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# What drives the decision to cook at home? The case of the Portuguese population

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***Abstract***

**Title:** What drives the decision to cook at home? The case of the Portuguese population

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Cooking is one of the basic activities of humans' lives. However, the decision to cook is triggered by different and many reasons. In this present dissertation, associations between the frequency of cooking at home (during the week and on weekends) with cooking-related motivations and Cooking Mobile Applications were analyzed. By using the pooled data from an online survey from April of 2019, we can examine what influences Portuguese people's decision-making to cook at home and whether currently available Cooking APPs have an influence on this habit. This contribution allows us to understand which motives e.g. health-related, hedonism-related or duties-related are stronger and more influential for the adult population in Portugal to take the decision to cook. Duty-related motives were found to be significant to the frequency of cooking at home during the week and, diversely, health and hedonic motives were not significant. During the weekend, duties and health motives are significant to the frequency cooking at home and only hedonics motives are not. For the second part of the analysis of this work, the usage of mobile cooking apps was found to be significant for both weekdays and weekends.

**Keywords:** Home Cooking; Motivational drivers; Cooking-related motivation; Portuguese Population; Mobile Applications; Duty; Health; Hedonism.

## ***Sumário***

**Título:** O que impulsiona a decisão de cozinhar em casa? O caso da população portuguesa

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Cozinhar é uma das atividades básicas da vida humana. Entretanto, a decisão de cozinhar é desencadeada por diferentes e diversas razões. Nesta presente dissertação, foram analisadas associações entre a frequência de cozinhar em casa (durante a semana e nos fins de semana) com motivações para cozinhar e com aplicações móveis para cozinhar. Utilizando os dados de uma pesquisa on-line de abril de 2019, podemos examinar o que influencia a decisão dos portugueses de cozinhar em casa e se os APPs de cozinha atualmente disponíveis têm influência sobre este hábito. Esta contribuição nos permite entender quais motivos, por exemplo, relacionados à saúde, hedonismo ou deveres são mais fortes e influentes para a população adulta em Portugal para tomar a decisão de cozinhar. Os motivos relacionados a dever foram considerados significativos para a frequência de cozinhar em casa durante a semana e, diversamente, os motivos de saúde e hedonismo não foram significativos. Durante o fim de semana, os motivos de dever e de saúde são significativos para a frequência de cozinhar em casa e somente os motivos hedônicos não são significativos. Para a segunda parte da análise deste trabalho, o uso de aplicações móveis para cozinhar foi considerado significativo tanto para os dias de semana quanto para os fins de semana.

**Palavras-Chave:** Cozinhar em casa; Gatilhos motivacionais; Motivações relacionadas à cozinha; População portuguesa; Aplicações móveis; Dever; Saúde; Hedonismo.

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## **CHAPTER 1: INTRODUCTION**

This chapter presents the dissertation topic, aim and scope. It starts by analyzing the overall situation regarding the continuous changes in society's eating habits. Secondly, it is explained how the technological advance that we are facing has been influencing society's various day-to-day activities, including eating and cooking practices. Then it brings up the problem statement that led to the aim of the dissertation, presents the research questions that will be answered throughout the essay, the methods applied and the academic and managerial relevance of the presented topic. Finally, it details an outline of the dissertation.

### **1.1 Background and Problem Statement**

A recent study showed that between 1965 and 2008 the frequency of eating out increased, while the overall amount of time spent in food preparation at home decreased (Smith, Ng and Popkin, 2013). The feeling of not having enough time, setting work as priority, more demanding and irregular working hours, higher number of working women, smaller families, decline in marriage rates and increase in the number of fast-food restaurants available have affected the act to cook at home. Those factors are thought to be responsible for decreasing the preparation of food at home and increasing the consumption of fast and ready-prepared meals (Stratila, 2018).

Smith, Ng and Popkin (2013) also noticed that in the mid-1990s both home food consumption and the time spent in food preparation stabilized, with just little additional decrease occurring in later years. Consequently, the increase in the consumption of fast and ready-prepared meals also slowed down. A tendency of society to go back to the old customs and start spending more time in the kitchen cooking seems thus to be growing. The reasons why this movement is occurring go beyond the need to meet nutritional requirements. Cooking can also be a way to relax or to please, to impress friends and family who come over for dinner, to save money and more (Smith, Ng and Popkin, 2013).

Under the influence of changing social and temporal contexts, the acts of eating and providing for food go on evolving. Within the Digital Era that we are facing, internet and online technologies have helped connecting modern devices into many new areas of personal life, including daily tasks (Haris, 2016). With that, the simple act of cooking at home got leveraged by the technological advance. Plenty of applications have been developed with the promise of helping people to improve their cooking skills, make healthier decisions, spend more time at home learning and sharing new recipes with family and have fun cooking. Their adoption and

market success depends on a good understanding of the motivations leading people to cook and eat more at home.

While there is a good understanding of the determinants of home cooking in general (Mills et al., 2017), little is known about how these might differ with occasion and if the usage of cooking apps along with those determinants are significant for the frequency of cooking at home on weekdays and/or on weekends. This thesis studies these relationships in the Portuguese community.

## **1.2 Aim and Scope**

The general aim of this research is to assess what drives Portuguese adults' decision to cook at home on weekdays versus weekend days and to understand how the frequency of cooking at home is associated to their use of mobile home cooking applications.

To achieve this aim, the following research questions are addressed:

1. What are the triggers that lead Portuguese adults to cook at home?
2. Do triggers vary with occasion (weekdays vs weekend days)?
3. Are cooking apps relevant for the decision to cook at home during the week? And for during the weekend?

This dissertation is focused mainly on the analysis of home cooking habits among adults at working life ages in Portugal (Between 18–55 years old) and the period of the analysis reports is 2019, the year when data were collected.

## **1.3 Research Methods**

With the purpose of answering the research questions above mentioned and to describe what circumstances and factors stimulate Portuguese' adults to cook at their homes, a descriptive research approach was used.

The study is based on quantitative secondary data collected from a survey conducted online in 2019 by two professors from Católica Lisbon School of Business and Economics: Professor Ana Isabel Costa and Professor Cláudia Simão. Also, this dissertation uses both univariate and multivariate statistical analysis. To better understand the population of the respondents (e.g. gender and age) and for the process of exploring the motivations that arouse interest in cooking at home among Portuguese adults, univariate analysis was used. Diversely, multivariate analysis was used to study how the respondents' frequencies of cooking at home during the

week and on weekends are associated to their cooking-related motivations and to their frequency of cooking applications usage. The analyses were concluded for both occasions: during the week and on weekends to study if their motivations differ depending on the occasion.

#### **1.4 Relevance**

This research should help the providers of home cooking applications and marketers by giving information about consumers' motivational triggers and preferences. With that, they can develop strategies to create more value to the consumers, improve engagement and therefore lead to more sales and revenues within this market.

In addition to that, families and clients, as customers, will be targeted to reflect on their behaviour habits while restaurants and supermarkets, as suppliers, will benefit from getting insights on what is currently motivating their target group's decision to eat/cook.

Moreover, this dissertation will also add information to the existent literature since it intends to fill a gap for the Portuguese community. It contributes to the literature of home cooking, with additional findings about how its motivations can be influenced by the individual's social and temporal context.

#### **1.5. Dissertation Outline**

This dissertation entails five sections, as follows: the first section introduces the dissertation background, presents the problem statement to be solved, the aim, scope, the research questions, the research methods, the relevance of the research and the structure of the work. Section 2 is the literature review chapter, which provides an overview of the core concepts addressed in this thesis and from which the hypothesis to be tested were outlined, such as: Home Cooking, Cooking-Related Motivations, the Smartphone Technology and the Mobile Food and Cooking Apps. Section 3 presents the research methodology, gives details on the type of data that was analyzed, presents the population under study and the sample used, identifies the variables (dependent and independent variables), presents the statistical tools and analysis performed to test the outlined hypothesis. Section 4 presents and discusses the results obtained through the statistical analysis. Lastly, the section 5 is the conclusion chapter, which outlines the main findings and take-aways of the study and also presents the limitations of this dissertation and suggests avenues for future research.

## **CHAPTER 2: LITERATURE REVIEW AND RESEARCH HYPOTHESES**

This chapter first introduces the definition of home cooking and explains how this habit is viewed from society's perspective. Secondly, it compiles prior research on cooking-related motivations and inspirations and follows up by exposing the three main triggers that drives the home cooking habits. Furthermore, it brings the definition of Smartphone and Mobile Applications and presents a literature review on Home Cooking Apps. Lastly, conclusions are drawn from the literature reviewed and research hypotheses are put forward.

### **2.1 Home Cooking Definition and Meaning**

According to Cambridge dictionary, *cooking* is "The skill or activity of preparing food for people to eat" and *home* is "The place where you live". Now, according to Oxford Dictionaries, *home cooking* is "Food prepared in the home as opposed to made in a restaurant or bought ready-made". However, the meanings of cooking can differ from person to person and be greatly influenced by social and temporal contexts. For example, individuals with less demanding routines are more likely to associate cooking with leisure, couples with children are more likely to associate cooking with caring, single and working adults are more likely to cook only to meet nutritional needs (Daniels, Glorieux, Minnen, & van Tienoven, 2012).

To eat is one of human's primary necessities. And so, at its most basic, home cooking is about survival. But, for most of people this practice goes well beyond. To cook at home is motivated from many different reasons and has a unique perceived value for each individual.

### **2.2 Cooking-related Motivations**

Within the last few years, the interest in cooking was rapidly spread. People started to share experiences on social media, publish recipes, report perceived benefits from the new habit and therefore were influencing each other (Worsley, Wang, Ismail and Ridley, 2014).

The decision to cook at home or to dine out relies on the perceived benefits for the individual's self-fulfilment, hedonic and social motives and can be enhanced by time, money and human capital variables (Namin, Ratchford, Saint Clair, Bui, & Hamilton, 2020).

For instance, self-fulfilment can be measured with the sense of accomplishment and interest; hedonics can be measured with affective feelings, pleasure and relaxation; and social motivation can be measured with creating identity and socialization opportunities.

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<sup>1</sup> See <https://dictionary.cambridge.org/pt/dicionario/ingles-portugues/cooking>

<sup>2</sup> See <https://dictionary.cambridge.org/pt/dicionario/ingles-portugues/home>

<sup>3</sup> See [https://www.lexico.com/definicao/home\\_cooking](https://www.lexico.com/definicao/home_cooking)

Now, each one has a different reason for adventuring in the kitchen: because it is relaxing, to improve skills, to save time, to save money, to try an exotic dish, to share moments with friends and family, to eat healthier, to avoid food allergies and sensitivities, to better control the portion and more (Mills et al., 2017, Costa, Schoolmeester, Dekker, & Jongen, 2007).

Lastly, the year of 2020 led to an increase in home cooking numbers, as a result of the pandemic that we are facing. The isolation has driven people to their homes and kitchen and a very recent survey conducted in the United States reported that more than half of the respondents claimed to be cooking more now than before the pandemic, 75% said that confidence in the kitchen has risen during the year and also 51% demonstrated interest on continuing to cook even after the crisis is gone (Taparia, 2020).

### **2.2.1 How motivations to home cook might change with occasion**

Even if given the same recipe, utensils, ingredients, preparation method, etc., the act of cooking would be different. Each cook has his or her own motivation to do so and a given importance for such moment. That means that, depending on their social and temporal context their motivations for the practice can be totally different (Daniels, Glorieux, Minnen, & van Tienoven, 2012). For instance, on the weekends, meal solutions are usually more varied than home-cooked meals, instead of cooking and eating at home, consumers are more likely to go out for a restaurant or to order food, as they are willing to save the time and the effort of shopping, preparing and cleaning up the kitchen afterwards. Diversely, on weekdays, to cook meals at home is credible for the convenience and functionality. It is considered a habit and included in the routine (Costa, Schoolmeester, Dekker, & Jongen, 2007).

### **2.2.2 Home Cooking and Hedonism**

True fact is that society loves convenience. And this is not different when relating to food habits. Especially after a hectic day, eating out or ordering food from a restaurant is an appealing alternative for many. On the other hand, some people go to the kitchen intentionally after a busy day because for them, to cook brings emotional and social benefits. In this context, cooking at home can be fun, empowering, a stress and anxiety reliever, creatively fulfilling, a mood and self-esteem booster and more (Goldman, 2017, Namin et al., 2020).

Moreover, another strong incentive to cook is the belief that cooking brings people together. It's believed that cooking is a great way to unite our loved ones, to expand social network by sharing experiences and good times, to show care and love by cooking a special dish for

someone and also a good opportunity to teach children (maybe by asking them to read the recipe or to mix ingredients) (Lacoviello, 2015, Costa, et al., 2007).

### **2.2.3 Home Cooking and Health**

Studies have stated that eating out has positive correlation with obesity (because of their high energy density, low nutrient density, and large portion sizes (Mancino, Todd & Lin, 2009; Powell & Nguyen, 2013, Nago, Lachat, Dossa, & Kolsteren, 2014), reduces diet quality, have a large effect on total daily calories and is associated with less healthful foods choices (Mancino, Todd & Lin, 2009). Oppositely, home cooked food is considered to be an ally for someone's health and well-being and is also seen as a combatant of obesity and low quality diets (Mills et al, 2017).

Within potential outcomes of home cooking, plenty focus on its putative dietary benefits (Larson et al., 2006, Mills et al., 2017, Costa, Schoolmeester, Dekker, & Jongen, 2007), greater fruit and vegetables intake (Chu et al., 2012), enhanced nutrient consumption (Wolfson & Bleich, 2014), ingestion of healthier food groups (Monsivais, Aggarwal, & Drewnowski, 2014), healthier cooking practices (Kramer et al., 2012).

Previous research has shown that those who take the decision to prepare their meals at home from scratch are more concerned with making healthier food choices and with the quality of their diet as well (Lo, Chang, Wahlqvist, Huang, & Lee, 2012). However, those who don't have skills or never got the chance to learn how to cook are more likely to prefer easy and ready to consume meals which most of the time are not the best options for their nutrition and calorie index (van der Horst, Brunner, & Siegrist, 2010).

### **2.2.4 Home Cooking and Duty**

When thinking about the beginning of the 19<sup>th</sup> century, domestic cooking was considered as a gendered work. In order to fulfill their wife/mother role, women carried a moral obligation to prepare meals for their relatives as well as take the responsibility of all the others house works. Despite the changed cultural discourse on domestic cooking, a portion of society still considers cooking to be primarily female, putting a pressure on those women who don't do or don't know how to cook (Mancino & Newman, 2006, Caraher et al., 1999, Taillie, 2018).

However, cooking for duty motives are not only related to gender. It involves also self-appreciation, family responsibilities, human capital, awareness of time and money, proof of capabilities, awareness on health implications etc. (Costa, 2013).

Lastly, duty to cook is also linked to monetary reasons besides moral and gender. Feeling of duty to cook may also be connected to budget considerations, for instance, population with lower monthly income cook more at home in order to save money, while those with higher income are more likely to spend money eating out when compared to the first group (Díaz-Méndez & van den Broek, 2017, Cullen, 1994, Mills et al., 2017).

### **2.3 The Smartphone Technology**

Due to several key technological advances the mobile phones have evolved to be “Smartphones”. More than just calling, texting and emailing, those devices perform as fully functional computers that can be carried around in our hands and fit in our pockets. Those telephones enhanced with computer technology were introduced not a long time ago, back in the 1980s, and have already revolutionized not only the way we communicate but many others activities that were not yet reachable via online (Bhattacharjee, 2019).

Currently, those devices play an important role in user’s lives by participating and supporting pretty much every activity in someone’s routine. People around the world use those apparatus to network, listen to music, buy products, follow the news, to learn, to watch movies and videos, to get directions, access social media, to schedule doctor appointments, to make bank transactions and bills payments, order food and so many others. And all that is possible because the Smartphones that they own provide easy access to information and services at any time and from almost everywhere (Wang, Park and Fesenmaier, 2011).

These devices reach all ages and cover a huge range of necessities. Recent study has shown that in Europe almost 30% of children between 9 to 12 years old already use Smartphones to have access to the internet and the percentage is doubled when the data concerns teenagers between 13 and 16 years old (Borja-Santos, 2014). Meanwhile, the other extreme, the seniors, are more digitally connected than ever and according to research 40% of this group own Smartphones and this number holds promise to grow (Anderson and Perrini, 2017).

### **2.4 Mobile Applications**

A mobile application, mobile app or just “app” is a software program designed for mobile devices, like a smartphone or tablet. Differs from the applications developed for computers since it has a specific and well-defined aim, therefore is much more limited (Jiang et al., 2018). This characteristic works as a filter, since it allows the consumer to handpick the exact function that they are searching for, for example, a calculator, a video maker, a directions provider, a

weather forecast and more.

The demand for applications is continuous and crescent, especially because almost everyone has a device with an operating system that can support downloads and installations of apps. Present-year researches showed that in the 2nd quarter 2020 there were 4.52 million apps available when adding up the numbers of Google Play and Apple's app stores, the current two leading app stores, and also reported that in 2019 consumers downloaded 204 billion mobile apps to their connected devices (Clement, 2020). Those numbers suggest that there are apps for almost every need and for almost every target group. They might have differences in details but they share the same objective: to make the user's life easier (Rosul, 2020).

#### **2.4.1 Home Food and Cooking apps**

Food management skills, especially cooking skills, are important to individuals and should be highly encouraged as they bring many benefits. In the past century, cooking classes were mandatory at school, and now these classes are no longer a formal discipline (Stitt, 1996). In addition, many other factors are considered to be barriers to the development of culinary skills, such as convenience products, easy access to ready and quick meals, laziness, and the refusal to make an effort. Therefore, it is thought that individuals may not have the necessary confidence and/or skill level to prepare a meal (Lavelle et al., 2017).

Following with this reasoning, since the confidence, skills and competence in the kitchen are not being very much explored, society is constantly searching for support, especially on the internet, a great source of information. And that's where food and cooking apps come into play: they offer recipes to inspire, instructions, provide weekly meal plans, dietary tips, share nutritional information, and more (Brown, Siddiqi, Froome, & Arcand, 2019). The truth is that food and cooking apps are for everyone. Target people that really struggle with basic recipes but also, the high chef level ones.

#### **2.5 Motivations for people to adopt cooking apps**

Home cooking culture is been affected by social, environmental and technological changes. For instance, time constraints leading to less time spent preparing homemade foods, greater availability of ready-made foods leading to an increase in foods produced and consumed outside of the house, lack of inspirations and cooking skills leading to an increase in the consumption of convenience products (Lavelle et al., 2016). Meanwhile, mobile applications have become increasingly diverse being able to support a huge range of activities by

understanding consumer necessities, attitudes, preferences and willingness. (Doub, Levin, Heath, & LeVangie, 2015).

Following with this reasoning, the major motives behind the use of cooking apps are to overcome some barriers, such as: time pressure, with the support of the app consumers are able to prepare meals faster and more efficiently; desire to save money, plenty of mobiles apps offer shopping lists and “cheap recipes” alternatives; desire for effortless meals, applications give detailed instructions and “easy recipes” alternatives; and avoiding kitchen disasters, with videos, pictures, and step-by-step guidelines the apps give confidence to the cooker (Garvin et al., 2019, Lavelle et al., 2016). In addition, another strong motivator to use apps while cooking is health purpose (Flaherty et al., 2017). Apps for healthy homemade meals are not only gaining awareness in the app stores, but also taking on an increasingly central role in community nutrition programs (Mauch et al., 2018).

## **2.6 Research Hypothesis**

In view of all the content studied and based on a rich literature review available in articles, books and websites, two research hypotheses were formulated in order to understand better the topic and also to find the answers for the research questions presented in chapter 1:

RH1: Motivations for home cooking are different for weekdays and weekend days;

RH2: Cooking apps have different importance for the decision to cook at home for week days and weekend days.

## **2.7 Dissertation Summary**

Past studies have identified some motivators that drive the decision to cook at home and this research will add information to the existing literature while filling the gap for the Portuguese adults. In addition, we will assess if the motivations to cook at home change and/or depend on the occasion, that is, if the triggers of cooking are the same for the week days and for the weekends.

Moreover, it is believed that technology and all the cooking mobile applications that are available today in the market help society by teaching new recipes and techniques and by stimulating people to adventure and have some fun in the kitchen. With high diversity of functions, simple designs, low or no expenses they have great potential to help individuals to improve their cooking abilities.

## **CHAPTER 3: METHODOLOGY**

This section presents the methodology undertaken to conduct the studies and to answer the research questions addressed in chapter 1. Also, it references the data, identifies the variables (DV and IV) and presents the statistical tools and tests used to analyse data.

### **3.1 Research approach**

This thesis adopted a deductive research approach. While concluding a rich literature review of existing theories and publications on home cooking, cooking-related motivations and inspirations and culinary mobile applications two hypotheses were formulated and tested.

Moreover, this work is designed under a descriptive analysis with the intention to understand which variables - hedonic motives, health motives, duty motives and the frequency of usage of mobile cooking apps - are important (significant) for the decision to cook at home during the week and on weekend days. For that, quantitative secondary data collected via an online survey in April of 2019 by Professor Ana Isabel de Almeida Costa and Professor Cláudia Simão was used and analysed through RStudio software and SPSS Statistics (Version 26).

### **3.2 Research methods**

#### **3.2.1 Population and Sample**

The sample used in this work was drawn from a large (~15 500 members) nationally representative panel of the Portuguese adult population with quotas set for sex (maximum one third men) and age (younger and older adults in equal proportion). The sample was not meant to be representative of the Portuguese population as a whole, but rather of the household main meal preparers in active life age, so pre-retirement. The sample size reached a total number of 522 respondents with ages varying between 18 and 55 years (working adults).

#### **3.2.2 Design and Measures of Secondary Data**

The participants received by e-mail an invitation to participate in an online study on meal preparation habits through a private link from Qualtrics in April of 2019 against a gift card reward. For this study, the dataset was filtered and only the questions that would help us to understand the participants' motivations to cook at home during the week and on weekends and

the importance of the mobile cooking APPS to the decision to cook at home during the week and on weekends were selected and analysed.

As a starting point, respondents faced questions to measure their frequency of cooking at home during the week (ranging from 0="Never" to 5="Five days a week") and frequency of cooking at home during the weekends (ranging from 0="Never" to 4="Every weekend"). Respondents that didn't state to never cook at home were then given 14 different reasons to cook and were asked to rate on a 7-point Likert scale (1="Totally disagree"; 7="Totally agree") their motivations to cook at home, both on weekdays and on weekend days. The alternatives for each question presented were drawn from research on the determinants of home cooking based on existing literature (affective, instrumental and normative motivations) (Costa et al., 2005, Mills S, White M, Brown H, et al., 2017, Costa AIdA, 2013). Those who stated to never cook at home were directed to the final stage of the survey.

Next, the participants were asked how often they use mobile phone applications while coking on weekdays and on weekend days and were supposed to answer according to a 5-point scale ordered and labeled as: 1="Never", 2="Rarely", 3="Sometimes", 4="Often" and 5="Always".

In the final section of the survey, all participants were asked some demographics questions such as sex and age, in order to characterize the sample.

### 3.3 Variables

Table 1. Dependent and Independent Variables

Dependent Variables		Measurement
Frequency	Frequency of cooking at home on the weekdays	0="Never" to 5="Five days a week"
	Frequency of cooking at home on weekends	0="Never" to 4="Every weekend"
Independent Variables		Measurement
	To cook gives me pleasure	
	It relaxes me	
	I take advantage of it to spend time with family and friends	
	I can try new recipes or new foods	
	It fulfills me	
	I can do it well	
	I have the time and the willingness to do it	
	For health reasons	
	It's important to the health and well-being of others	
	For reasons of diet and dietary restrictions	
	For economic reasons	
	Out of habit	

Motivations	I am in charge of cooking at my household	Likert scale (1="Completely disagree" to 7="Completely agree")
	Out of obligation or duty	
Mobile APP support	Do you usually use phone apps to cook?	1="Never" 2="Rarely" 3="Sometimes" 4="Often" 5="Always"

### 3.4 Statistical Analysis

The statistical analysis was carried out with IBM SPSS Statistics (Version 26) and RStudio between October of 2020 and March of 2021 and its significance level was evaluated at a 95% significance level  $p < .05$ , unless otherwise stated.

#### 3.4.1 Factor Analysis and Principal Component Analysis

As shown in the above table, we have 14 different independent variables for the cooking-related motivations. In order to reduce the number of measured variables into a smaller set of components a Principal Component Analysis (PCA) was conducted for both occasions: week days and weekend days. The decision of how many components best summarize the variance in the original set of variables was evaluated at Eigen value  $\geq 1$ . The extracted factor variables were then saved as regression scores.

Table 2. KMO and Bartlett's Test

KMO		Week Days	Weekend Days
KMO		0,860	0,853
Bartlett's test of Sphericity	Approx. Chi- Square	2409,558	2775,313
	df	91	91
	Sig.	0,000	0,000

#### 3.4.2 Data Analysis and Hypothesis Testing

In order to test the research hypothesis RH1 and RH2, previously presented in chapter 2, and to answer the research questions from chapter 1, a statistical analysis was conducted. As a starting point, to explore the data and classify the sample of the population under study a univariate analysis was conducted to gather information about its descriptive frequencies, means, medians and standard deviations.

Next, to assess the degree of association between the independent variables and the dependent variable, a regression analysis was performed. Through this method, it was possible to study the

relationship between the dependent variable and the independent variables, compute the correlation coefficients and conclude the appropriate linear regression model.

To test the Research Hypothesis 1: “Motivations for home cooking are different for weekdays and weekend days” a multiple linear regression model was used and structured according to the mathematical equation below:

Where,

- is the explained or dependent (random) variable;
- Hedonics, Health and Duty are the explanatory or independent variables measured without error (non-random);
- is the residual random variable. It includes all the influence on the frequency of home cooking that cannot be linearly explained by the independent variables, and also the possible measurement errors;
- $\beta_0$  is the value of Y when all of the independent variables are equal to zero;
- $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are the unknown parameters of the model (estimated through the method of least squares).

Moreover, to test the Research Hypothesis 2: “Cooking apps have different importance for the decision to cook at home for week days and weekend days” it was added one more independent variable to the multiple linear regression model used for RH1 test, the “” and presented as follows:

Where,

- is the explained or dependent (random) variable;
- is the frequency of mobile applications usage;
- Hedonics, Health and Duty are the explanatory or independent variables measured without error (non-random);
- is the residual random variable. It includes all the influence on the frequency of home cooking that cannot be linearly explained by the independent variables, and also the possible measurement errors;

- $\beta_0$  is the value of Y when all of the independent variables ( $X_1$  through  $X_p$ ) are equal to zero;
- $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$  are the unknown parameters of the model (estimated through the method of least squares).

## CHAPTER 4: RESULTS AND DISCUSSION

This section presents the results of the statistical analysis undertaken. It is divided into three sections: First, a Descriptive Analysis, in order to describe and summarize the data, second a factor and PCA analysis to identify patterns in the correlations between variable and finally, a Multivariate Analysis (Multiple Linear Regression) with the objective of testing the hypotheses.

### 4.1 Descriptive analysis

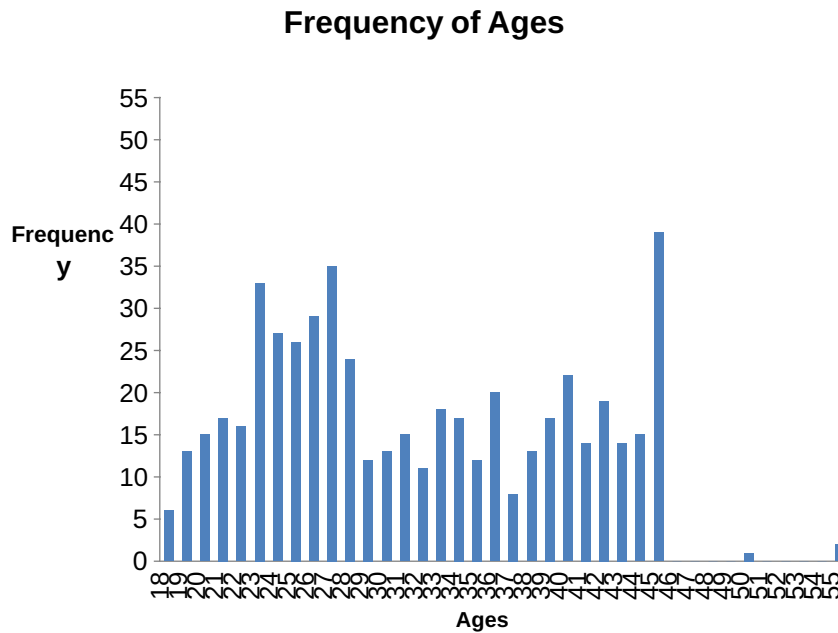
#### 4.1.1 Demographics

Out of a total of 522 adults that completed the survey, 357/522 (68.4%) were women and 165/522 (31.6 %) were men. The mean age of the participants was 31.60 years old (Standard Deviation = 8.24); the most frequent age was 45 with 38 respondents (7,27%); no respondents aged 46-49 or 51-54; only 3 respondents were older than 45 years old and half of the total respondents were less than 30 years old (median).

Table 3. Descriptive Statistics Gender and Age

Variable	Descriptive statistics	
Gender	Frequency	357 Women (68.4%) 165 Men (31.6 %)
Age	Mean	31.60
	Standard Deviation	8.24

Figure 1. Descriptive Statistics- Frequency of Ages



#### 4.1.2 Home Cooking

##### 4.1.2.1 Frequency

When asked about the frequency of cooking at home during the week, 28 (5.36%) respondents mentioned to never cook at home during the week, 25 (4.79%) one day per week, 45 (8.62%) twice a week, 87 (16.67%) three days a week, 70 (13.41%) four days a week and 267 (51.15%) five days a week. Now, regarding the frequency of cooking at home on weekend days, 46 (8.81%) respondents mentioned to never cook at home on weekends, 51 (9.77%) one weekend per month, 100 (19.16%) two weekends per month, 136 (26.05%) three weekends per month and 189 (36.21%) mentioned to cook every weekend (See table 4).

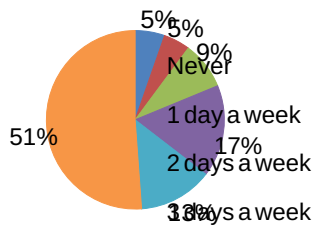
Table 4. Descriptive Statistics for Frequency of Home Cooking week days vs weekend days

	Frequency		Mean	Std. Deviation	Sample Size
Week Days	Never	28 (5.36%)	3,81 days a week	1,51	
	One day a week	25 (4.79%)			
	Two days a week	45 (8.62%)			
	Three days a week	87 (16.67%)			
	Four days a week	70 (13.41%)			
	Five days a week	267 (51.15%)			
	Never	46 (8.81%)			
	One weekend per month	51 (9.77%)			
		100 (19.16%)			

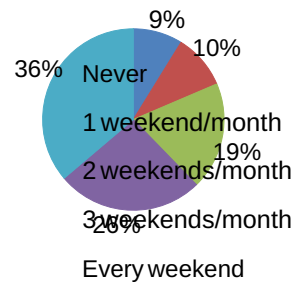
Weekend Days	Two weekends per month		2,71 weekends per month	1,23	522
	Three weekends per month	136 (26.05%)			
	Every weekend	189 (36.21%)			

Figures 2 and 3. Graphs Frequency of Home Cooking week days vs weekend days

**Frequency of Home Cooking Week Days**



**Frequency of Home Cooking Weekend Days**



#### 4.1.2.2 Motivations to cook

Regarding the cooking-related motivations, within the likert scale (1="Completely disagree" to 7="Completely agree"), "For economic reasons" (Mean 5.34), followed by "It's important to the health and well-being of others" (Mean 4.96) and "Out of habit" (Mean 4.58) were the three highest ones. In contrast, the three lowest ones were "I take advantage of it to spend time with family and friends" (Mean 3.60), "For reasons of diet and dietary restrictions" (Mean 3.54) and "It relaxes me" (Mean 3.27).

On weekends, the TOP 1 motivation was "For economic reasons" (Mean 5.06), followed by "I have the time and the willingness to do it" (Mean 4.78) and "It's important to the health and well-being of others" (Mean 4.76). The order of the TOP 3 was pretty similar to the one found for week days, but the weighted average were considerable higher for the week data. Now, talking about the least popular we found "For reasons of diet and dietary restrictions" (Mean 3.61), followed by "It fulfills me" (Mean 3.60) and "It relaxes me" (Mean 3.46).

Table 4. Descriptive Statistics week days vs weekend days

Variables	Week Days			Weekend Days		
	Mean	Std. Deviation	Sample Size	Mean	Std. Deviation	Sample Size
To cook gives me pleasure	4,11	1,910		4,11	1,938	460

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			494			
It relaxes me	3,27	1,892	494	3,46	1,880	460
I take advantage of it to spend time with family and friends	3,60	1,980	494	4,17	1,989	460
I can try new recipes or new foods	3,82	1,923	494	4,25	1,879	460
It fulfills me	3,66	1,878	494	3,60	1,930	460
I can do it well	4,32	1,723	494	4,28	1,806	460
I have the time and the willingness to do it	4,00	1,900	494	4,78	1,685	460
For health reasons	4,17	2,047	494	4,02	1,972	460
It's important to the health and well-being of others	4,96	1,867	494	4,76	1,852	460
For reasons of diet and dietary restrictions	3,54	2,115	494	3,61	2,045	460
For economic reasons	5,34	1,753	494	5,06	1,831	460
Out of habit	4,58	1,785	494	4,25	1,822	460
I am in charge of cooking at my household	4,03	2,109	494	3,90	2,056	460
Out of obligation or duty	4,19	1,994	494	3,78	1,998	460

#### 4.2 Factor and Principal Component Analysis

Both the factor analyses of motivations for cooking at home during the week (494/522) and motivations for cooking at home on weekends (460/522) yielded an acceptable solution of three factors (Eigen value  $\geq 1$ ). However, for weekdays, the three factors together accounted for 57.3% of the total variation in the data, while the corresponding weekend factors accounted for 60,6%.

Table 5 presents the three factors: Factor 1 entails 7 items related to pleasure, relaxation, conviviality, sense of accomplishment and creativity (hedonic-related motivations); Factor 2 aggregates 3 items related to others' well-being and diet (health-related motivations); and Factor 3 grouped 4 items related to responsibilities, obligations and habit (duty-related motivations).

Table 5 also depicts the corresponding items composing each factor, its loadings, means and standard deviations. The loadings values were very similar when comparing the same variable for weekdays vs weekend days, but, some information differed and were worthy of attention. For instance, on the weekends, the "Out of habit" variable was also connected with hedonic motives while during the week was just connected to duty motives; During the week, "Out of

obligation or duty” was negatively associated with hedonics motives while having no connection with hedonics motives for the weekend days. Lastly, “For economic reasons” variable, during the week was connected to two factors: health and duty, while on weekends was only associated with duty motives.

Table 6 outlines again the factors, however, associating them to their Eigen values, explained variances, reliability coefficients (Cronbach  $\alpha$ ), means and standard deviations. Week and weekends outputs showed pretty similar behaviours. However, the majority of the values for the weekend presented higher numbers. For both occasion, F1 among the three, was the one that explained most of the total variance (week = 33.78%; weekends = 35.75%) and also the one with the lowest mean rating (week = 3.82; weekends = 4.08). Health-related factor had the second highest mean rating (week = 4.26; weekends = 4.16) and also the second largest percentage of the total variance explanation (week = 13.06%; weekends = 15.60%). Lastly, the third factor exhibited the highest mean rating of all extracted factors (week = 4.53; weekends = 4.22) while explaining the least variance (week = 10.43%; weekends = 9.41%).

Table 5. Factor analysis of motivations for home cooking week days vs weekend days

	During the week (n=494)			During the Weekends (n=460)				
	Loadings			Mean (SD)	Loadings			Mean (SD)
	F1	F2	F3		F1	F2	F3	
It gives me pleasure	.88			4.11 (1.91)	.89			4.11 (1.94)
It fulfils me	.84			3.66 (1.88)	.86			3.60 (1.93)
It relaxes me	.82			3.27 (1.89)	.85			3.46 (1.88)
I can try new recipes or new foods	.75			3.82 (1.92)	.74			4.25 (1.88)
I can do it well	.74			4.32 (1.72)	.79			4.28 (1.81)
I take advantage to spend time with family or friends	.58			3.62 (1.99)	.57			4.17 (1.99)
I have the time and the willingness to do it	.53			4.00 (1.90)	.58			4.78 (1.69)
For health reasons		.86		4.17 (2.05)		.89		4.02 (1.98)
For reasons of diet or dietary restrictions		.81		3.54 (2.12)		.84		3.61 (2.05)

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It is important to the health and well-being of others		.53		4.95 (1.87)		.68		4.76 (1.85)
Out of obligation or duty	-.37		.75	4.19 (1.99)			.78	3.78 (1.99)
I am in charge of cooking at my household			.72	4.02 (2.11)			.76	3.90 (2.06)
For economic reasons		.35	.56	5.33 (1.76)			.54	5.06 (1.83)
Out of habit			.48	4.58 (1.78)	.38		.49	4.25 (1.82)

\*Rated from 1="Totally disagree" to 7="Totally agree".

Table 6. Factor analysis of motivations for home cooking week days vs weekend days

		Eigen value	Explained variance	Cronbach $\alpha$	Mean	Std. Deviation
Week days (n=494)	Factor 1: Hedonics	4.729	33.78%	0.867	3.82	0.35
	Factor 2: Health	1.828	13.06%	0.679	4.26	0.65
	Factor 3: Duty	1.460	10.43%	0.555	4.53	0.57
Weekends (n=460)	Factor 1: Hedonics	5.004	35.75%	0.885	4.08	0.44
	Factor 2: Health	2.184	15.60%	0.787	4.16	0.53
	Factor 3: Duty	1.318	9.41%	0.612	4.22	0.53

### 4.3 Multivariate analysis

#### 4.3.1: RH1:

##### 4.3.1.1 Week days

The model is significant  $F(3,490)= 19.36$  and  $p= .000 < .05$ ; The presented linear regression model provides a better fit to the data than a model that contains no independent variables, thus those independent variables are a good predictors of the dependent variable. Also, 10% of the variance (adjusted  $R^2$ ) in the frequency of cooking at home during the week can be explained by those motivation factors.

Table 7. Coefficients of the model- Week days

IV	Regression Coefficients	Unstandardized $\beta$	t- value	Sig.
Intercept	Constant	4.03	67.144	.000
	$\beta_1$	.203	3.608	.000
Health	$\beta_2$	-.039	-.685	.494
	$\beta_3$	.339	6.339	.000

Assessing the p-values Health-related motives and Duty-related motives are statistically significant. Although, the magnitude of the t-value provides means to judge the relative importance of the independent variables. In this example, Duty (t-value = 6.339) is the most significant independent variable followed by Hedonics (t-value = 6.339). Health variable does not reach statistical significance ( $p = 0.494$ ) in the multiple regression model.

#### 4.3.1.2 Weekend days

The model is significant  $F(3,456) = 11.54$  and  $p = .000 < .05$ ; Thus, the independent variables are good predictors of the dependent variable. Also, 6.4% of the variance in the frequency of cooking at home during the weekend can be explained by those motivation factors. According to table 8, Duty-related motives are the only statistically significant one. Hedonics ( $p = 0.415$ ) and Health ( $p = 0.402$ ) variables do not reach statistical significance in the multiple regression model.

Table 8. Coefficients of the model- Weekend days

IV	Regression Coefficients	Unstandardized $\beta$	t- value	Sig.
Intercept	Constant	2.986	65.236	.000
	$\beta_1$	.039	.815	.415
Health	$\beta_2$	.042	.839	.402
	$\beta_3$	.248	5.231	.000

#### 4.3.2: RH2:

To test the HR2 the level of significance was evaluated at 90%.

#### 4.3.2.1 Week days

The model is significant  $F(4,394) = 11.936$  and  $p = .000 < .10$ ; The IV are good predictors of the DV; 9.9% of the variance in the DV can be explained by the IV. According to table 9, Duty ( $p = .000$ ), Hedonics ( $p = .003$ ) and the frequency of App usage ( $p = .065$ ) are statistically significant. However, Health ( $p = 0.410$ ) do not reach statistical significance in the multiple regression model.

Table 9: Coefficients of the model- Week days

IV	Regression Coefficients	Unstandardized $\beta$	t- value	Sig.
Intercept	Constant	3.749	21.786	.000
	$\beta_1$	.188	3.018	.003

Health	$\beta_2$	-.053	-.826	.410
	$\beta_3$	.348	5.883	.000
Freq. App	$\beta_4$	.082	1.849	.065

#### 4.3.2.2 Weekend days

The model is significant  $F(4,367) = 5.688$  and  $p = .000 < .10$ ; 5% of the variance in the DV can be explained by those IV. According to table 10, Duty is the only statistically significant motive. Hedonics ( $p = 0.391$ ), Health ( $p = 0.556$ ) and App Usage (.445) variables do not reach statistical significance in the multiple regression model.

Table. 10. Coefficients of the model- Weekend days

IV	Regression Coefficients	Unstandardized $\beta$	t- value	Sig.
Intercept	Constant	2.868	18.561	.000
	$\beta_1$	.048	.858	.391
Health	$\beta_2$	.034	.589	.556
	$\beta_3$	.224	4.222	.000
Freq. App	$\beta_4$	.03	.764	.445

#### 4.4 Discussion

There are many different drivers and motives that can boost people's interest in Home Cooking and each of them contributes, some more than others, to variations on the frequency of cooking at home during the week and on weekends.

As for the motivations behind the decision to cook at home, out of a total of 14 available responses, 7 were related to hedonic reasons, 4 related to duty reasons, and 3 related to health reasons. Furthermore, the same answer choices were given for both weekdays and weekends days and the answers differed due to the different priorities that people have for each occasion.

The TOP 1 most voted reason to cook was the economic one, independent on the occasion (during the week and weekends). Shopping at the supermarket is still much cheaper than eating out. With this in mind, it was no surprise to have the economic reason as the #1! Not to mention that consumers can take advantage of promotions and buy more for less, which makes it even more economical!

Giving an overview, duty-related reasons, that is, those related with economic aspects, routine, habits and obligations were the most voted ones (with the highest means) for week days (mean = 4,53) and weekend days (4,22).

During the week, even with the routine of going to work, all the commitments to accomplish and time constrains, with the objective of saving money, individuals are pushed to keep the habit of cooking at home. In addition to this, some people have the habit of cooking during the week because they like, enjoy or because they consider to be a stress reliever; therefore hedonic -related motives were also significant to the frequency of cooking at home.

During the weekends the only significant motive was the one related to duty motives, meaning that people cook on Saturdays and Sundays only if they have to, otherwise, they would prefer to be engaged in other activities. Moreover, the possibility of saving money influences their decision to cook at home on “routine and obligation free days” as well.

Regarding the second hypothesis test, we could understand that using more apps to cook during the week is valuable to make people cook more. Apps help making the experience of cooking fun, easier and simpler. Through the applications, users can have access to recipes, watch videos, share experiences and also get detailed information to help them to succeed in the kitchen. Diversely, during the weekend, using the app doesn't make much difference because they would rather not cook at all, with or without the application; therefore the apps are not a big pusher.

## **CHAPTER 5: CONCLUSIONS AND LIMITATIONS**

The last section aims to present the final conclusions as well as the limitations observed in this study both aiming to contribute with managerial recommendations to organizations and institutions as well as leave some suggestions for further research.

### **5.1 Main Conclusions**

The decision to cook at home is becoming popular again after facing some decline due to the availability of delivery apps, busier working hours, and the increase of good restaurants around over the last few years.

The frequency of cooking at home is different during the week and during the weekend and are motivated by different reasons. In this present dissertation it was analyzed the associations between the frequency of cooking at home with cooking-related motivations and with the usage of Cooking Mobile Apps. By using the pooled data, it was possible to examine what influences

Portuguese people's decision-making to cook at home and whether currently available Cooking APPs have an influence on this habit.

This contribution allowed understanding that duty-related motives are significant to the frequency of cooking at home, both during weekdays and during the weekends. The main variable influencing those results was the economic reason which was included into the duty-related category due to the fact that having a balanced and positive economic life is considered a current obligation among families. Shopping at the supermarket is much cheaper than eating at restaurants or ordering food; therefore cooking and eating at home is considered to be a money saver habit.

When comparing cooking at home during the week and on weekends, it was possible to understand that the motivations behind cooking more during the week are related not only with obligations but, also with pleasure, e.g. relieve stress, enjoy the time with family, fun, leisure and so on. However, on weekends, the trigger to cook more often is only for duty motives, that is, if they have to. Moreover, health related motives were not significant for any of those occasions.

Lastly, the usage of mobile cooking apps was found to be significant only for week days. Mobile cooking apps offer support, available recipes, provide detailed preparation instructions, share nutritional information and more. These are also some examples of support that people seek for the preparations of meals during the week. However, during the weekends, people rather not to cook at all, so having the app available is not a big deal, since they don't want and don't "have to" cook.

## **5.2 Limitations and Future Research**

Some limitations are recognized in this work and study and must be taken into consideration when analyzing this dissertation's results.

First one is regarding the sample and selection; Out of a total of 522 respondents, only 3 were 46 years old or older and it could be beneficial to have data from this older portion of the population; Also, the gender variable is very asymmetric, with almost 70% being women and less than one third being men.

Moreover, the motivations to cook at home could be explored from different perspectives for example, the humor, the income, the size of the family, gender.

This study was undertaken in Portugal, Azores and Madeira. It could also be interesting to replicate this study (with similar samples) in other countries, since motivations for cooking, per occasion, and the role of app use are likely different in different countries. The suggestion is to

conduct this study in another European country in the North, and in other continent, for instance the US or Brazil to see the differences.

There was no COVID 19 going on in April of 2019, when this study was conducted. However, from March of 2020 on, we have been facing a pandemic due to corona virus. Therefore, another suggestion for future work would be to repeat this study after the vaccination is concluded, the virus is controlled and when we are again able to get back to normal life and habits. After we are able to overcome this atypical time, we would be able to investigate if the motivations and behavior on home cooking of the Portuguese population have changed and how.

Moreover, there are some limitations that were not related to this study itself. For example, since the data used was not designed or collected by myself, that is, all the data used was secondary, changing variables would not be under my control. In addition, it was not studied whether demographic variables, such as age and/or gender are characteristics that would also infer in the motivations to cook on different occasions or app usage, and they are likely be significant.

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