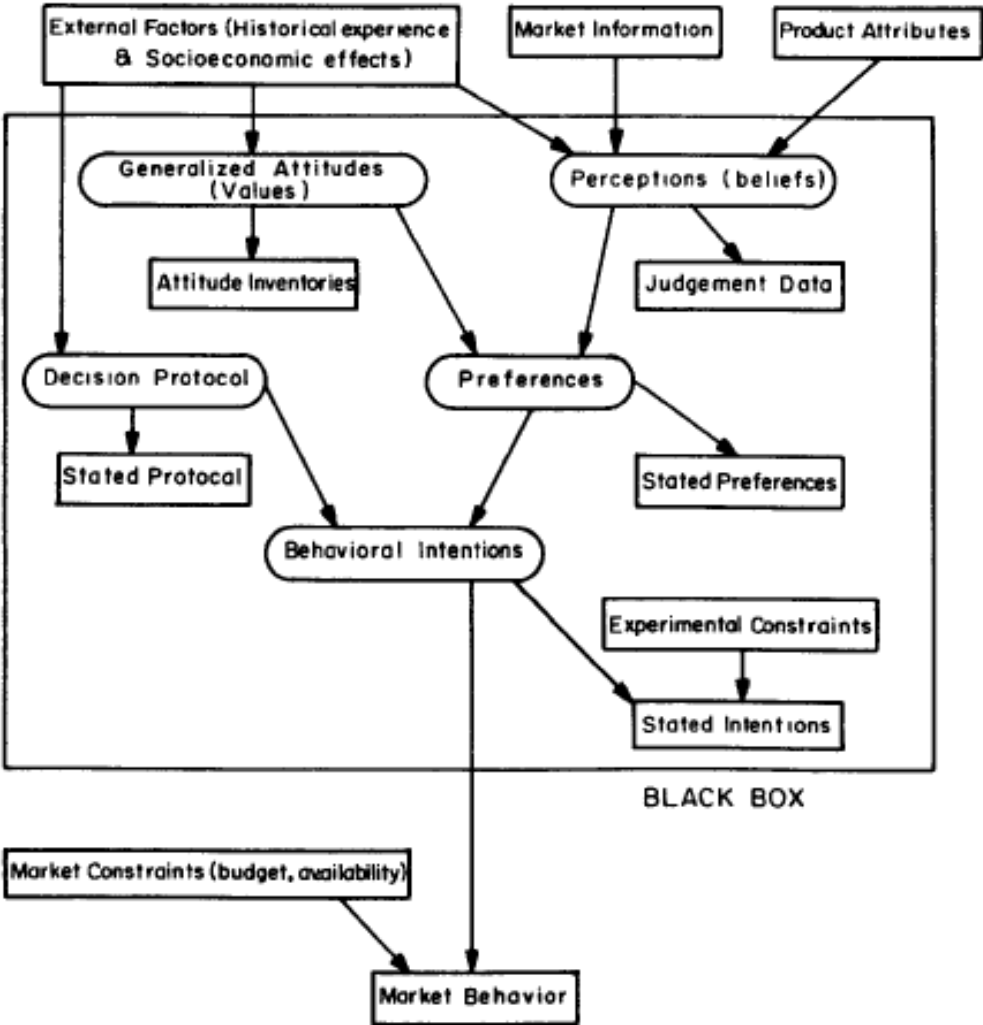
Figure 3.1: McFadden's (1986) black box

McFadden exemplifies his model by using a classic problem for marketers, i.e. how to forecast a market share for a new product. The probability for a customer choosing a particular product can be estimated by using collected data concerning both demographic variables and product- and preferences variables. This knowledge of market behaviour, makes the analysis of the market easier, as well as the actual data collection and evaluation systems for customers satisfaction (McFadden, 1986).

3.2 Phillip Kotler

Philip Kotler (2004) have written many different theories and presented different models about consumer buying behaviour. In his book "Principles of marketing", he explains his theory about the consumer behaviour and consumer market. He suggests that the consumer's decision can be divided into four different buying decision behaviours. The level of brand differences and the level of involvement needed from the consumer, will decide what they buy. Kotler (2004) also presents factors that can influence their buying behaviour.

Cultural	**Social**	**Personal**	**Psychological**
- Cultures	- Reference group	- Age and life cycle	- Motivation
- Subculture	- Family	- Occupation	- Perception
- Social class	- Roles and status	- Economics	- Learning
		- Lifestyle	- Beliefs and attitudes
		- Personality	

It is difficult for a marketer to have complete knowledge of each of these factors and how they influence the consumers. But by learning more about just a few of them, the marketers' will increase their insight and achieve a better understanding on why the consumer acts as he/ she does.

The data collection from Russia, gives us information about social, personal and psychological factors. Putting the data in context with Kotler's (2004) theory could help explain their consumption pattern on both salmon and herring, and which factors that can be positively affected in order to increase the consumption and change the habits.

For the social factors we find information about the size of the family, the children's age and the marital status. The personal factors tell us about the respondents' age, occupation, income and to some degree life-cycle. Attitudes about salmon and herring cover the psychological factor beliefs, attitudes and preferences.

A consumer can fill different roles in the buying process, and we separate between the initiator, the influencer, the decider, the buyer and the user.

According to Smetanina (2006) the Russian data, the women most often are the final decision makers and also the final buyers. Still, the family or close social groups can enter the other roles and both influence which fish type that is purchased and initiate the idea about buying fish. These will often be the final user of the fish, and their influence is based on own preferences and attitudes.

Social groups can positively or negatively influence a consumer's buying decision. We can separate between different kinds of group, primary and secondary groups, where the first are groups that the consumers are in regular contact with, like family and friends. Secondary groups are more formal and there is less interaction, like religious and organisational group (Kotler et al., 2004). In this connection family is of great importance, and the children and spouse in the household has often a direct influence on the daily buying behaviour. Although the consumer no longer lives with their parents, the influence can be apparent (Kotler et al., 2004).

The personal factors are also important in determining why consumers act like they do. As age and life-cycle changes, their attitudes and preferences often also changes. Marketing activities are often directed towards the different life-cycles, separated in young, middle-aged and older, and is further specified if they are single and if they have children. Shifting life-cycles can cause a growing demand for some products, while the demand for others decline. Establishing family e.g. can create a need for a diet that is more health conscious than before.

As well as life-cycle, will also the consumer's occupation and economic situation affect how they spend their money and their buying pattern. From the data collected about Russia, it is possible to group the occupations according to whether the consumer is employed, self-employed or other. How they spend their money on food items can among others be influenced by which group the respondents are categorized into (Kotler et al., 2004). According to Kotler et al. (2004), blue-collar workers buy different clothes than other workers, and although this example is not relevant for the Russian consumers, it shows how different preferences can depend on occupational factors.

3.3 Icek Ajzen

In addition to McFadden (1986)and Kotler's (2004) theory, I also want to further explore the theory of planned behaviour, presented by Ajzen (2005) in the 1980's. His theory has been used in many different areas in order to understand the consumer and the relation between intention and actual behaviour. Intentions to eat fish are often a good predictor of their actual consumption behaviour. However, this does not explain why their intentions are present and what factors that can influence them (Ajzen, 2005). With his theory he wants to identify the determinants of the consumer's intention in order to understand why these intentions lead to specific behaviour. He proposes three important questions in order to try to explain intentions and behaviour.

• Why do people say one thing and do another?
• Why do people behave inconsistently from one situation to another?
 • How do people translate their beliefs and feelings into actions?

The theory of planned behaviour wants to highlight to which degree a person's intention to act, actually leads to the person's action. This theory was originally presented in 1975, as theory of reasoned action, and later modified as theory of planned behaviour in 1985. There was a need for a deeper understanding of the human behaviour, and the modified theory presented an additional perceived control factor, in order to better explain this.

Ajzen (2005**)** suggests that the human intentions have their background in three different determinants: personal, social and issues of control.

The personal factors include the individual's evaluation, both positive and negative, of a certain behaviour. Showed by an example, it could be a respondent's attitude towards acting in a particular way, like eating salmon twice a week. The individual forms a negative or positive attitude towards this eating pattern.

The social issues include the individual's perception of whether or not there is a social pressure to act in a certain way. There is for example often social pressure on eating healthy, like choosing salmon as a part of their regular diet.

The third factor is concerning perceived control. When the individual feel the ability to perform the behaviour of interest, we term this perceived behavioural control.

A specific behaviour is often a result of an individual's positive perception of this behaviour, the sense of social pressure and the available means and opportunities to perform the behaviour. The weighting of the three factors can be different depending on the person, population or planned behaviour. Sometimes only two factors are necessary to perform a certain behaviour.

E.g. a female individual in Russia may have positive perceptions about eating salmon, there can be social pressure to include healthy eating in the family's diet, the prices are affordable and the selection of salmon is satisfying. All these intentions, should according to the theory lead to the female individual to perform the salmon eating behaviour.

3.3.1 Background factors for the theory of planned behaviour

Behind the three factors that determine intentions, we find background factors distributed on personal, social and information. Knowledge about background factors is crucial in order to understand the consumer. It is clear that different environment will have different influence on each consumer

Based on the collected data, there is information about both social and personal factors, which can help understand the respondents' behaviour.

As shown in the figure below, we find many background factors influencing intention and actual behaviour. Depending on the surrounding environment, individuals absorb different information about issues like social pressure, attitude and behaviour.
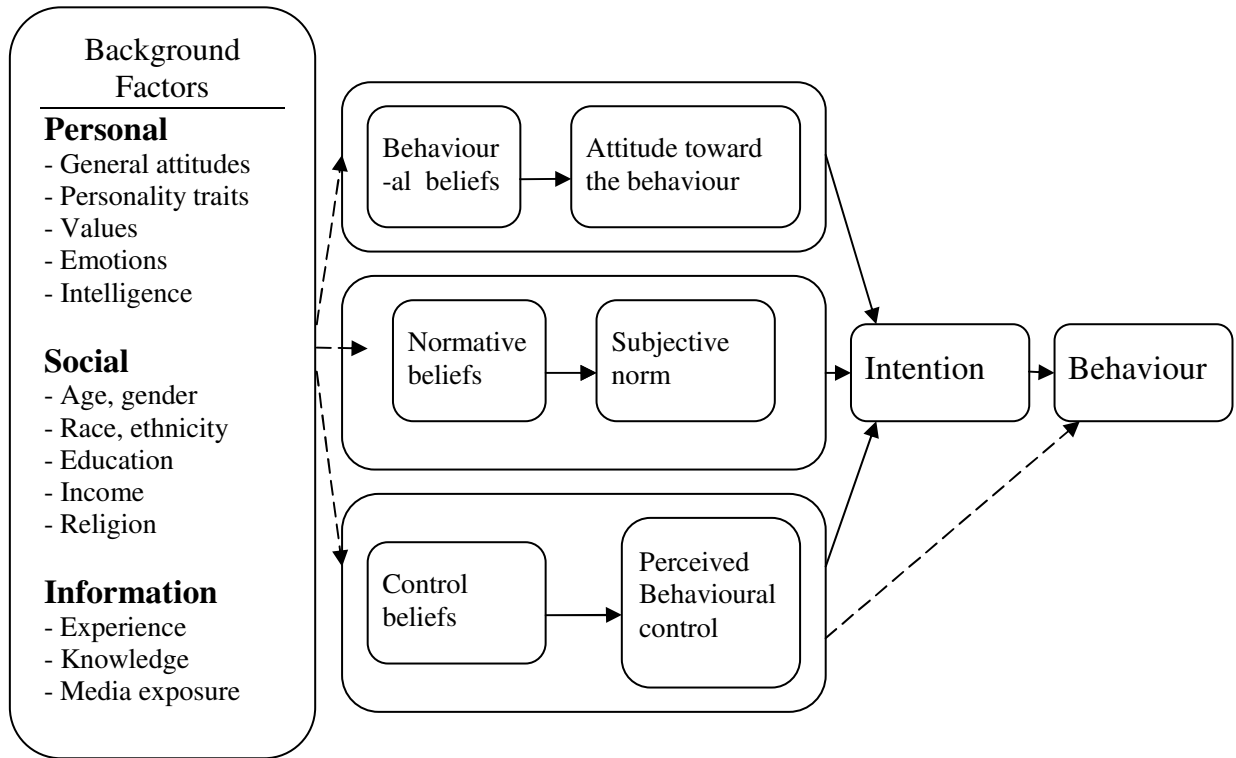
Figure 3.2: Ajzen's (2005) theory of planned behaviour.

The dotted arrows indicate that there might not be a direct connection between the factors and the final behaviour. The background factors still represent an important reason for the individual's behaviour, but not necessarily in a direct connection between the given factors and the behaviour. It is difficult to identify whether or not the factors actually influence the behaviour, and this question is not to be answered with this particular theory. The theory is still useful, in giving strong indications about what can affect the individual's intention and behaviour.

This theory has previously been used in trying to explain consumer behaviour in Belgium, regarding intention to and actual consumption behaviour of fish (Verbeke & Vackier, 2004).

4. Previous research

There is limited research concerning Russian consumption of seafood, and which factors influence a positive fish-eating behaviour. In the following three important contributions regarding fish consumption will be presented.

4.1 Russians consumers' food habits – results from a qualitative study in Moscow
 -Honkanen, P., & Voldnes, G. (2006).

From Nofima and NSEC there is a selection of publications based on their own research. One of the contributions is a qualitative study conducted by Honkanen & Voldnes (2006). It is important to notice that this is a small survey with a limited number of respondents and is not necessarily representative for the population as a whole. The study can however give a meaningful insight in the respondents' thoughts and attitudes towards eating habits and old traditions in Russia.

The researchers' findings among their 21 personal interviews reveal a significant difference between younger and older women and their eating traditions. While younger people have adopted new food trends, like sushi and more often eat their meals outside of their homes, the older women are more traditional in their choice of food, and prefer cooking at home for the family.

The majority of the respondents had three meals a day, breakfast, dinner and supper, but since most if the interviewees had a long way from home to work, they was not able to use much of their time in the kitchen. Their dinners were mostly consumed at work, and they brought their own ready–made food or went out to cafés to eat. Their dinner often consisted of soups, fish, sandwiches, salads or meat.

How the interviewees prepared their supper also varied. Some did not have supper at all, while some ate out. Others again had full meals for supper, like pasta, meat, fish, meat balls and turkey. The women also mentioned that there were differences in their meals from weekdays to weekend. In the weekend there was more time to prepare dinner, often including soup as an appetizer.

The younger people stand out with their eating out habits. They sometimes eat out in both weekdays and weekends. They seem to be less interested in the Russian meal and cooking traditions, and are more interested in exploring new food trends. Nevertheless, most of the respondents eat herring as an appetizer, in salads or with potatoes, bread and onions. Although the fish consumption in Russia has increased, the majority of the interviewees eat more meat than fish.

They also reported an increased demand for natural and locally produced food, and tried to avoid additives and processed food. Frozen fish is associated with poorer quality than fresh, and they preferred fresh fish when available.

This qualitative study was part of the basis for the further research in 2009, and the results were used in designing the next quantitative survey.

4.2 Individual determinants of fish consumption: application of the theory of planned behaviour

- Verbeke, W. & Vackier, I. (2004)

The aim of the article is to reveal which factors determine the individual's fish consumption. Using the theory of planned behaviour, the researchers want to present their findings and show how this theory can explain a specific behaviour.

They propose five hypotheses about how they perceive the factors influencing the fish consumption, and try to confirm these by using the theory of planned behaviour. Hypothesis 1 and 2 was confirmed, revealing that intention to eat fish is determined by among others taste and habit. For both of the hypothesis, habit seems to be the strongest indicator for both intention and actual consumption of fish.

Hypothesis 3 was searching for socio-demographic variables as predictors for behaviour. It was confirmed that women had a higher score for eating fish, whilst younger people had a significant lower consumption score, ages from 40 and up had the highest consumption rate. They also found that family size was not of great importance, but that higher education could influence the consumption positively.

Hypothesis 4 looked into food-health awareness, and showed that this did not have a direct influence on the frequency of consumption, but could have an impact on the intention to eat fish. Hypothesis 5 was revealing whether or not food involvement influenced the consumption. Decision making concerning food and trying new types of food, are both ways of involving in the households' food and diet. Both intention and behaviour experienced a positive impact from food involvement.

The theory of planned behaviour gave the researchers the needed theoretical framework in revealing determinants for eating fish, concluding with influence from habit, socio-demographic variables and food-involvement as determinants for the individual fish consumption.

4.3 Factors that influence frequency of purchase of catfish by U.S households in selected cities

- Kumar, G, Quagrainie,K. & Engle, C (2008)

Another survey, concerning catfish consumption in USA has some resemblance with the data and methods in my own thesis. The sample of the survey is selected households in the core catfish market area in US (Kumar, Quagrainie, & Engle, 2008). As with the Russian survey, the respondents were contacted via telephone and the total response were 1194 respondents. While the Russian data is for a four-year period, the catfish data is for only 1 year.

The researchers used an ordered probit model to estimate the probability for a certain outcome to occur. It serves as a good tool when the dependent variable is measuring frequencies with categorical alternative, like how often the respondents in Russia eats salmon and herring. The method is useful when analysing data with ordinal measures, instead of numerical (Kumar et al., 2008).

Independent variables include geographic location, which product is purchased, packing, preparation and serving preferences together with socioeconomic variables.

The results showed that respondents shopping at supermarkets had a higher probability of purchasing catfish, then other respondents. Furthermore, it showed that married couples had a higher probability of purchasing catfish than others. These founds are interesting, as this research have a lot in common with the independent variables in the Russian survey.

They also found that respondents with preferences for fresh fish ate catfish more often than the ones with preferences for frozen fish. Also included in the survey for catfish were preferences for packaging and product attributes, along with method of serving. With ordered probit model, the probability is explained using marginal effects that show how a change in the explanatory variable (independent), will effect the predicted level of frequencies (Kumar et al., 2008).

As also is expected from the Russian data, the geographic location influences the frequency level of catfish. This could be due to both culture and traditions, and the distribution channels in the nearby area. In the case of catfish, the cities with the highest frequencies level were the cities with strong tradition for consuming catfish. Respondents showing a positive attitude towards catfish also showed a higher probability for purchasing catfish twice a week or more often.

5. Research design and data collection

We can separate between different types of research designs, depending on which goal the researchers are working towards. The four types are explorative, descriptive, explanatory and causal. Many surveys have an explorative beginning in order to gain more information about a certain topic, and will often further develop to descriptive or explanatory studies (Hellevik, 2002). In my case, the descriptive design is chosen in order to gain a better understanding of the Russian demand and consumption of fish, using collected data from NSEC. Establishing explanatory founds are difficult without experiments or using surveys imitating actual buying scenarios (Hellevik, 2002).

There are also important distinctions between qualitative and quantitative research. The choice of method in this survey is quantitative. This is used when the sample is large and the answers are measured through different variables, given a specific value. This research gives opportunities for different kind of statistical analysis, depending on the aim of the research. However, in both form of research, it is important to ensure that the questions asked, actually measures what they are intended to as proposed by the research questions.

This can be measured using reliability tests. In my case, I have assumed that both reliability and validity measures are strong and confirmed by NSEC. The data have been used in both publications and other research conducted by them earlier.

5.1 Secondary analysis

Since the data collection has been conducted by a third party, the coming analysis will be based on secondary data. Although many consider secondary data to be less appropriate, there are many advantages in using these data, especially for a student. The use of secondary data is both cost-and time saving. It opens the possibility of analysing huge data set, with high - quality data (Bryman, 2004). In my case, the possibility of longitudinal analysis is also present (Bryman, 2004).

A possible disadvantage is the lack of familiarity with the dataset, and a lower understanding of its context and complexity. Since I have worked with the dataset in previous assignments, I consider this disadvantage as very small.

The surveys have been conducted over a 6 year period, and based on this and a numerous analysis; I consider the data to be of high quality. Similar questions and alternatives have been used in previous research (Verbeke & Vackier, 2004).

5.2 Information source and sample

The thesis will be based on secondary data collected for NSEC, by at third party. They have over several years conducted comprehensive surveys in Russia, in order to gain more information about the consumers' preferences and consumption patterns for herring and salmon. In my thesis I will mainly focus on questions that directly ask for frequencies of consumption and their preferences for meal habits, which stores they purchase fish from and where they prefer to eat it. The surveys also cover the area of country of origin, environmental questions and whether or not they are aware of the different market activities NSEC have carried out.

The sample targeted is consumers of herring and salmon in Moscow and St.Petersburg, with the aim of getting a sample that is representative for the selected city. They have achieved a sample for all the years with a good distribution on the demographic variables such as income, education and age.

5.3 Time frames and geographical areas

Moscow and St.Petersburg have been selected because of their size, but also because NSEC's market activities mainly have been concentrated in these cities. Since 2006, however other areas as well have been prioritized by NSEC. There are data dated back to 2002, measuring the respondents' relation to herring and salmon. Due to different questions and alternatives from the earliest year, it would be difficult to compare the development over the years. The selected dataset from 2005 to 2008, have used the same questions from year to year.

Although the sample is different from year to year, the demographic variables have shown little variation, and comparison of the years can still be correct.

5.4 The data collection

What form of interview that is chosen, is important for the final result. Response rate, time and money are the most important factors to consider when choosing how to collect the data. In recent years, surveys over the internet have become more common. The possibility to reach a great number of respondents in combination with the low cost, has made this method attractive.

Second to internet surveys, telephone interviews are also reasonable, compared to personal or by mail interviews. Tromsø Consulting Group (TCG) has on behalf of the NSEC conducted annual telephone interviews in Russia, since 2002.

The use of computer-assisted interviewing (CATI) has in recent years become more common. The interviewer is using automatic dial- up and calls up to 5 times, before the number is rejected. The phone call informs about the purpose of the survey, estimated time to complete it and asks for the women in the family that last celebrated her birthday. This is in order to ensure a representative sample, instead of asking the one who most frequently answers the telephone (TNS, 2009). The following describes the routines of TNS Gallup that have been used in the collection of data in Russia and their awareness of possible weaknesses with the method (TNS, 2009).

The CATI - method simplifies the work of the interviewers by making it easier to record the respondents' answer. The method also makes it easier to jump to the next relevant question, instead of asking inappropriate questions. The interviewer follows a questionnaire in his/ hers computer and continuous records the respondents answer. Using telephone interview is a quick and relatively cheap way to conduct surveys (TNS, 2009)

Like in every other survey methods, telephone interviews can contain different kinds of errors; we can divide them into two groups:

- Skewness in the sample
- Collection and processing errors

From the Russian surveys, only women are represented. This makes a skewness in the sample, however it is made intentional because the women traditionally take care of both purchasing, planning and preparing of the family meals (Smetanina, 2006). Since the respondents are located in Moscow and St.Petersburg, a generalization to the whole population of Russia could be difficult.

Collection and recording error can occur if some of the questions or answers are misunderstood. Human errors can also occur like entering the wrong answer in the questionnaire form (TNS, 2009).

Others ways to ensure the quality of the sampling and responses is among others:
- Spreading the calls to different weekdays and different times of the day.
- Call-backs in order to reduce the non-responses.
- Thorough training of the interviewers and feedback after each day at work.
- Clear questions and alternatives.

Telephone interviews have like other methods both advantages and disadvantages. The most obvious advantages are the low costs associated with this interview form. Although the interviewers have to be paid and the method is time consuming, it is still more profitable than personal interviews.

The risk that the respondents can be influenced by the interviewer's behaviour, appearance or personal characteristics, will be significant reduced by using telephone interview (Bryman, 2004). There is however some factors that can be perceived negative by using telephone interviews. The possibility of interpreter body language, reactions and reaching the right person for the specific survey, can be smaller by telephone interviews (Bryman, 2004).

For the data analyse it would be preferred that is was the same respondents that were participating every year. This is not the case for the Russian dataset. However, the descriptive analyses show that the sample has been approximately the same each year. The education level and the marital status are quite similar for all the years. For the income level however there is a significant change in the last years. Russia has experienced a positive economic growth the last ten years, and this is reflected in the sample from the survey. For the education level we also see a small increase in higher education from year to year.

6. The dataset

The data collection has as mentioned earlier, been conducted by telephone interviews in the two biggest cities of Russia, Moscow and St. Petersburg. The goal was to reach 400 women in each of the cities, from the ages of 18 and older.

The surveys give us the following information about the respondents and their demographic variables. Although the sample is different from year to year, the characteristics are quite similar. Income is however a variable which have experienced a positive development from 2005 to 2008. While 18.5% in 2005 earned more than 10 000 RUR a month, as many as 43.6 % earned the same in 2008.

Demographic data, distributed on years

	2005	**2006**	**2007**	**2008**
N:	848	804	806	811
Age				
18-30	41.9 %	39.6%	34.8%	34.4%
31-50	27.6%	30.0%	32.8%	33.2%
51-69	30.5%	30.3%	32.5%	32.4%
Marital status				
Married/living together	72%	66.5%	69.7%	72.3%
Single /divorced	17.6%	19.3%	17.0%	16.7%
Widow/other	10.6%	14.1%	13.4%	11.5%
Income per month				
<5000 RUR	32.3 %	20.9%	19.6%	10.4%
5001- 10000 RUR	25.8 %	22.9%	24.2%	23.9%
>10000 RUR	18.5 %	23.4%	33.0%	43.6%
No answer	23.3 %	32.8%	23.2%	22.1%
Area				
Moscow	52 %	50.1%	49.9%	49.6%
St. Petersburg	48 %	49.9%	50.1%	50.4%
Education				
University	55.1%	55.3%	57.0%	56.4%
with/without degree	44.3%	40.8%	41.3%	43.2%
Junior/senior high school				
No answer/ no schooling	0.47%	3.8%	2.0%	0.49%

Table 6.1: The demographic distribution of the sample

6.1 The variables

In the following the chosen variables for the further analysis will be presented. In order to get a better understanding of the Russian consumption of herring and salmon, a dependent variable measuring the frequencies of their consumption will be analysed against a number of independent variables concerning demographic and preference factors.

In order to analyze a large amount of variables, it was necessary to categorize the outcome of both the dependent and independent variables. The preference variables can be seen as a part of the respondents psychological motives for buying behaviour as presented by (Kotler et al., 2004).

```
┌─────────────────────────────────┐
│ Demographic variables:          │
│    -   Age                      │
│    -   Income                   │
│    -   Education                 │         ┌──────────────────────────┐
│    -   Occupation                │───────▶ │ Dependent variables      │
│    -   Geographic location       │         │ - Frequency of consumption│
└─────────────────────────────────┘         │                          │
                                             └──────────────────────────┘
┌─────────────────────────────────┐             ▲
│ Preferences:                     │            
│    -   Which meals               │            
│    -   Preferences of form       │───────────
│    -   Preferred place to eat    │
│    -   Preferred store to shop   │
└─────────────────────────────────┘
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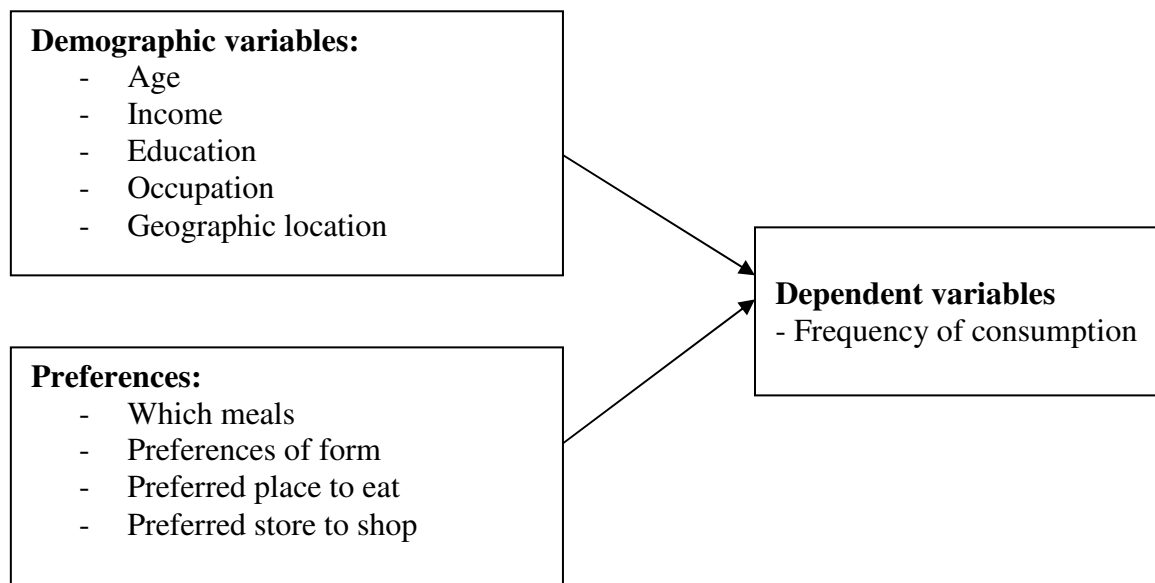
Figure 6.1: The model for data analysis

The preferences variables are chosen in order to gain a understanding of which factor that can explain the respondents consumption. The outcomes with the lowest answering rate have been categorized in "other" categories. In addition most of the variables were reversed in order to ensure a more natural and correct view of the respondent's opinions and answers.

For the dependent variable the "don't know/no answer" have been excluded, because it does not give us the information we are looking for. In appendix 1 a thorough description of the recoding of each variable will be given.

6.2 Descriptive statistics

In order to get a better understanding of the respondents in the survey, their preferences and consumption habits, a descriptive analysis is a helpful tool. These answers can also give an indication of the market trends, and how the consumers preferences have changed over the given time period.

As mentioned earlier the number of respondents has been around 800 each year, with equal distribution on Moscow and St. Petersburg. However it is important to inform that from the surveys in 2007 and 2008, there is a high share of missing answers. In the two first years, 2005 and 2006 there are is a big share of "don't know" answers. This can negatively influence the final analysis.

The following graphs presented, are the ones with the most interesting development through out the years, distributed on numbers of respondents, and include data about the respondent's frequencies, eating and shopping habits.

The export of salmon from Norway to Russia, have increased significantly the last ten years. From the respondent's side of view, this development is less apparent considering their consumption frequency.

6.2.1 Descriptive data for salmon consumption
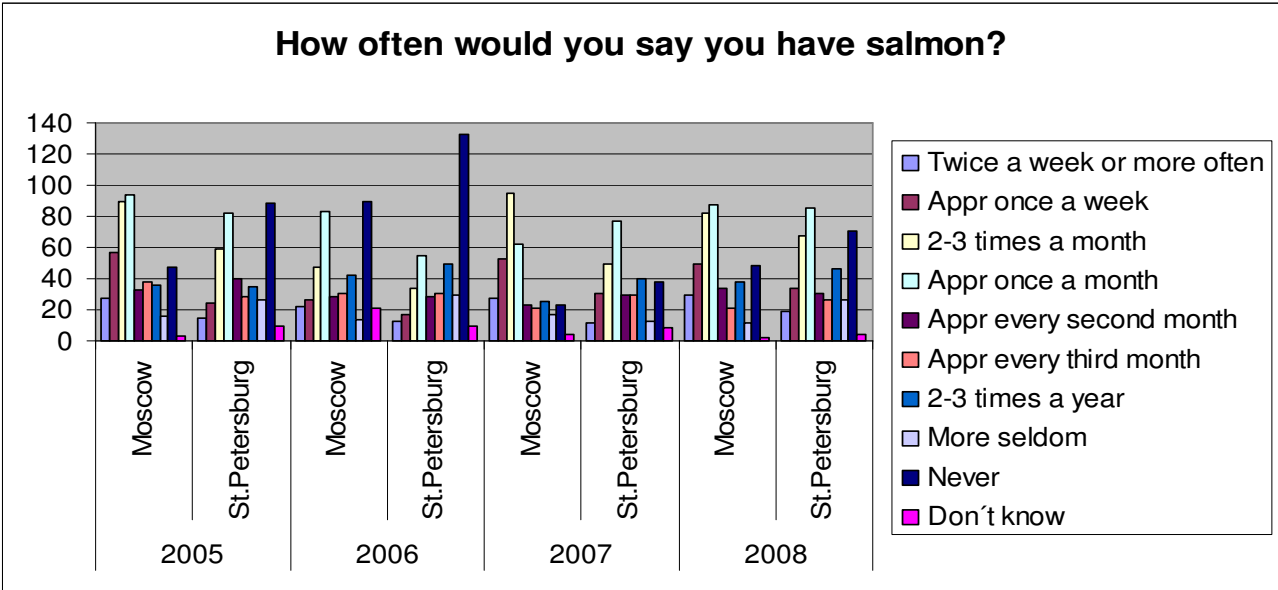
Figure 6.2: Salmon frequencies, distributed on year and city

Especially in St.Petersburg, a great share of the respondents, reports that they never eat salmon. Although this share has been reduced since 2005, it is still a high share of the respondents. In Moscow this share is also distinct, but in a lesser degree.

Looking at the question, "when was the last time you ate salmon," we find that the answers do not correspond with the question above.

The majority of the respondents answer "less than 2 weeks ago". The two last years, correspond better with the first question, and the answers are more spread out on each alternative.

Do you remember when was the last time you ate salmon?
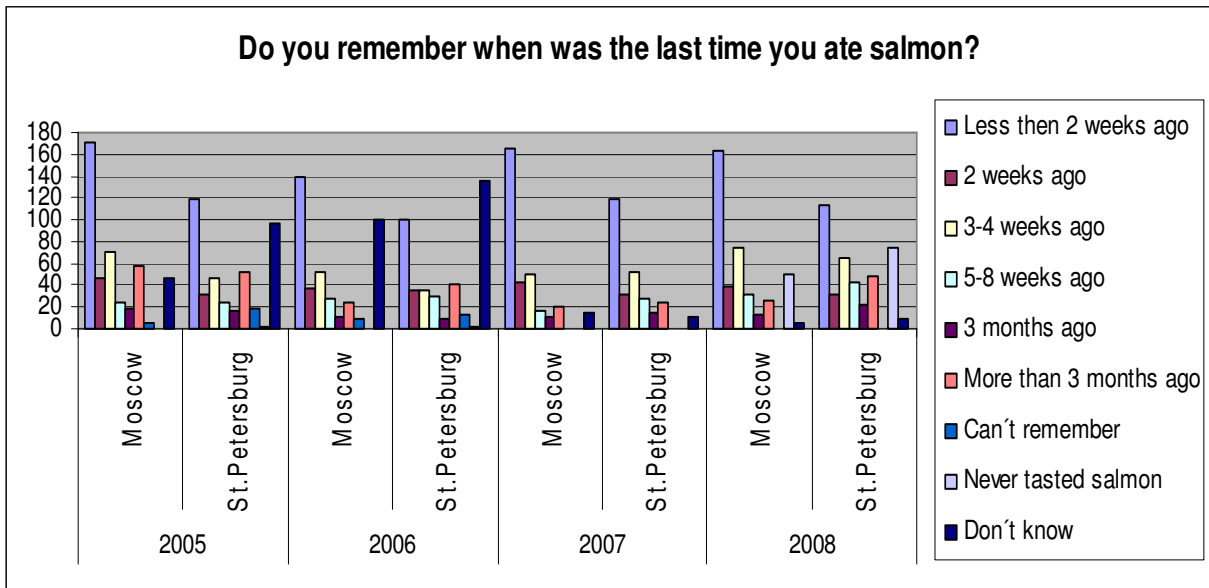
Figure 6.3: Time between previous consumption of salmon, distributed on year and city

Moscow positively distinct itself with a much higher share of the respondents answering, "less than 2 weeks ago." This positive difference can be a result of the size of the city, or that the inhabitant quicker adopt to new trends. In 2003, there were 148 specialized fish restaurants in Moscow against 13 in St.Petersburg. The differences in availability of fish can influence how often the respondents eat salmon.

When do you normally eat salmon?
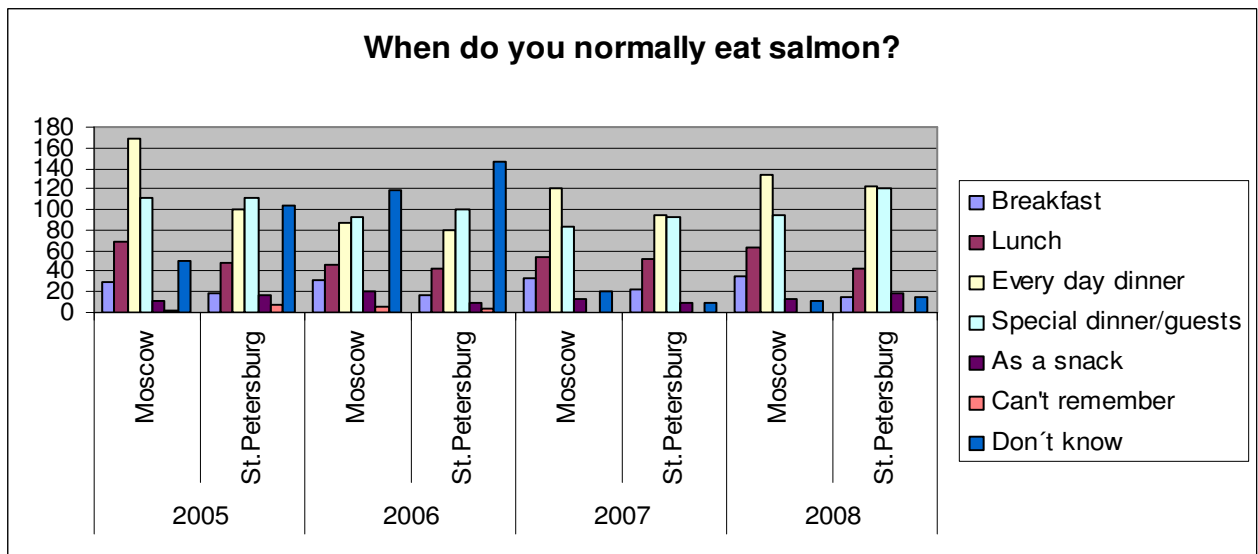
Figure 6.4: Preferred meal including salmon, distributed on year and city

The numbers are however not merely negative. The habits for when eating salmon have changed during the four- year period. The share of respondents reporting eating salmon as every day dinner is increasing. This is a positive trend, and could mean that less people associate salmon with only festive and holiday dinners. It could also indicate that the respondent's income has increased, and they can afford eating salmon more regularly.

Although the predicted trend in 2003 was that consumers to a larger extent chose restaurant as their place to eat, this is not the case for the respondents of the surveys (TCG, 2004). The majority of the respondents eat salmon at home, followed by at friends or restaurants. The gaps between at home and at friends are apparent, and could indicate that the respondents are more traditionally in their eating habits, than previous surveys have uncovered.
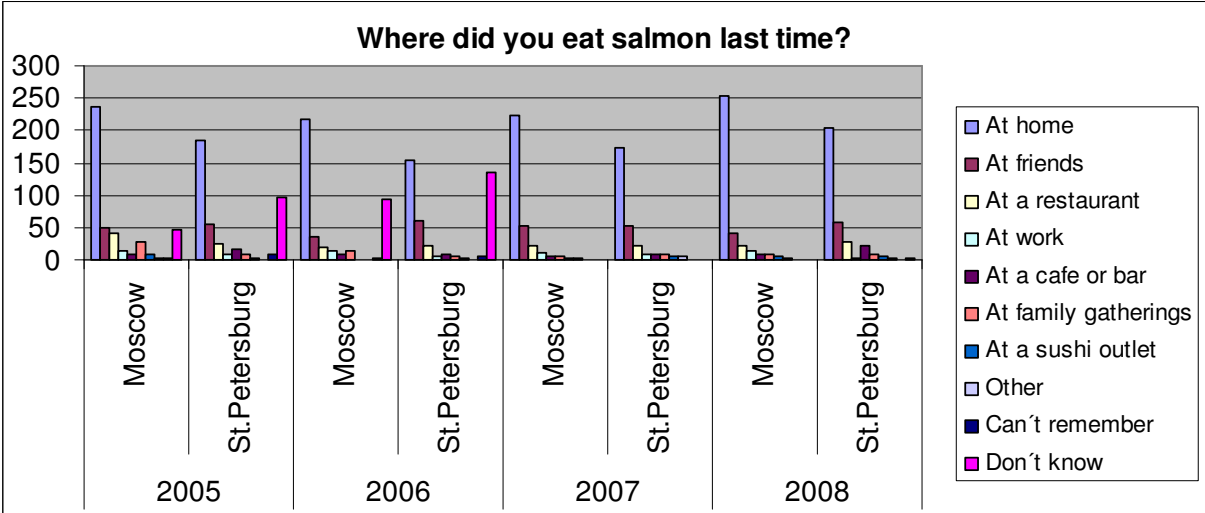
Figure 6.5: Previous place where salmon were eaten, distributed on year and city

In the following a view of the overall means for salmon and herring will be presented. The table will not separate the variables by years. The variables showed is the dummy variable for each category created in order to use them in the further analysis.

Categories	Variables for salmon	Mean	Std. Deviation	Range	N
Frequency	Y = 0 (Never tasted)	0,175	0,380	0-1	3077
	Y = 1 (2-3 times a year or more seldom)	0,151	0,359	0-1	3077
	Y =2 (App. every second or third month)	0,153	0,360	0-1	3077
	Y = 3 (App. 1-3 times a month)	0,373	0,484	0-1	3077
	Y = 4 (App. 1-2 times or more a week)	0,148	0,355	0-1	3077
City	Moscow	0,504	0,500	0-1	3269
	St. Petersburg	0,496	0,500	0-1	3269
Age group	Young (18-30)	0,377	0,485	0-1	3269
	Middle –aged (31-50)	0,309	0,462	0-1	3269
	Older (51-69)	0,314	0,464	0-1	3269
Income	Low income	0,209	0,407	0-1	3269
	Medium income	0,242	0,429	0-1	3269
	High income	0,295	0,456	0-1	3269
	No answer	0,253	0,435	0-1	3269
Education	High school	0,424	0,494	0-1	3269
	University	0,559	0,497	0-1	3269
	No schooling / no answer	0,017	0,129	0-1	3269
Occupation	Self -employed	0,012	0,107	0-1	3269
	Employed	0,379	0,485	0-1	3269
	Other occupation /no answer	0,610	0,488	0-1	3269
Marital status	Married /living together	0,700	0,458	0-1	3269
	Single / divorced	0,177	0,381	0-1	3269
	Widow/ Other/ No answer	0,124	0,329	0-1	3269
Meals	Everyday	0,308	0,462	0-1	2941
	Special dinner	0,275	0,446	0-1	2941
	Other meal / no answer	0,417	0,493	0-1	2941
What form	Whole fish	0,212	0,409	0-1	2885
	Filet	0,313	0,464	0-1	2885
	Other form / no answer	0,475	0,499	0-1	2885
Where to eat	Home	0,560	0,496	0-1	2941
	Restaurant/ cafés	0,095	0,294	0-1	2941
	Other place / no answer	0,345	0,475	0-1	2941
Where to shop	Fish shop/ wet market	0,207	0,405	0-1	2896
	Super/hypermarket	0,512	0,500	0-1	2896
	Universam	0,051	0,221	0-1	2896
	Grocer	0,060	0,237	0-1	2896
	Other shop / no answer	0,170	0,376	0-1	2896

Table 6.2: Means for salmon

The majority of the respondents are eating salmon 1-3 times a month, followed by "never tasted/never eat." This rather high majority answering outcome Y= 0 is quite surprising, considering the significant growth in Norwegian export of salmon to Russia. One possible explanation for this result is the fact that the descriptive numbers are for all the answers over a four-year period, and it may have not captured significant changes from year to year.

Looking at the respondents' meal habits, we see that the majority of them are eating salmon as "other meals," including as breakfast, lunch, snack and the share of respondents answering don't know. Everyday dinner follows, indicating that more respondents are adopting salmon as part of their daily diet.

Further on we see that the majority of the respondents answered "other forms" to the question of what form they usually eat salmon. This outcome include both pieces, ready-meals, salted and don't know.   We also find that filet also is preferred by the respondents, and is an easy and quick way of eating salmon compared to preparing the whole fish.

The majority of the respondents prefer to eat salmon at home instead of restaurants and cafés. Other places include at friends' houses, family gatherings and at work and are also preferred by a large share of the respondents.

When it comes to where to buy salmon, we find similarities with the results from herring, where super and hypermarket are preferred by the majority of the respondents. Considering that the sample is the same for both herring and salmon, this could be expected.

6.2.2 Descriptive data for herring

How often would you say you have herring?

Legend:
- Twice a week or more often
- Appr once a week
- 2-3 times a month
- Appr once a month
- Appr every second month
- Appr every third month
- 2-3 times a year
- More seldom
- Never
- Don´t know

(X-axis: Moscow / St.Petersburg for 2005, 2006, 2007, 2008; Y-axis: 0 to 140)
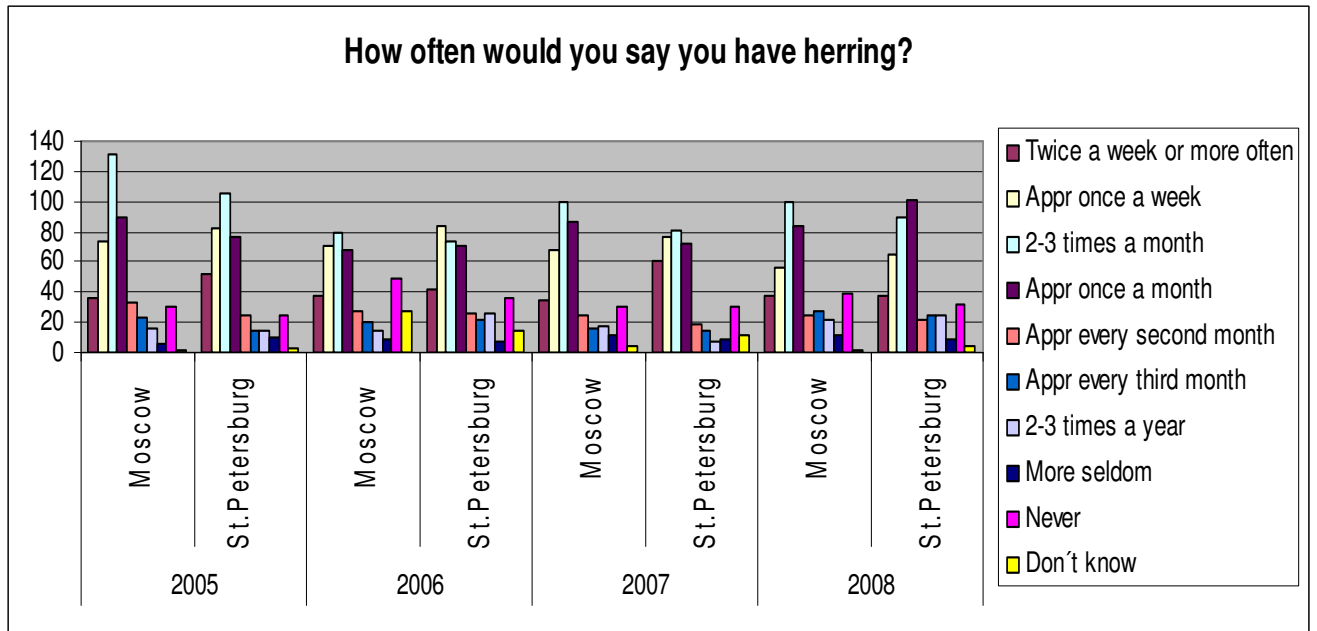
Figure 6.6: Frequency of herring consumption, distributed on year and city

Herring have for the Russians been a more traditional part of their diet and many especially elderly people prefer herring. According to the graph, respondents in St.Petersburg, have a more frequent consumption of herring. The answers are spread out on the different alternatives. Unlike salmon, there are very low shares of respondents that never eat herring.

According to the next question, the intervals between each time the respondents eat herring are mostly two weeks. Here we find differences between the two cities, with consumers of St.Petersburg eating more frequently.
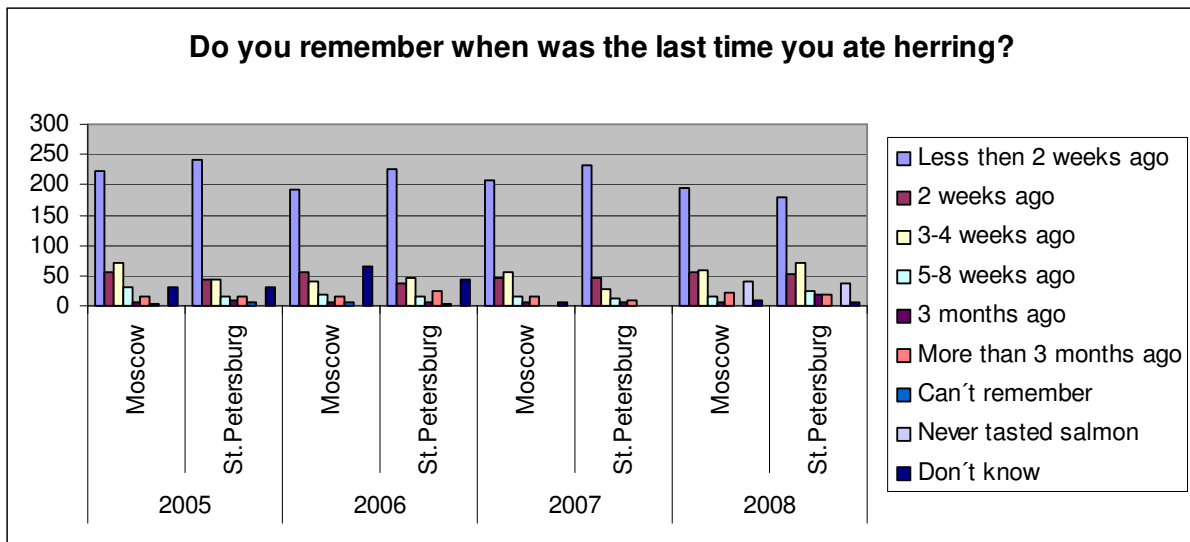
Figure 6.7: Previous time herring were consumed, distributed on year and city

The eating habits for herring are quite different from the salmon. Herring is often part of the respondents' lunch, often as a salad or sandwich. The distribution between Moscow and St.Petersburg is quite even. While salmon often was eaten as a special dinner or with guests, herring is rarely eaten in that way.
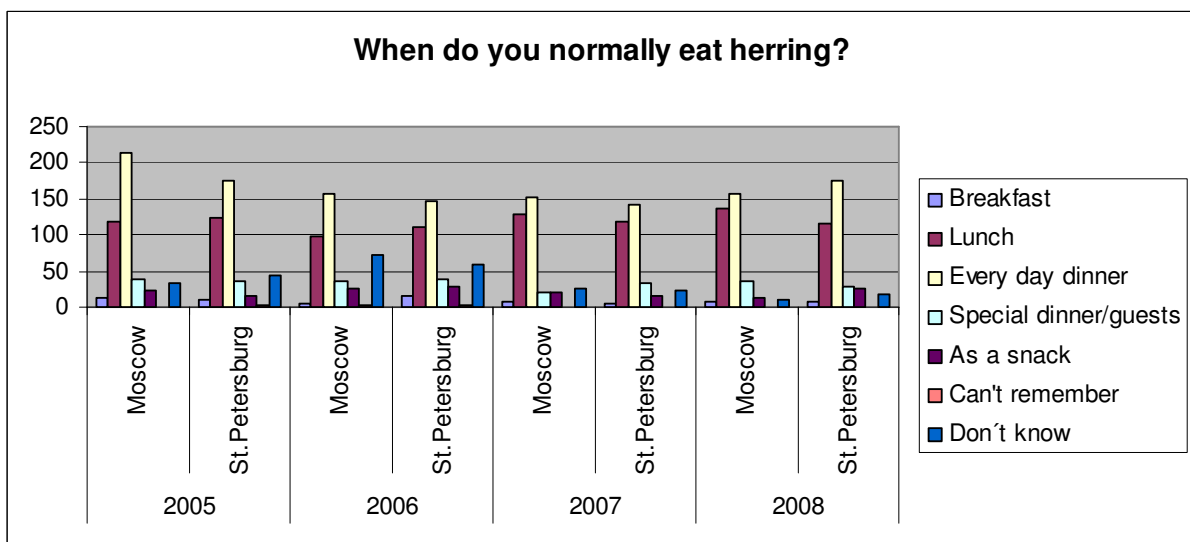
Figure 6.8: Preferred meal including herring, distributed on year and city

Again we find that the respondents usually eat herring at home, and the gap between at home and at friends is also here significant. Although Moscow has a higher share of specialised fish restaurants, this does not seem to make a difference in where the respondents eat herring.

Herring is not considered a luxurious meal, and is probably not chosen when eating out.
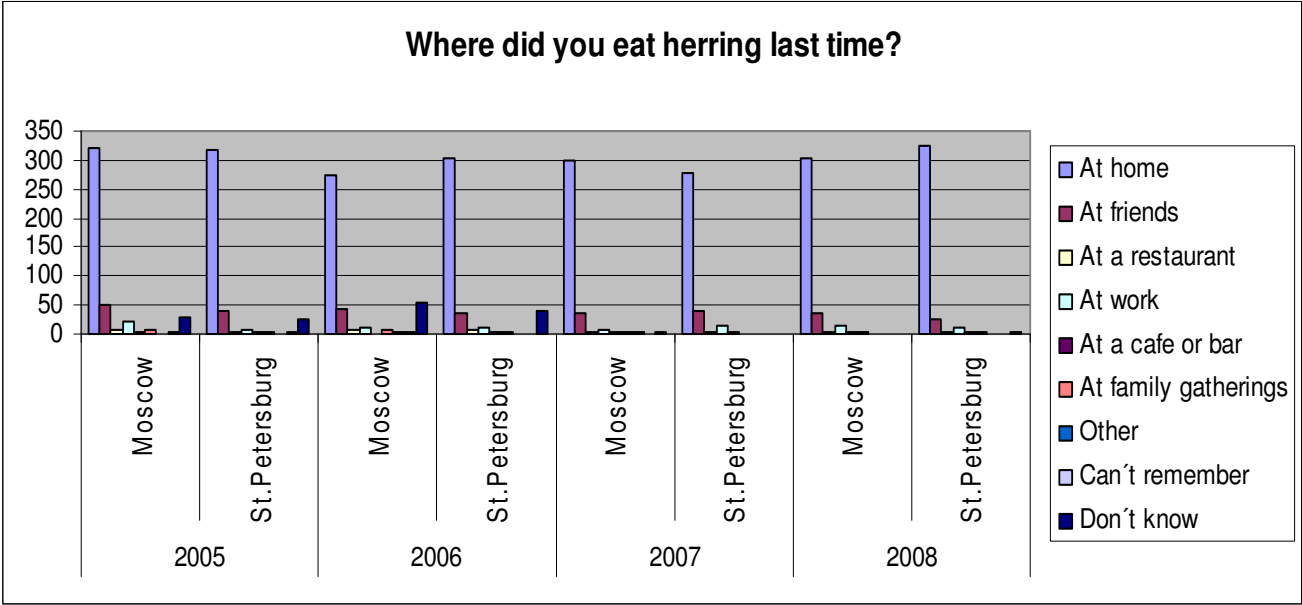
Figure 6.9: Previous place where herring were eaten, distributed on year and city

In the following the descriptive statistics are shown for all the years together, with focus on mean. The variables have been recoded into dummy variable and categorized with fewer outcomes, in order to use in the ordinal regression analysis. For herring we have the following results:

Categories	Variables for herring	Mean	Std. Deviation	Range	N
Frequency	Y = 0 (Never tasted)	0,085	0,279	0-1	3167
	Y = 1 (2-3 times a year or more seldom)	0,067	0,251	0-1	3167
	Y = 2 (App. every second or third month)	0,115	0,319	0-1	3167
	Y = 3 (App. 1-3 times a month)	0,444	0,497	0-1	3167
	Y = 4 (App. 1-2 times or more a week)	0,289	0,453	0-1	3167
City	Moscow	0,504	0,500	0-1	3269
	St. Petersburg	0,496	0,500	0-1	3269
Age group	Young	0,377	0,485	0-1	3269
	Middle aged	0,309	0,462	0-1	3269
	Older	0,314	0,464	0-1	3269
Income	Low income	0,209	0,407	0-1	3269
	Medium income	0,242	0,429	0-1	3269
	High income	0,295	0,456	0-1	3269
	No answer	0,253	0,435	0-1	3269
Education	High school	0,424	0,494	0-1	3269
	University	0,559	0,497	0-1	3269
	No schooling/ no answer	0,017	0,129	0-1	3269
Occupation	Self employed	0,012	0,107	0-1	3269
	Employed	0,379	0,485	0-1	3269
	Other occupation / no answer	0,610	0,488	0-1	3269
Marital status	Married / living together	0,700	0,458	0-1	3269
	Single /divorced	0,177	0,381	0-1	3269
	Widow /other / no answer	0,124	0,329	0-1	3269
Meals	Lunch	0.398	0.462	0-1	3082
	Everyday dinner	0,428	0,495	0-1	3083
	Other meals / no answer	0,262	0,440	0-1	3083
Where to eat	Home	0,785	0,411	0-1	3083
	Restaurant/ cafés	0,020	0,140	0-1	3083
	Other place / no answer	0,195	0,396	0-1	3083
Where to shop	Fish shop/ wet market	0,212	0,409	0-1	3073
	Super/hypermarket	0,445	0,497	0-1	3073
	Universam	0,175	0,380	0-1	3073
	Grocer	0,086	0,281	0-1	3073
	Other shop / no answer	0,082	0,275	0-1	3073
What form	Whole fish	0,388	0,487	0-1	3064
	Filet	0,220	0,414	0-1	3064
	Other form / no answer	0,392	0,488	0-1	3064

Table 6 3: Means for herring

The sample is the same for both herring and salmon, and the demographic variables will thus be the same in both cases. Frequency and variables concerning meal habits and preferences will however be different from each other.

Starting at the top we see that the frequency is distributed on all of the five outcomes, with the majority on Y= 3, 1-3 times a month, followed by Y=4, 1-2 times a week. Overall these means give us a positive opinion about the respondents' consumption habits. This frequent consumption can have many different reasons, but one of them is probably the strong traditions for eating herring in Russia. It is also reasonable to assume that income, age group and marital status may influence this consumption pattern

Furthermore on we see that the majority of the respondents eat herring as part of their everyday dinners, followed by lunch. Eating at home is also done by the majority of the respondents, followed by other places, including at friends, work and family gatherings.

The establishment of new retailer chains and supermarket may be the cause of why the majority of the respondents are choosing super and hyper market as their preferred shop when buying herring. Fish shops and traditional wet markets is still the first choice for many of the respondents.

In which form they eat herring is quite evenly distributed among the outcome, but with other forms as the majority. This includes pieces, ready -meals, snack and the respondents answering "don't know." Whole fish is also representing a great majority of the respondents' preferences, and is probably used for sandwich, salads and appetizer.

7. Method for data analysis

An ordered probit model will be used in analyzing the collected data. This method is a good tool for analysing variables measured in ordinal scales (Borooah, 2002).

Variables are named ordinal, when the "strongest" outcome have the highest value, like consumption frequencies. The more often the respondents eat the higher the value is, but it is not equal intervals between the outcomes. Some of the demographic variables are however unordered and can not be ranked, like marital status and occupational situation.

The independent variables have to be categorical or dichotomous, and each of the chosen independent variables has therefore been recoded into dummy variables, with measure 1 or 0 (Borooah, 2002). SPSS 16 have been used in order to recode the variables into dummy variables.

One dependent variable and several predictors such as age, income and education is used to assume a certain probability for a given relationship to occur. We can separate between ordered logit and ordered probit models, where the difference lies in the assumed normally distribution of e, the error term. According to Greene (2000) it is difficult to choose the right model, but also informs that there are not much differences between the two different applications of ordered models.

Stata 10, is used in calculating the coefficient. For each category, one of the outcomes is omitted, and is the one the coefficients are compared against. The omitted cateogory have in the analysis been the "others" outcome, or the outcome with the lowest answering rate.

In addition to that, some of the coefficients were excluded by Stata because of collinearity.

By interpreting the coefficients and their signs, we can learn a great deal about the relationship between the dependent variable and its independent, explanatory variable. We find a positive relation between the two when the coefficient is positive (Chen & Hughes, 2004). Negative coefficients indicate a negative influence from the explanatory variable to the dependent one.

The coefficient does not give a clear relationship between the dependent and the independent ones, but tells us about the probability for a certain variables to positive or negative influence the dependent variable (Chen & Hughes, 2004).

The ordered probit model calculates the probability of an outcome as a linear function of the selected independent variables in addition to the predicted threshold values (Greene, 2000). As with a binomial probit model the ordered probit model is built around a latent regression (Greene, 2000). We have the following:

$$\text{Let } y^* = \beta'x + \varepsilon$$

where y^* is unobserved. What we do observe is

$$
\begin{aligned}
Y &= 0 \quad \text{if } y^* \leq \mu_0 \\
&= 1 \quad \text{if } \mu_0 < y^* \leq \mu_1 \\
&= 2 \quad \text{if } \mu_1 < y^* \leq \mu_2 \\
&\quad \cdots \\
&= j \quad \text{if } y^* \geq \mu_i
\end{aligned}
$$

Where Y have the following outcomes:

Y= 0, Never tasted

Y=1, App.2-3 times a year or more seldom

Y=2, App. Every second or third month

Y=3, App. 1-3 times a month

Y=4, App 1-2 times or more a week

The coefficients can further be used in estimating marginal effects for each of the frequency outcomes. Marginal effects shows how much the probability of a given outcome is changed when one of the variables affecting the given outcome changes. By using the dependent variable consumption frequencies, we could estimate how much the frequencies changes when the respondents move from one income level to another (Borooah, 2002).

According to Greene (2000) however it can be difficult to interpret the marginal effects. There will be insufficient information about the three outcomes in the middle, making it difficult to estimate consumption frequency. Only the two extreme points give us the complete information needed for estimated a consumption pattern. Due to this, the marginal effects will no be included in the analysis for all of the variables. In the analysis of the overall variables however, the marginal effects have been included in order to report

8. Empirical results

First the results from the overall analysis will be presented. This will give us an indication for which relation between the variables we can expect to find when analysing the variables for each year.

The overall analysis includes coefficients, standard error and the marginal effects.
First the omitted variables will be presented, followed by an interpretation of the coefficients and marginal effects for salmon and herring.

View of the omitted variables for salmon and herring

Category	Omitted
Year	Year 05
Income	No answer
Occupation	Other /no answer
Education	No schooling/ no answer
Marital status	Widow/other
Age group	Middle-aged - herring
	Old – salmon
City	St.Petersburg
Where to eat	Other places
Preferred shop	Other shops
What form	Other pieces
Which meals	Other meals

Table 8.1 The omitted variables for the overall analysis

Starting with salmon, we have the following table.

Variables for salmon	Coeff.		Std. Error	dy/dx 0 (Y=0)		dy/dx 1 (Y=1)		dy/dx 2 (Y=2)		dy/dx 3 (Y=3)		dy/dx 4 (Y=4)	
Year													
2006	-.282749	*	.0580424	.0229346	*	.0717242	*	.017585	*	-.0752419	*	-.0370019	*
2007	.1003559		.0621785	-.0068022		-.0248998		-.0082896		.0249895	**	.0150022	
2008	.0097002		.061327	-.000692		-.0024308		-.0007469		.0024764		.0013933	
Income													
Low income	-.1698703	*	.0645311	.0133608	*	.0430957	*	.0111695	*	-.0449681	*	-.0226579	*
Med. Income	-.1497606	*	.0608856	.0115397	*	.0379091	*	.0102117	*	-.039364	*	-.0202965	*
High income	.0913117		.0592361	-.0063295		-.0227526		-.0073217		.0229839		.0134199	
Occupation													
Selfemployed	.1475529		.196589	-.0092539		-.0360062		-.0133697		.0352623		.0233675	
Employed	.0291802		.0449983	-.0020789		-.0073101		-.0022512		.0074441		.0041961	
Education													
High School	.0088464		.1815645	-.0006333		-.0022181		-.0006778		.0022618		.0012673	
University	.1103975	*	.1807696	-.0080348		-.0277298		-.0082552		.0283835		.0156363	
Marital status													
Married /living together	.1557483	*	.0727545	-.0118856	*	-.0393662	*	-.010799	*	.0407724	*	.0212784	*
Single /divorced	.2148088	*	.0846249	-.0135658	*	-.0523969	*	-.0193197	*	.0513359	*	.0339464	*
Age group													
Young	-.0494743		.056937	.003583		.0124264		.003726		-.0127093		-.007026	
Middle aged	.1142633	*	.0580106	-.0078772	*	-.0284331	*	-.0092311	**	.0286692	*	.0168721	**
City													
Moscow	.2590391	*	.0428257	-.0188281	*	-.0647798	*	-.0194452	*	.0660792	*	.0369738	*
Where to eat													
Home	.6664109	*	.0523881	-.0540304	*	-.1645049	*	-.0423001	*	.169625	*	.0912104	*
Restaurants /cafees	.4313624	*	.0799522	-.0224932	*	-.0992955	*	-.0461841	*	.0894053	*	.0785677	*
Preferred shop													
Fish shop/ wet market	1.965147	*	.0908689	-.0737789	*	-.3157599	*	-.2071661	*	.0794454	*	.5172595	*
Hyper/ supermarket	2.105022	*	.0853923	-.2184853	*	-.4009519	*	-.0878686	*	.3721105	*	.3351953	*
Grocers	2.03495	*	.1142254	-.0407899	*	-.2461286	*	-.2168693	*	-.0641083	*	.567896	*
Universam	1.874355	*	.1193368	-.0401343	*	-.2469007	*	-.2255881	*	-.1160648	*	.6286879	*
What form													
Whole fish	.2504967	*	.056803	-.0157746	*	-.0609857	*	-.0226035	*	.0596225	*	.0397413	*
Filet	.2345911	*	.0512594	-.0155888	*	-.0577832	*	-.0198845	*	.0574817	*	.0357748	*
Meals													
Everyday dinner	.1337131	*	.0534904	-.0091616	*	-.0332231	*	-.0108922	*	.0334302	*	.0198468N	*
Special dinner	-.4523104	*	.0544084	.0398		.1145561	*	.0237287	*	-.1220003	*	-.0560847	*

* Denotes statistical significance at the 5% level

** Denotes statistical significance at the 10 % level

Table 8.2 Overall coefficients and marginal effects for salmon

8.1 Interpreting the coefficients for salmon

The year variables were included to explore whether or not we could estimate a development over the years. Unfortunately they turned out not to be significant for salmon. 2006 were the exception with a negative influence on the frequency rate, compared to the previous year. All of the comparisons are done against the omitted variable.

One of the interesting findings among the demographic variables is the influence from the income variables. For both low and medium income, we find a negative relation between the consumption frequency and which income levels the respondents' belongs to. This indicates that salmon could be considered as expensive food, excluding specific group from buying salmon as often as they might wish. Further on we see that middle-aged respondents' have a positive relation with salmon consumption compared to the old age group.

We also find that university education have a positive impact on consume of salmon. The marital status does not seem to be of great importance, indicating that both married/living together and single/divorced has a positive impact on salmon consumption, compared to the other alternatives. Living in Moscow has a positive impact on the consumption frequency compared to living in St.Petersburg.

Regarding the other variables, they all showed significant results, showing that eating both at home and out at restaurants have a positive influence on the consumption, compared to eating other places, like at friends' houses or at work. The choice of store does not seem to be decisive in whether or not the respondents' eat salmon, showing that all the outcomes were positive and significant.

Regardless of how respondents eat their salmon as a whole fish or as a filet, it positively impacts their consumption frequency, compared to eating it as other pieces, including as ready-meals or salted/smoked. Eating salmon as everyday dinners also have a positive impact on how often salmon is consumed, compared to other meals, like lunch or breakfast. Special dinner have a negative influence on the consumption frequency. This could be expected, when considering special dinners as a more rare meal. The result is also reflected in its marginal effect, indicating that the respondents' marginal utility is maximized at Y=1.

8.2 Interpreting the marginal effects for salmon

Starting with salmon and income, we see that the marginal effects are significant for all income levels and frequency outcome. Changing from positive to negative at the low income level, could indicate that the respondents in this category are not eating salmon as often as they wish. The same changes can be observed for the medium income level. For the highest income level, we see the opposite changes. Changes from negative to positive indicate that as income increase, so does the consumption frequency.

The majority of the significant founds are represented by the preference variables, instead of demographic variables. Common for the majority of the marginal effects, are the maximum for Y=3, meaning that their marginal utility is maximized at this frequency level

When it comes to marital status, the findings also are significant at all levels. The results here are contradictory, indicating that for both married/living together and single the frequency will change from negative to positive, with Y=3 as the maximum frequency.

For the middle-aged group, we find that changing from negative to positive marginal effects, indicate a more frequent consume for the middle- aged respondents.

The city variable indicates that the majority of the respondents in Moscow maximize their marginal utility at Y=3, eating salmon 1-3 times a month.

For the preferences for where to eat, the findings are significant for both eating at home and at restaurants. As with marital status, these results are to an extent conflicting, telling us that both variables are changing from negative to positive moving upwards on the frequency level, with the maximum marginal utility at 1-3 times a month.

For preferred shop variable, only all of shops were significant, with a maximum at Y= 4, indicating that the majority of respondents shopping in these stores increase their marginal utility moving upwards the frequency level.

What form salmon is eaten, also influence how often the respondents consume it. For both whole fish and filet we find a maximum at Y= 3, changing from negative to positive at this frequency level.

The respondents eating habits and how they influence the total consumption frequency depend on which meals they eat. For everyday dinner we see an increase in the marginal utility from Y= 0 to Y=3 as the maximum. For special dinner the trend is the opposite, with decrease in marginal utility as the frequency outcomes increase. For the respondents eating salmon as special dinner, their dinner is maximized at eating it 2-3 times a year (Y=1).

Neither high income, education, marital status nor young age group showed any significant findings.

Variables for herring	Coeff.		Std.Error	dy/dx 0 (Y=0)		dy/dx 1 (Y=1)		dy/dx 2 (Y=2)		dy/dx 3 (Y=3)		dy/dx 4 (Y=4)	
Year													
2006	.010228		.0569667	-.0002976		-.0012743		-.0014687		-.0002845		.003325	
2007	.1381232	*	.0587981	-.0037186	*	-.0165066	*	-.0197088	*	-.0059382		.0458722	*
2008	-.0872921		.0589317	.0026927		.0111963		.0125551		.001467		-.027911	
Income													
Low income	.0210951		.0616405	-.0006089		-.0026175		-.003028		-.0006186		.006873	
Med. Income	-.0012801		.0585116	.0000375		.00016		.0001839		.000034		-.0004154	
High income	-.0205576		.0572087	.0006075		.0025817		.0029541		.0005107		-.0066539	
Occupation													
Self-employed	-.0917084		.185681	.0029737		.0120586		.0132015		.0006538		-.0288876	
Employed	.0037226		.043804	-.0001088		-.0004649		-.0005347		-.0001001		.0012086	
Education													
High School	-.2657169		.1852994	.0082334		.0339784		.0380236		.004757		-.0849925	
University	-.3765081	*	.1846838	.0107164	*	.0458361	*	.0533599	*	.0136275		-.12354	*
Marital status													
Single /divorced	.1245166		.0796735	-.0023715	**	-.0099367		-.011223		-.0015367		.0250679	
Married /living together	.0780567		.0680822	-.003327		-.0148264		-.0177627		-.0055154		.0414315	
Age group													
Young	-.2471963	*	.0509067	.0078385	*	.0320033	*	.0354201	*	.003249		-.0785109	*
Old	.0708746		.0553425	-.0020147		-.0087224		-.0101612		-.0022934		.0231917	
City													
Moscow	-.1265379	*	.0409178	.0037078	*	.0158019	*	.0181526	*	.0034077	*	-.04107	*
Where to eat													
Home	.5659761	*	.0572128	-.0248801	*	-.0837579	*	-.0783132	*	.0246023	*	.1623489	*
Restaurants Cafés	.3831694	*	.1488829	-.0074677	*	-.03802	*	-.0519554	*	-.0395029		.1369461	*
Preferred shop													
Fish shop/ wet market	1.593311	*	.1010182	-.0255786	*	-.1194326	*	-.1684984	*	-.2529926	*	.5665021	*
Hyper/ supermarket	1.548654	*	.0947723	-.0544718	*	-.1785064	*	-.1851777	*	-.076	*	.4941559	*
Universam	1.488091	*	.1018396	-.0212153	*	-.1060268	*	-.1568445	*	-.2533862	*	.5374728	*
Grocers	1.552643	*	.1128901	-.0156308	*	-.0885548	*	-.1457386	*	-.3125164	*	.5624407	
What form													
Whole fish	.1487292	*	.048703	-.0042065	*	-.0182296	*	-.0212858	*	-.0050324	*	.0487543	*
Filet	.1511628	*	.0545407	-.0040277		-.0179617	*	-.0215455	*	-.0068067	**	.0503416	*
Which meals													
Lunch	.5037083	*	.056829	-.0123892	*	-.0562685	*	-.0698404	*	-.0332286	*	.1717267	*
Everyday dinner	.4339201	*	.054102	-.0122557	*	-.052413	*	-.0612255	*	-.0169156	*	.1428098	*

* Denotes statistical significance at the 5% level

** Denotes statistical significance at the 10 % level

Table 8.3 Overall coefficients and marginal effects for herring

8.3 Interpreting the coefficients for herring

As with the variables for salmon, the demographic variables showed less significance than would be expected. We find that university education have a negative impact on the herring consumption, compared to having no education at all. This could been seen in connection with a greater understanding for increased health benefits acquired through a varied diet, consisting of other fish species as well.

Further on we see that being a young respondent has a negative impact on herring consumption compared to the middle-aged respondents, which is the omitted variable. Living in Moscow also negatively influences the consumption frequency, indicating that respondents living in St.Petersburg have a higher consumption of herring.

For the preferences variables, we find as with salmon, that they all were significant, indicating that the results can be generalized outside the chosen sample. Eating herring at home or at restaurants both positively influence the total herring consumption, compared to eating it elsewhere, like at friends' houses, family gatherings or at work. Where they purchase herring seem to be insignificant, according to the positive findings for all of the store outcomes.

Eating whole herring or filet, also seems to be insignificant for the consumption, both outcomes showed a positive influence on the respondents' frequency of consuming herring. Whether or not the respondents' eat herring as lunch or everyday dinner are not of great importance. Both of the coefficients showed a positive relation with herring consumption.

Common for all of the preference variables, are the maximization of marginal utility at Y=4, when eating herring 1-2 times a week.

8.4 Interpreting the marginal effects for herring

For herring we find different results than for salmon, with the majority of the respondents maximizing their utility at Y= 2 and Y=4. For the demographic variables, the majority was not significant, and do not give us any useful information, exceptions are the city, university and age variables. The preference variables on the contrary are significant for all the levels .

Respondents with university education maximizes their marginal utility at Y=2. We see changes from positive to negative moving upwards the consumption frequency level.

For the younger age group, we find a maximum at Y=2, and a change from positive to negative when moving upwards the frequency level. This confirms the assumption that younger people eats less herring, and perhaps are more interested in trying new and more exotic food trends.

For the city variable, we see the opposite development of salmon, with the marginal effect changing from positive to negative. The Muscovites' marginal utility are maximized at Y=2 and is negative at the highest frequency level, 1-2 times a week. These results can indicate that herring have a less important role in the Moscow's respondents' diet than first assumed.

Looking at the preference variables, all of the findings are significant and at the same time have a maximum at Y=4, marginal utility at eating herring 1-2 times or more a week. A high marginal utility could increase the possibility of establishing a diet consisting of regular consumption of herring.

For both eating at home and at restaurants, the marginal effect changes from negative to positive, indicating that the respondents maximizes their utility eating at both places, but with a slightly higher maximum value for the at home variable.

The different shopping alternatives also indicate a maximization of the respondents' marginal utility at the highest frequency level, indicating that all of the shopping alternatives have the potential of influencing the consumption positively.

The form of herring has an impact on the consumption frequency, and for both whole fish and filet we see a change from negative to positive marginal effect. This indicates that both forms represent a positive impact on the consumption of herring, with a maximum utility at Y=4.

The respondents eating habits are reflected in which meals they consume. For herring, everyday dinner and lunch were the variables with highest means compared to other meals. For both we see a change from negative to positive moving upwards the frequency scale.

Both meals have a maximization of marginal utility at Y= 4, indicating that eating herring 1-2 times or more a week for either lunch or dinner represent a high level of utility for the respondents.

In the following the results from the analysis including variables for each year will be presented.

The data analysis showed both expected and unexpected results. The influence from the demographic variables has in previous research showed an impact on the consumption patterns (Kumar et al., 2008), (Myrland, Trondsen, Johnston, & Lund, 2000). In this case however, the majority of these variables did not show any significance, and do not give us useful information in trying to understand consumers also outside the sample.

All of the results will be given in appendix 2, but only the coefficients being significant will be presented and discussed in the following.

8.5 Coefficients for salmon including year variables

Including the dummy variables for year, turned out to be redundant in the case of salmon. 2005 were omitted, but only 2006 turned out to be significant. The models were estimated both with and without the year variables, giving the almost exact results.

Categories	Variables for salmon	Coeff.		Std. Err
Year	2006	-1.812105	*	.7458321
Income	Low income 06	-.2944544	*	.125216
	Medium income 07	-.2302942	**	.1392845
	Medium income 08	-.2563664	**	.1321463
Educatioin	University 06	.4429398	**	.2581594
City	Moscow 05	.263529	*	.0813797
	Moscow 06	.2355713	*	.0879229
	Moscow 07	.2787509	*	.0971439
Age	Young 06	-.2859376	*	.107118
	Old 06	-.3141781	*	.1178422
	Old 08	.2039206	**	.1203807
Marital status	Married /living together 05	.3597499	*	.1385285
	Single/ divorced 05	.4725999	*	.1636346
Preferred shop	Fish shop/ wet market 05	2.539938	*	.1568975
	Super/hypermarket 05	2.575466	*	.1499541
	Universam 05	2.648735	*	.1975901
	Grocer's 05	2.454176	*	.2015532
	Other shops 06	-2.056769	*	.2186724
Where to eat	Home 05	.5262277	*	.0977057
	Home 06	.9049169	*	.1092455
	Home 07	.4436991	*	.1153094
	Home 08	.4309898	*	.1090387
	Restaurant /cafe 05	.5031552	*	.1409054
	Restaurant /cafe 06	.5758015	*	.1768131
What form	Whole fish 05	-3.484478	*	1.003466
	Whole fish 06	.3155985	*	.1237573
	Filet 05	-3.460713	*	.9984208
	Filet 06	.3933817	*	.1113992
	Other pieces 05	-3.759191	*	.9956081
Meals	Everyday dinner 08	.8461314	*	.1098505
	Special dinner 05	-.3697334	*	.1026619
	Special dinner 06	-.5895506	*	.122911
	Special dinner 07	-.8404587	*	.1203223
	Other meals 06	-.335367	*	.1161875
	Other meals 08	.8935298	*	.113169
Threshold/ cut points				
/cut1 |		-3.070848		.6644398
/cut2 |		-1.668255		.6611011
/cut3 |		-.9960064		.6607126
/cut4 |		.4672115		.6605266
Ordered probit regression				
Number of obs = 2820				
LR chi2(89) = 187.48				
Prob > chi2 = 0.0000				
Log likelihood = -3142.0818				
Pseudo R2 = 0.2582				

* Denotes statistical significance at the 5% level

** Denotes statistical significance at the 10 % level

Table 8.4: Coefficients for salmon

Starting from the top, we find the income variable, with both negative and positive coefficients. However, only low income in 06 and medium income in 07 and 08 is significant, and actually affects the dependent variable, with a negative influence on the consumption frequency.

Contrary to what often is assumed education does not seem to influence the frequency of salmon, and only one of the coefficients show a significant importance for the dependent variables. In 06, respondents with university education had a higher possibility of consuming salmon, than of those with no education.

Concerning the city, the findings are both significant and interesting. The coefficients, show a positive influence on the consumption frequencies for all years, and significant for all except in 2008. This indicates that living in Moscow enhances the possibility of eating salmon compared to the respondents living in St.Petersburg.

For the age group there are a few significant findings. Young respondents in 06 showed a negative effect on the consumption compared to the other years. The older age groups gave conflicting results, making it difficult to establish a clear relation between consumption frequency and age. In 2006 being old had a negative influence on consumption, whilst it in 2008 had turned positive.

For marital status there are also little significant findings, and only the variables from 05 give us information that actually positively influences the consumption. Here we see that being married or living together in 05, gives a higher consumption of salmon compared to the omitted variable, widow/other. Single/divorced variable shows the same positive influence.

Interpreting the other variables gives us much more information and knowledge about what the consumers prefer and how these in the end affect the frequency for salmon. These variables are also interesting in that they can easier be used in marketing activities, such as targeting consumers in super/hyper market or adjust recipes for everyday dinners.

For the variable concerning preferred shop for buying salmon, the outcomes from 05 all show significant findings. The omitted variables are other shops from 05 and 07.
All of the possible shops showed significant positive influence on consumption in 05.

This could mean that the selection of salmon is satisfying in all these shops, and thereby positively affect the dependent variable. Other shops in 06 however, had a negative impact on the consumption frequency.

It is apparent that eating at home has a strong positive influence on the respondents' consumption frequency, compared to eating elsewhere. The omitted variable is other places, including at friends' houses, work or family gatherings. Restaurant and cafés show significant influence in 05 and 06, but not the following years. This could indicate that these preferences have changed and that eating at home or other places is preferred by the respondents.

The form of the fish, also influence the respondents consumption, both negatively and positively. The omitted variable is other pieces from 06 and 08. In 05 the choice of whole fish, had a negative impact on the salmon consumption, whilst in 06 this impact had turned positive. We see the similar development for salmon as filet, with 05 having a negative influence on the respondents' frequency. In 06 this impact has turned positive as in the case of whole fish.

The respondents' eating habits is usually reflected in when they eat and how their preferences for daily meals are. For everyday dinner there is a positive influence on the dependent variable compared to other meals, but only in 08 is this influence significant and of importance.

For the case of special dinner we see that this meal have a negative influence on the salmon consumption for all years, compared to other meals. This variable has again both a negative and positive influence on frequency depending on the years. We see changes in other meals from positive influence in 06 to negative in 08, when comparing to the omitted variable, other meals in 05 and 07.

8.6 Coefficients for herring, including year variables

Categories	Variables Herring	Coeff.		Std. Err
Year	2006	2.599607	*	.7778959
	2007	3.468452	*	1.00484
	2008	4.864574	*	1.060548
Education	University 05	1.352336	*	.5389318
	University 06	-.7560274	*	.2387075
	University 08	-1.483875	*	.7478653
	High school 05	1.529304	*	.5394216
	High school 06	-.7619488	*	.2420623
	High school 08	-1.267906	**	.7486833
City	Moscow 05	-.2113015	*	.0798329
	Moscow 07	-.3030347	*	.0865404
Age group	Young 05	-.1932552	*	.0854037
	Young 06	-.2964547	*	.1049102
	Mid 08	.2485515	*	.1019718
	Old 08	.5188272	*	.1147429
Preferred shop	Fish shop/ wet market 05	2.552504	*	.21281
	Fish shop/ wet market 06	2.25085	*	.1826448
	Super/hypermarket 05	2.695948	*	.2050829
	Super/hypermarket 06	2.038675	*	.1682562
	Universam 05	2.586318	*	.2160717
	Universam 06	1.966859	*	.1839951
	Grocer's 05	2.58253	*	.2271466
	Grocer's 06	1.999212	*	.2115098
Where to eat	Home 06	.6980601	*	.1160819
	Home 07	.6047105	*	.1224871
What form	Whole fish 07	.1796537	**	.1036774
	Other pieces 06	-.2770168	*	.1139735
Which meals	Lunch 05	.3709639	*	.1144074
	Lunch 06	.6232778	*	.1140213
	Lunch 08	.516991	*	.1156297
	Everyday dinner 05	.309217	*	.1076851
	Everyday dinner 06	.5025782	*	.106192
	Everyday dinner 08	.4696403	*	.1108815
Threshold/ cut points				
/cut1 |		2.017348		.7252334
/cut2 |		3.14161		.7287526
/cut3 |		3.78594		.729448
/cut4 |		5.220146		.7306844

Ordered probit regression
Number of obs   =   3017
LR chi2(89)   =   1189.48
Prob > chi2   =   0.0000
Log likelihood = -3314.1884
Pseudo R2   =   0.1521

* Denotes statistical significance at the 5% level
** Denotes statistical significance at the 10 % level

Table 8.5: Coefficients for herring

Unlike with salmon, including the year variables gave significant findings concerning herring consumption. The results show a positive impact from all the years, indicating that eating herring is perceived as positive by the respondents.

As with the salmon coefficients, most of the demographic variables did not show any significance and is therefore excluded from the following table. Income, marital status and occupation had no significant findings and did not offer us any relevant information.

For the university variable, there are conflicting results between the years. Whilst university education in 05 had a positive impact on consumption, it is different for the following years. For 06 and 08 the trend is changing, indicating that university education for these years had a negative influence on consumption of herring, compared to having no school, which is the omitted variable.

We see a similar trend for high school education compared to no school. In 06 and 08, high school contributed to lower consumption of herring, while in 05 this education indicated a higher consumption frequency.

For the city variable, only 05 and 07 are significant. These show however that living in Moscow influences the consumption of herring negatively, compared to living in St.Petersburg. This could give us an understanding of differences between the two cities, where herring is preferred in St.Petersburg, and salmon is preferred by the majority of the respondents in Moscow.

For the age variable, we find that the younger respondents in 05 and 06 have a lower possibility of consuming herring, compared to the other years. The opposite is the case of middle-aged and older in 08 indicating that high age has a positive influence on herring consume.

As with salmon, the preferred shop to buy herring shows significant results from 05 and 06 for each of the outcome. The omitted variable is other shops, including food store, kiosk and other outlets. All of the different stores outcomes have a positive impact on herring consumption in 05 and 06, compared to other shops.

With salmon it was a clear indication that eating at home strongly influenced the consumption. For herring, the home variable is only significant in 06 and 07, with a positive influence on the herring consumption, compared to eating elsewhere like at friends' houses or at work.

The form of herring does not explain much of the consumption. Only whole fish in 07 positively influenced the consumption frequency. Other pieces in 08 also showed significance, but with a negative impact on the consumption.

For the meal variables, a great majority of the findings positively influence the frequency of consumption. Except for lunch 07 and everyday dinner 07, all the variables are both positive and significant, indicating a positive influence on the consumption.

Summed up we can say that the results give us a better insight in the respondents' preferences for both salmon and herring, and a greater understanding for what influences their actual behaviour in form of consumption frequency. The results did however for some variables give us conflicting findings, making it difficult to establish a clear relation between the independent and the dependent variable.

9. Discussion

The above results give increased insight in the Russian preferences and frequency of consumption for herring and salmon. The knowledge can create the basis for assuming trends and consumption pattern for Moscow and St.Petersburg.

It is surprising that the demographic variables have as little impact on the consumption frequency as revealed in the analysis. Still the significant findings are important knowledge for both marketers and exporters.

9.1 The typical salmon consumer

From the results we could say that the typically salmon consumer is an elderly woman living in Moscow, either cohabiting or being single. She buys salmon at all of the mentioned stores, she prefers to eat salmon at home, both whole fish, filet and other pieces like ready meal and salted/marinated. She prefers salmon as everyday dinner, instead of as special dinner. The income factor does not play a decisive role. Her education and occupation do not seem to be of importance for the consumption frequency.

It is natural to assume that income play a part in influencing a consumers' eating and buying habits. Salmon is considered as more expensive than other fish types, like herring (EFF, 2006). The price differences among fish species could be a possible explanation for why the mentioned income coefficients negatively influenced the consumption frequencies. As also mentioned, there has been a significant development in income over the last years and the coefficients for high income were positively, although not significant. The finding that income not always impact on the fish consumption is also supported by (Myrland et al., 2000), that found a positive relation between meat consumption and income, but not the same when concerned with seafood.

The next variable, geographic location showed a positive influence on the consumption of salmon when living in Moscow, with significant findings from 05 to 07. Moscow and St.Petersburg are the two largest cities in Russia, but still very different when it comes to both location and industry.

The fact that Moscow seem to have a higher possibility of high consumption of salmon, can be seen in relation with its more westernized approach and with a more diversified population (TCG, 2004). A more rapid growth in Moscow and establishing of new restaurants can change the consumers' preferences from a traditional diet to a more exotic one. The findings from the American survey concerning catfish buying, also found differences in where the respondents lived and how often they bought catfish, with possible explanation in both traditions and the distribution system (Kumar et al., 2008).

There might be potential in St. Petersburg for a more targeted marketing towards certain consumer group in order to increase the demand for salmon here.

The age variable was expected to have an impact on the salmon consumption. The three significant findings were to some extent conflicting and it is difficult to establish a clear opinion about its impact. Other studies found a relation between increasing age and more frequent consumption (Myrland et al., 2000). The lack of significant findings in this category can be due to the age grouping or the variables being omitted. The lack of influence from age was also stated in the survey concerning catfish purchase (Kumar et al., 2008).

For marital status the findings were not particularly significant for salmon. Both outcomes did in 05 show a significant influence on the consumption, indicating a positive relation between marital status and the consumption frequency. The lack of significance the following years, are difficult to explain, but could simply indicate be that this factor is less important and that the respondents diets are influenced by other factors. Whether or not the respondents eat salmon could be more linked with a health aspect rather than if they are living with someone or not. As stated by Honkanen & Voldnes (2006) in the quality quest report, the weight issue were important for all the respondents' regardless of age.

The results for preferred shop were unique, in that 05 were significant for all the outcomes. The findings could indicate that the respondents' are satisfied with all of the stores and their selection. It is however strange that we do not see the same results for the following years, as the establishment of new stores have increased since 2005. The selection of both fresh and frozen salmon has also increased to satisfy a growing demand. According to Roberts (2005) the Russian consumers are open for both new retail formats and brand, with a quick adaption to new Western retailers.

This attitude can help explain the positive coefficient for all the shopping alternatives.

Where the respondents eat can be of great importance regarding the consumption frequency. Eating at home gave us significant coefficients for each year, indicating that we with great certainty can establish a positive relationship between salmon consumption and eating it at home. With this relation, we can assume that salmon is an important part of the respondents' diet and everyday life. The rapid growth in the HoReCa sector has not influenced the respondents eating habits as much as could be expected.

This finding are somewhat supported by the "which meal" variable, where we find that special dinners have a negative influence on the frequency of salmon consume. One possible explanation for this is that special dinners can be perceived as more time consuming to prepare, with the results that the respondents do not take the time to prepare special dinners including salmon as often as could be expected.

As mentioned in the result section, the coefficients regarding the form of salmon gave conflicting results, and made it difficult to predict a clear trend or development for this variable. In the case of salmon, filet is an easier and quicker way to prepare a meal, and it would be expected that the coefficient would show a positive impact on the frequency level. However, many Russians also buy whole salmon in order to smoke or salt themselves.

9.2 The typical herring consumer

For herring we find that the typical herring consumer is living in St.Petersburg, being middle-aged or older. She prefers to eat herring at home and most often as whole fish. Herring is eaten either as lunch or everyday dinner. The education variable had changing impact on the frequency, varying between positive and negative between each year. The marital status, income and occupation did not show any significant impact on the consumption.

Unlike with the year variable for salmon, we here see a positive and significant influence from the years of the dependent variables, consumption frequency. This indicates a positive development over the years.

The demographic variables show different results for salmon and herring. For herring, income, marital status and occupation's coefficients were of no significance. This can be due the long tradition herring have in the Russian diet, and the fact that it is considered affordable compared to other fish species (QualtiativeQuest, 2007). Herring as part of the respondents' diet can be due to habits learned from family and childhood. During the Soviet Union, herring was an important part of the daily diet for most consumers whether they liked it or not, because of shortage of other alternatives (Honkanen & Voldnes, 2006).

The cultural aspect is confirmed by many, among others O'Mahony & Hall (2007) in their research concerning influences in food choice among young women. Their results showed that cultural background were an important motivational factor in their food choice.

Interpreting the coefficients, we find that living in Moscow have a negative impact on the consumption of herring, compared to living in St.Petersburg. For 05 and 07, these values are significant, whilst for the other years they showed no significance. This difference could be due to the fact that Moscow has developed more rapidly than St.Petersburg and have adapted new trends more quickly

Moreover we see that younger respondents have a negative impact on the herring consumption for both 05 and 06. Middle-aged and elderly consumers had a higher probability of eating herring more frequent than the younger respondents. These findings are to some degree supported by the findings by Myrland et al .(2000), concluding that the probability of eating fish more frequently increases with the consumers' age.

Where the respondents chose to buy herring shows similar trends as with salmon. All of the mentioned stores show a significant and positive impact on the consumption frequency for 05 and 06. Similar findings are not surprising, considering that the sample is the same for both herring and salmon. The same indications as mentioned for salmon could be relevant also for the herring variable. Why the coefficients do not show significance the following years are difficult to find a good explanation for. Differences in the sample from year to year is a possible explanation, in 07 and 08 there were a greater share of the respondents answering "don't know" to the question to which store they prefer.

Eating at home positively influenced the total herring consumption for both 06 and 07. The variables eating at restaurants/cafés did not show any significant results, indicating that herring is not chosen when eating out. Since it is considered less luxurious than e.g. salmon, this is a natural result (QualtiativeQuest, 2007). The results are supported by the findings of (Hicks, Pivarnik, & McDermott) (2008), showing that consumers eating at home, consume seafood more frequent compared to consumers that often eat seafood at restaurants.

Eating a home can also be put in context with the results indicating that herring primarily is eaten as lunch or everyday dinners among the respondents. With positive, significant findings for 05, 06 and 08 for both of the meal outcomes, we can establish a positive relation between which meals the respondents' eat and how often they consume herring. Herring as a regular part of the respondents' diet is supported in the qualitative analysis conducted by Honkanen, P., & Voldnes, G. (2006).

One could assume that the form of herring would have an impact on which meals the respondents eat, and thereby how often they eat herring. However, only two of the variables showed significant results, whole fish in 07 and other pieces in 06. These results do not give us much information to estimate a pattern for which form that is preferred. From the qualitative quest report (2007) we find that many of the respondents' prefer filet when having company, but settles with other pieces or whole fish when eating alone.

Seeing the results in connection with the presented theory, we find that many of the findings can be supported by the theoretical framework. In the work of learning more about the black box' contents, the revealed preferences from the respondents make an important contribution. Preferences for both form of fish, meals and stores are revealed in the analysis making an important contribution in learning more about the oval boxes. Information about the demographic variables also gives us important information in learning more about the consumers and their black box. The final market behaviour reflected in sales figures for Norwegian exporters, can be summed up to be affected by the respondents choice of store, represented with both more traditional fish shop and wet market, and the more modern super and hyper markets.

For both salmon and herring, we find that eating at home is preferred rather that eating out. Information like this can help the marketers target their marketing using the right channels.

The information about the preferred stores creates possibilities for market activities in these, either through food samples in the stores, or by recipes for preparing both whole fish and filet. Food sample and cooking demonstration in the stores can inspire the consumers to experiment with new recipes and increase their knowledge of preparing fish.

Furthermore the marketers can focus on improving attitudes among the different age groups, and improve the differences between the cities. On the overall, income did not play a decisive role in the consumption of salmon or herring, a factor that can give the marketers opportunity to design their marketing around other factors, as health benefits.

The revealed information that influence the consumption frequency, are variables that are supported by both Kotler 's (2004) and Ajzen's (2005)' theories for explain consumer behaviour. The demographic variables such as marital status and age can help place the respondents in a specific life cycle and predict their behaviour based on this. However, the income factor did not affect the consumption of whether salmon or herring as much as could be expected, and the occupation factor did not play an important role at all.

10. Conclusion

This research have hopefully given a greater understanding of how the consumption pattern for herring and salmon is in Russia's two biggest cities is influenced by a number of independent variables.

The revealed information gives important knowledge about the respondents' eating habits, what form of fish they prefer and where they buy both salmon and herring. Although the analysis showed lack of significance for the majority of the demographic variables, the rest of the results were useful. While many researchers before have revealed the importance of both income, education and age as important influencer for seafood consumption, there is little research supporting the same findings as in this thesis.

The findings also made it possible to categorize the typical salmon and herring consumer, making the marketing job easier. Knowledge about consumer characteristics creates possibilities for a more goal-oriented marketing, concentrating on the interesting segments.

Linking the results with the theoretical framework and previous research, reveals that many of the findings in this thesis are similar to ones established in previous research. The findings also confirms a great share of the selected theory. Many of the chosen variables for the analysis could be identified in McFadden's black box, including both demographic variables and variables concerning preferences and behavioural intentions.

11. Possible limitations

Possible limitations with the research are the choices made regarding both variables and analysis. The regrouping of the variables could mean loosing important information about each of the outcome. The distinctions between each of the income level disappear, and the results are a more generalized view of the results. The sample is also as mentioned earlier uneven compared to the cities population, but this is done intentionally because of the Russian tradition with women in the kitchen.

The choice of variables is done based on the aim of the research, and my personal opinion of which variables that are of importance for the problem solving. Different choices could give other results, and possibly better solve the thesis.

Other limitations are the actual analysis, and the possibility that a different choice of analysis method could give different results.

12. Suggestions for further work

The possibilities for further research in the existing dataset are great, and my choice of variables and analysis is just one of many ways to learn more about Russian consumers.

Future research could e.g. include attitude variables in the data analysis in order to try to establish relation between both demographic, preferences and attitude variables. In expanding the model, the researcher can discover significant findings regarding the respondents thoughts about a certain product. Depending on the researcher's interest, the ordered probit model can also be expanded, with focus on the respondents' maximization of utility for eating the selected fish.

Since NSEC has expanded their market activities in Russia, they should also start measuring their satisfaction and learn more about the respondents in the nearby regions as well as in the cities. More focus on family size and the age structure in the households, could also be possible approaches in order to expand their area of knowledge.

It would also be possible to focus more on how price development and inflation have affected the consumption of salmon and herring, and whether or not the mentioned income growth have led to shifting preferences regarding fish.

Another approach to the data is to measure how the different market activities conducted by NSEC, influence the consumers, and whether or not the activities have an effect in increasing the total consumption of Norwegian salmon and herring.

Knowledge and experience from Moscow and St.Petersburg can be used in designing and conducting the surveys.

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Appendix 1

It was necessary to both recode and reverse some of the variables, including both dependent and independent variables. Fewer outcomes were necessary in order to manage a great number of variables with belonging outcomes. Since the analysis was for both salmon and herring for four year, this categorization made the data analysis easier to follow.

This can however have a negative effect because we loose the nuances in the respondents' answers and small differences between the outcomes. This grouping will however, make it easier to get a better understanding of the overall variables.

Based on the descriptive statistics, the grouping have been made with including low-frequencies answers in one category and the majority of the respondents answers in others.

For the frequencies questions it was also necessary with recoding, in order to limit the number of alternatives in the ordered probit model.

Answer for frequency level	Code	New code
Twice a week or more often	1	4
Appr. once a week	2	4
2-3 times a month	3	3
Appr. once a month	4	3
Appr. every second month	5	2
Appr. every third month	6	2
2-3 times a year	7	1
More seldom	8	1
I never eat	9	0
Don`t know / no answer	10	Excluded

For the demographic variables we find the following:

Occupation:

Answer	Code	New code
Entrepreneur, professional (self employed)	1	2
Executive, director, top management (employed)	2	1
Middle manager (supervisor, high level technician)	3	3
Teacher (employed)	4	1
White-collar (employed)	5	1
Owner of shop, artisan (self employed)	6	2
Blue-collar skilled (employed)	7	1
Blue-collar unskilled (employed)	8	1
Farmer (self employed)	9	2
Rural worker (employed)	10	1
Other	98	3

Don't know / no answer	99	3

Educational level:

Answer	Old Code	New code
University with degree	1	3
University but without degree	2	3
Senior high school with diploma	3	2
Senior high school without diploma	4	2
Junior high school with diploma	5	2
Junior high school without diploma	6	2
Elemantary school with leaving certificate	7	1
Elemantary school without leaving certificate	8	1
No schooling	9	1
Don't know / no answer	99	1

Civil status

Answer	Code	New code
Married / living as married	1	1
Single / unmarried	2	2
Divorced	3	2
Widow / widower	4	3
Living at home with parents	5	1
Other	8	3
No answer	9	3

Age

The respondents' age were ranging from 18-69 years. They were categorizes as follows: 18-35 is considered young, age 36-50 is considered middle-aged, while from 51-69 the respondents are categorized as old.

Age	Code
18-35	1
36-50	2
51-69	3

For the preferences variables we have the following. The categorization is based on the number of respondents choosing each of the outcomes.

Preferred place to eat

Answer	Code	New code
At home	1	1
At friends	2	3
At a restaurant	3	2
At work	4	3
At a cafe or bar	5	2
At family gatherings	6	3
Other	97	3
Don't know / no answer	99	3

Since 2007, there have been included more alternatives in some of the questions. For the question about when the respondents' normally eats herring and salmon, 5 extra alternatives were added, but not answered by the respondents.
6= good company
7= festivities
8=No special occosaion
9= Picnic / outdoor
10= summer

Since none of the above was answered, I chose to exclude them.

Preferred shop to buy herring and salmon

Answer	Code	New code
Fish shop	1	1
Supermarket	2	2
Hypermarket	3	2
Traditional wet market	4	1
Grocer's/delicatessen	5	3
Universam	6	4
Other	97	5
Never bought	98	5
Don't know / no answer	99	5

For the question about were they shop and eat, extra alternatives were also added, but not used by the respondents. They were in this case also excluded.

Preferred form of herring and salmon

Answer	Code	New code
Whole fish	1	1
Filet of fish without skin and bones (fresh or frozen)	2	2

Slices/pieces of fish with skin and bones	3	3
Ready meal	4	3
Other cuts	97	3
Don't know/no answer	99	3

Preferred meal for herring

Answer	Code	New code
Breakfast	1	3
Lunch	2	1
Everyday dinner	3	2
Special dinner/when guests	4	3
As a snack	5	3
Don't know/no answer	99	3

Preferred meal for salmon

Answer	Code	New code
Breakfast	1	3
Lunch	2	3
Everyday dinner	3	1
Special dinner/when guests	4	2
As a snack	5	3
Don't know/no answer	99	3

The grouping for this question is based on the number of respondents answering each outcome. For herring and salmon there were differences in the answering for this particular question.

Appendix 2

In the following, complete tables for the analysis results will be presented.

Herring

Number of obs   =   3017
LR chi2(89)   =   1189.48
Prob > chi2   =   0.0000
Log likelihood = -3314.1884
Pseudo R2   =   0.1521

Variables Herring	Coeff.	Std. Err	P>|z|
d06	2.599607	.7778959	0.001*
d07	3.468452	1.00484	0.001*
d08	4.864574	1.060548	0.000*
Low income 05	.0388867	.1084736	0.720
Low income 06	.155097	.1191512	0.193
Low income 07	-.0472445	.1343992	0.725
Low income 08	-.0054961	.1556393	0.972
mi05	-.0232966	.1129562	0.837
mi07	.0065634	.127802	0.959
mi08	-.0444547	.1245249	0.721
mi06	.1425809	.1150607	0.215
High income 05	-.0380856	.1258758	0.762
High income 06	.0009301	.1155176	0.994
High income 07	-.1195051	.121584	0.326
High income 08	.052305	.1097087	0.634
Self employed 06	-.2010361	.3266545	0.538
Self employed 08	.4853261	.4626914	0.294
Employed 05	.4686595	.3690569	0.204
Employed 06	-.0082807	.0905567	0.927
Employed 07	.2113076	.3979347	0.595
Employed 08	-.0549581	.0901137	0.542
Other occupations 05	.3849526	.3700574	0.298
Other occupations 07	.27924	.3952337	0.480
University 05	1.352336	.5389318	0.012*
University 06	-.7560274	.2387075	0.002*
University 07	.4850235	.5166903	0.348
University 08	-1.483875	.7478653	0.047*
High school 05	1.529304	.5394216	0.005*
High school 06	-.7619488	.2420623	0.002*
High school 07	.5216161	.5155511	0.312
High school 08	-1.267906	.7486833	0.090**
Moscow 05	-.2113015	.0798329	0.008*
Moscow 06	.0227316	.0852015	0.790
Moscow 07	-.3030347	.0865404	0.000*
Moscow 08	-.0725826	.0835828	0.385

Young 05	-.1932552	.0854037	0.024*
Young 06	-.2964547	.1049102	0.005*
Mid 07	.0500187	.0953667	0.600
Mid 08	.2485515	.1019718	0.015*
Old 06	-.1667121	.1137021	0.143
Old 08	.5188272	.1147429	0.000*
Married /living together 05	.115689	.1330237	0.384
Married /living together 06	.0409217	.1293375	0.752
Married /living together 07	-.1336345	.1406558	0.342
Married /living together 08	.1973634	.1431155	0.168
Single/ divorced 05	.2355343	.1567741	0.133
Single/ divorced 06	.1421112	.1522068	0.350
Single/ divorced 07	-.0747722	.1674986	0.655
Single/ divorced 08	.1532281	.1684278	0.363
Fish shop/ wet market 05	2.552504	.21281	0.000*
Fish shop/ wet market 06	2.25085	.1826448	0.000*
Fish shop/ wet market 07	.2454877	.2570934	0.340
Fish shop/ wet market 08	.2824273	.2295181	0.219
Super/hypermarket 05	2.695948	.2050829	0.000*
Super/hypermarket 06	2.038675	.1682562	0.000*
Super/hypermarket 07	.1762301	.2443517	0.471
Super/hypermarket 08	.1689734	.2194477	0.441
Universam 05	2.586318	.2160717	0.000*
Universam 06	1.966859	.1839951	0.000*
Universam 07	.2174868	.2611691	0.405
Universam 08	.1164597	.229884	0.612
Grocer's 05	2.58253	.2271466	0.000*
Grocer's 06	1.999212	.2115098	0.000*
Grocer's 07	.2896885	.2919871	0.321
Grocer's 08	.2278023	.2520865	0.366
Home 05	.234677	.2720436	0.388
Home 06	.6980601	.1160819	0.000*
Home 07	.6047105	.1224871	0.000*
Home 08	.112507	.125275	0.369
Restaurant /cafe 06	.4272256	.2966364	0.150
Restaurant /cafe 07	.4024734	.3003278	0.180
Restaurant /cafe 08	-.1711821	.336989	0.611
Other places 05	-.2787715	.2849686	0.328
Whole fish 05	-.107388	.0951803	0.259
Whole fish 06	-.0232038	.1183668	0.845
Whole fish 07	.1796537	.1036774	0.083**
Whole fish 08	.121205	.1125745	0.282
Filet 05	-.009454	.1113616	0.932
Filet 07	.1274226	.1117386	0.254
Other pieces 06	-.2770168	.1139735	0.015*
Other pieces 08	.0278508	.1074428	0.795
Lunch 05	.3709639	.1144074	0.001*
Lunch 06	.6232778	.1140213	0.000*
Lunch 07	.1580841	.1196161	0.186

Lunch 08	.516991	.1156297	0.000*
Everyday dinner 05	.309217	.1076851	0.004*
Everyday dinner 06	.5025782	.106192	0.000*
Everyday dinner 07	.0425207	.1165766	0.715
Everyday dinner 08	.4696403	.1108815	0.000*

* Denotes statistical significance at the 5% level
** Denotes statistical significance at the 10 % level

Salmon

Ordered probit regression
Number of obs   =   2820
LR chi2(89)   =   2187.48
Prob > chi2   =   0.0000
Log likelihood = -3142.0818
Pseudo R2   =   0.2582

Variables	Coeff.	Std. Err	P>|z|
Dummy 06	-1.812105	.7458321	0.015*
Dummy 08	-1.364219	.9466526	0.150
Low income 05	-.1451525	.1096393	0.186
Low income 06	-.2944544	.125216	0.019*
Low income 07	-.2069738	.1538236	0.178
Low income 08	.0971641	.1738715	0.576
Medium income 05	.0102794	.1144293	0.928
Medium income 06	-.1771309	.1198869	0.140
Medium income 07	-.2302942	.1392945	0.098**
Medium income 08	-.2563664	.1321463	0.052**
High income 05	.1830639	.1268782	0.149
High income 06	.0706687	.1170383	0.546
High income 07	.104598	.1349333	0.438
High income 08	.0540929	.114276	0.636
Self employed 06	-.0097782	.3241494	0.976
Self employed 08	-.0813821	.4917506	0.869
Employed 05	-.4242831	.3850165	0.270
Employed 06	-.0481759	.0925019	0.602
Employed 07	-.0227825	.4657716	0.961
Employed 08	-.0126646	.0944677	0.893
Other occupations 05	-.4940526	.386047	0.201
Other occupations 07	-.1262503	.4626283	0.785
University 05	.2679082	.6197436	0.666
University 06	.4429398	.2581594	0.086**
University 07	-.6038177	.3846641	0.116
University 08	-.3638109	.6612846	0.582
High school 05	.1458325	.6201984	0.814
High school 06	.3055644	.2607692	0.241
High school 07	-.5985956	.3845904	0.120
High school 08	-.4936387	.6646379	0.458
Moscow 05	.263529	.0813797	0.001*
Moscow 06	.2355713	.0879229	0.007*
Moscow 07	.2787509	.0971439	0.004*
Moscow 08	.1443877	.087941	0.101
Young 05	-.0987565	.0854238	0.248
Young 06	-.2859376	.107118	0.008*
Mid 07	.1134707	.1033497	0.272
Mid 08	.1044276	.1038596	0.315
Old 06	-.3141781	.1178422	0.008*

Old 08	.2039206	.1203807	0.090**
Married /living together 05	.3597499	.1385285	0.009*
Married /living together 06	.0761341	.1366911	0.578
Married /living together 07	.1659871	.162565	0.307
Married /living together 08	.2374558	.1560861	0.128
Single/ divorced 05	.4725999	.1636346	0.004*
Single/ divorced 06	.1868614	.160461	0.244
Single/ divorced 07	.1700162	.1907564	0.373
Single/ divorced 08	.2958066	.1802511	0.101
Fish shop/ wet market 05	2.539938	.1568975	0.000*
Fish shop/ wet market 06	.1776986	.2034779	0.382
Fish shop/ wet market 07	-.2985697	.2678891	0.265
Fish shop/ wet market 08	-.132847	.2374751	0.576
Super/hypermarket 05	2.575466	.1499541	0.000*
Super/hypermarket 06	.292377	.1859199	0.116
Super/hypermarket 07	-.0324879	.256126	0.899
Super/hypermarket 08	.0895152	.2242946	0.690
Universam 05	2.648735	.1975901	0.000*
Universam 06	.1738024	.2551987	0.496
Universam 07	-.2351411	.3242654	0.468
Grocer's 05	2.454176	.2015532	0.000*
Grocer's 07	-.2702582	.3167051	0.393
Grocer's 08	-.2192872	.2706926	0.418
Other shops 06	-2.056769	.2186724	0.000*
Other shops 08	-.3897173	.325818	0.232
Home 05	.5262277	.0977057	0.000*
Home 06	.9049169	.1092455	0.000*
Home 07	.4436991	.1153094	0.000*
Home 08	.4309898	.1090387	0.000*
Restaurant /cafe 05	.5031552	.1409054	0.000*
Restaurant /cafe 06	.5758015	.1768131	0.001*
Restaurant /cafe 07	.1918614	.1844383	0.298
Restaurant /cafe 08	-.0328807	.1629826	0.840
Whole fish 05	-3.484478	1.003466	0.001*
Whole fish 06	.3155985	.1237573	0.011*
Whole fish 07	-.0241232	.1239372	0.846
Whole fish 08	.1084253	.1108687	0.328
Filet 05	-3.460713	.9984208	0.001*
Filet 06	.3933817	.1113992	0.000*
Filet 08	-.0187571	.1028784	0.855
Filet 07	-.0022823	.1124024	0.984
Other pieces 05	-3.759191	.9956081	0.000*
Everyday dinner 05	.058297	.1025227	0.570
Everyday dinner 07	.0161918	.1116894	0.885
Everyday dinner 08	.8461314	.1098505	0.000*
Special dinner 05	-.3697334	.1026619	0.000*
Special dinner 06	-.5895506	.122911	0.000*
Special dinner 07	-.8404587	.1203223	0.000*
Other meals 06	-.335367	.1161875	0.004*

| Other meals 08 | .8935298 | .113169 | 0.000* |

* Denotes statistical significance at the 5% level
** Denotes statistical significance at the 10 % level