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**Consumers' Preferences for a Landline and Mobile
Voice Convergent Price Plan**

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Abstract

Consumers' Preferences for a Landline and Mobile Voice Convergent Price Plan

by Nuno Ricardo Pedrullo Mesquita

The objective of this dissertation is to analyze consumers' preferences for a landline and mobile voice convergent price plan within a restricted social network (composed by a landline phone and 3 mobile phones). Thus, we estimate the different willingness to pay for three types of unlimited calls and for a twelve month retention period.

By following a choice-based conjoint analysis, we find that the type of communication most valued is the Mobile to Mobile and, on the other hand, Landline to Mobile is the least. As for the retention period, it is negatively evaluated by the consumers. Additionally, our segmentation analysis shows, among other conclusions, that such convergent voice price plan is most valued by consumers with a monthly landline spending equal or greater than €11. Furthermore, we observe that the "female" segment presents the highest willingness to pay for mobile to mobile communications.

Considering our conclusions, we bring forth the idea of (1) leveraging the landline to mobile communications by tying it with mobile communication and (2) advertising the product from the landline service as well as from the mobile service's perspective. On the landline service, we suggest that a notification on the landline's invoice is presented to customers that spend more than €6 on contacts associated to 3 mobile phones. As for the mobile service, we recommend female-targeted advertisements as they value more the unlimited mobile communications.

Keywords: network effect; critical mass; social network based price plan; bundling; choice-based conjoint analysis.

Sumário

Preferências dos Consumidores por um Tarifário Convergente de Voz Fixa e Móvel

por Nuno Ricardo Pedrullo Mesquita

O objectivo desta dissertação é analisar as preferências dos consumidores por um tarifário convergente de voz fixa e móvel para um grupo social restrito (constituído por um telefone fixo e três telemóveis). Deste modo, estimamos a disponibilidade a pagar por três tipos de comunicações ilimitadas e por um período de fidelização de doze meses.

Tendo por base uma “choice-based conjoint analysis”, concluímos que o tipo de comunicação mais valorizada são as comunicações entre telemóveis mas, por outro lado, as comunicações do telefone fixo para os telemóveis são as menos valorizadas. Em relação ao período de fidelização, este é negativamente valorizado pelos consumidores. Adicionalmente, a nossa análise de segmentação evidencia, entre outras conclusões, que esse tarifário de voz convergente é mais valorizado por consumidores que possuem uma despesa associada ao telefone fixo igual ao superior a €11 mensais. Para além disso, observamos que o segmento feminino apresenta a maior disponibilidade para pagar pelas comunicações entre telemóveis.

Tendo por base as nossas conclusões, propomos (1) alavancar as comunicações do telefone fixo para o móvel através da associação destas com as comunicações móveis e (2) promover o produto da perspectiva do serviço fixo tal como o do móvel. No caso do serviço fixo sugerimos implementar uma comunicação na factura de clientes que possuam um gasto mensal de €6 em chamadas realizadas para 3 telemóveis. Quanto ao serviço móvel, recomendamos desenvolver campanhas direccionadas para o sexo feminino, pois este valoriza mais as comunicações móveis.

Palavras-chave: efeito rede, massa crítica, planos tarifários tribais, “bundling”, “choice-based conjoint analysis”.

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Chapter One: Introduction

The objective of this dissertation is to analyze how consumers value a convergent landline and mobile voice price plan within a restricted social network. The choice of this topic was largely influenced by my early professional experience, while working on the two main telecommunications companies in Portugal. I then began to understand the unique characteristics of the Telecommunications sector, as well as its evolution and main trends.

In Portugal, there are two contrasting trends in the Telecommunications industry: (1) high penetration rates for mobile phones and (2) a decrease of landlines (see appendix A for details).

Nowadays we run a saturated market, where differentiation can be crucial, particularly if we take into account that Telecommunications industry has a very competitive market due to its unique characteristics such as network effect and critical mass (will be explained in further detail on chapter 2). As the Telecommunications providers price discriminate between within network calls and between different networks calls, the consumer's utility directly depends on the network's dimension (Cabral, 2008).

Also, we observe the emergence of social network-based discrimination which consists on «pricing policies that employ price discriminations based on strength of callers' social ties, and/or pattern of callers' communication networks» (Mengze Shi, 2003, pp. 240). Therefore, when analyzing the consumption of each communication, the personal social network is an important factor in the consumers' valuation and demand (Zhang).

By looking into the Portuguese market, we observe that Portugal Telecom, the incumbent telecommunication provider in Portugal, developed a product called "Family Box" for the residential segment. This product consists of a pricing plan that allows unlimited calls between a small group of one landline phone and three mobile phones.

From the customer's point of view, we believe that such price plan can be highly valued by some targets as, for a landline monthly fee, all the communications between the users are included regardless of the number, minutes or dialing number (landline or mobile phone). Moreover, the monthly fee is paid by only one of the customers and each user can choose its own price plan for the phone calls made outside the group.

From a managerial standpoint, we hypothesize that the convergence of landline and mobile voice can be an important factor to retain, and even to leverage the landlines, in the same way that in Portugal the emergence of bundling solutions of TV, Internet and landline Voice service helped to overcome such trend. Moreover, a firm can extend its market power from one market to another by tying goods (Begoña et al., 2008). Thus, this product can increase the number of calls among mobile phones and landlines, as well as the customers' switching costs.

Considering all this, such product can represent a competitive advantage for the provider among certain targets

As such, a question emerged: **"How do consumers evaluate a landline and mobile voice price plan solution?"**

Regarding the academic relevance, the research done in the past was mainly focused on the economical point of view of the mobile Telecommunications industry, especially the impact of network effect and critical mass in the market's structure and equilibrium. For that reason, this study could bring an empirical standpoint on how consumers perceive a convergent Telecommunication voice solution within a personal social network.

Therefore, in order to organize and structure the research more clearly and objectively, the following **research questions** were explored:

- 1. How do consumers evaluate the different types of unlimited calls within a restricted social network in terms of utility and willingness to pay?**

Determining the consumers' willingness to pay for each type of unlimited calls within a restricted social network is one of the main purposes of this study. Identifying the

most valuable factors may allow us to develop new products which are aligned with the customers' preferences.

2. How do consumers evaluate a twelve month retention period and what is the impact on their willingness to pay?

A retention period can be a powerful tool in order to decrease the revenues' volatility. As such, when developing a new product we should take into account how the customers' utility and willingness to pay is affected by including a retention period.

3. How do the utility and willingness to pay vary among different segments?

Identifying how the consumers' preferences vary among segments may allow us to develop more accurate market segmentations and obtain different degrees of willingness to pay. Consequently, we will be able to tailor more precisely the product in accordance with the different segments' preferences, maximizing the producer surplus.

4. What is the attractiveness of the Family Box?

Identifying the propensity of the consumers to acquire a Family Box solution may allow us to identify segments that have a higher willingness to pay and, therefore, develop more accurate segmentation.

Summarizing, in this chapter we stated the purpose of this research and its managerial and academic relevance. Our study is structured as follows: on chapter 2 we will briefly review the past literature regarding the standpoint of this research. Afterwards, on chapter 3 the focus will be in the methodology adopted as well as the reasons for its choice. On chapter 4, a description of the research instrument and our sample will be presented. Chapter 5 will have the results achieved and finally, on chapter 6, we will state the main conclusions and managerial implications.

Chapter Two: Literature Review

In order to fulfill the purpose of this study, we will briefly review the past research and the fundamental concepts that are relevant here. This section will be structured as follows: first, we focus on unique characteristics, such as network effects, critical mass and social network. Then, we will focus on Telecommunications pricing strategies, particularly on bundling.

2.1. Network Effect and Critical Mass Point

According to Economies and Himmelberg (1995), we are in the presence of network externality when the consumers' valuation of a good depends on the amount of consumers purchasing such good. Thus, it is crucial for the Telecommunication provider to reach the minimal number of adopters from which the rate of adoption becomes self-sustaining, the so-called critical mass point (Byeong-Lak et al, 2003).

Usually, Telecommunication companies differentiate the pricing of the calls within the same network (on-net) from those between different networks (off-net) as the former has lower costs. Therefore, by differentiating the on-net and off-net prices, the consumer utility will positively depend on the size of the networks. Thus, the pricing of a network is a source of network effects (Cabral, 2008; Flochel and Baranes, 2007).

As for the impact of network effect on consumers' willingness to pay, Katz and Shapiro (1985) stated that consumers will be willing to pay more for the products of a firm which is expected to be dominant. Also, «a larger network is always more likely to attract a new consumer» (Cabral, 2008, pp 3). For example, we observe this behavior on the Portuguese mobile Telecommunications market when consumers, despite being on a price plan that (in terms of tariffs) is not as competitive as a similar one available on another provider, refuse to change of provider seeing that most of the consumer personal social network members belong to such provider.

According to Zhang, the personal social network plays an important role in consumers' valuation and demand when analyzing the consumption of each communication. With the emergence of social networks based price plans, which offer unlimited calls within the members of the same price plan, such behavior became even more prominent. Thus, we assume that nowadays the main factor of consumer's decision-making process is to which provider is the most relevant members of the consumer's personal social network are associated with.

To sum up, network effect and critical mass point are inherent concepts of the telecommunications industry, as «the presence of network externalities and critical mass have significant repercussions for the analysis of conduct, market structure, and performance» (Economies and Himmelberg, 1995, pp.1).

2.2. Pricing in the Telecommunications Industry

In this section we will analyze the past research regarding different pricing strategies that are commonly used in the telecommunication industry to extract the consumers' surplus.

Price discrimination schemes:

In the words of Begoña (2008), price discrimination is the capability of a seller to differentiate products' prices so that the products' value differs between consumers.

According to Oren et al. (1981), the supplier is unable to perform third-degree price discrimination and therefore will try to apply second-degree price discrimination and rely on the customers' self-selection of purchase quantity to induce partial discrimination.

Regarding Telecommunications' industry, we observe that «some firms induce self-selection by offering a menu of two-part tariffs (e.g., different rate plans) and letting consumers select the tariff and quantity they prefer. Other firms induce selfselection

by offering a menu of price-quantity bundles (e.g., different package sizes) and letting consumers select only from among these bundle» (Kolay and Shaffer, 2003, pp.383)

A two-part tariff is a pricing scheme in which consumers pay a lump-sum fee and an ongoing fee that depends on the usage of the product. (Gotibovski and Kahana, 2009). Nowadays, we observe an evolution of this pricing scheme into a three-part tariff since the landline fee includes a consumption allowance (Sissel Jensen, 2006).

Also, in recent years, we have observed the emergence of social networks based telecommunications pricing strategies. These strategies can be defined as «pricing policies that employ price discriminations based on strength of callers' social ties, and/or pattern of callers' communication networks» (Mengze Shi, 2003, pp. 240). This type of strategy reinforces our previous statement that, in the telecommunications industry, the user's utility also depends on the personal social network, especially on the provider of the most relevant members.

Bundling

Nowadays, we observe the emergence of TV, Internet and Landline bundling solutions. This price discrimination strategy is becoming more and more recurrent in the Portuguese telecommunication industry.

Stremersch and Tellis (2002) analyzed past research regarding bundling and concluded that there was no clear and commonly accepted definition. Thus, they defined bundle as «the sale of two or more separate products in one package» (Stremersch and Tellis 2002, pp.56), and, by separating products, they considered «products for which separate markets exist, because at least some buyers buy or want to buy the products separately» (Stremersch and Tellis 2002, pp.56).

According to Koderisch et al. (2007), bundling works as an invisible price discrimination tool, because it allows us to aggregate the willingness to pay, so that the excess consumer surplus from one product can be transferred to another. Therefore, as Begoña (2008) stated, bundling allows us to reduce the variation between consumers' reservation price, thus enabling us to extract more consumers' surplus. Also note that,

bundling is more efficient when products are substitutes in demand (e.g. mobile and landline services) because it leads to more homogeneity valuations of the bundle (Ridder, 2004)

There are «two key dimensions of bundling: (1) the focus of bundling, whether on price or product and (2) the form of bundling, whether pure or mixed. These dimensions encompass a rich set of bundling strategies that have substantially different characteristics and implications» (Stremersch and Tellis, 2002, pp.57)

Regarding the first dimension, product bundling is the integration of products that provide added value to some consumers, while price bundling does not add value to the consumers since it does not have any integration of products and, therefore, a discount must be offered to pursue some consumers to buy the bundle.

Regarding the second dimension, the differences between pure (or sometimes “tying”) and mixed bundling is that pure bundling is observed when firms only sell the bundle, while mixed bundling occurs when firms also sell the products in the bundle separately.

One of the main advantages of bundling is the entry-deterrent effect that allows the company to defend both products without having to price low in each. «What makes this strategy remarkable is that unlike most entry deterrent strategy (such as limit pricing) it can actually raise profits absent entry» (Barry Nalebuff, 2004, pp.183).

To sum up, bundling can be used as a mean to discriminate prices, achieve efficiency goals and as a mean to have an anticompetitive outcome (Begoña, 2008).

Chapter Three: Methodology

Before stating the methodology followed, we will describe the Family Box product which largely influenced our study.

The Family Box can be considered a pricing policy that employs price discrimination based on strength of the caller's social ties as it allows unlimited calls within a restricted social network (group), composed by a landline and three mobile phones. Thus, we observe 3 types of unlimited calls within the group:

- from landline to the mobile phones (L2M);
- from mobile phones to the landline (M2L);
- between the mobile phones (M2M).

Furthermore, this product presents a complete and light solution: The former has all the type of unlimited communications while the later does not includes the Mobile to Mobile (see table 1)

Table 1 – Family Box Characteristics (at 06-07-2009)

	Monthly Fee	L2M	M2L	M2M
Light	10€	✓	✓	x
Complete	20€	✓	✓	✓

L2M: unlimited calls from the landline to the mobiles

M2L: unlimited calls from the mobiles to the landline

M2M: unlimited calls between the mobiles of the group



Thus, we can also consider this product as a bundling solution of Landline and Mobile voice price plan.

Today, we observe that the Family Box has evolved and it presents different monthly fees according to the number of mobile phones of the group (from 1 to 5). However,

for the purpose of our analysis we considered the Family Box characteristics at the date of the conception of our questionnaire (see appendix C).

As mentioned previously, the purpose of this study is to analyze consumers' preferences for a convergent voice price plan that allows unlimited calls within a restricted social network (composed by a landline and 3 mobile phones). In order to estimate the consumers' preferences we decided to proceed with a conjoint analysis (or sometimes called "choice modeling").

Conjoint analysis is «a technique that allows you to work out the 'hidden rules' people use to make trade-offs between different products and services and the values they place on different features» (Koderisch, Wuebker, Baumgarten and Baillie, 2007, pp.274). This is characterized by attributes and levels. The attributes represents some product or service feature while levels correspond to the possible values for each feature. By combining factors and levels, we obtain stimulus. Then, a group of stimuli, called design, is presented to the respondent.

The design of a choice modeling experiment can be decomposed into the following stages as described by Hanley, Mourato and Wright (2001):

Selection of attributes:

In order to proceed with the evaluation exercise, first we have to identify the different product features. Thus, besides considering a monthly fee (paid by the landline customer) as an attribute, we defined the following attributes regarding the unlimited calls:

- Landline to Mobile: unlimited calls from landline to the mobile phones of the group
- Mobile to Landline: unlimited calls from mobiles to the landline of the group
- Mobile to Mobile: unlimited calls between the mobile phones of the group

Additionally, we included a retention period as the fifth attribute.

Assignment of levels:

Levels should be easily communicated, clear, feasible and measurable in order to avoid complexity. Thus, the following levels were considered:

- Landline to Mobile (L2M): Yes; No
- Mobile to Landline (M2L): Yes; No
- Mobile to Mobile (M2M): Yes; No
- Retention Period (Fidel): 12 months; No
- Monthly fee (Price): 5€; 10€; 17,50€; 25€

We decided to have a twelve month retention period as it is the common practice on the Portuguese home consumers' market. As for the price levels, they were based on the pricing of the Family Box which is a €20 monthly fee. However, the family box solution also has a light version that does not include the Mobile to Mobile communications, which has a monthly fee of €10 (see appendix C). Therefore, chose a lower level than the light solution (€5) and for a higher level than the complete solution (€25). The remaining levels were defined in order to have two different price intervals: €5 for the first two levels and €7,50 for the others.

Choice of experimental design and construction of choice sets:

After defining the attributes and levels, we randomly combined them obtaining stimulus such as the following:

Table 2 – Stimulus example

Unlimited calls	Landline to Mobile	No
	Mobile to Landline	Yes
	Mobile to Mobile	Yes
Monthly fee		5 €
Retention period		12 Months

Considering that the resulting number of stimuli from the combinations of attributes and levels would be very high, the full factorial design method would not be feasible. As a consequence, we decided to proceed with the “complete enumeration” process which consists on obtaining a group of stimulus randomly originated. To do so, we used the Sawtooth Software.

Then, the choice sets were created where the respondents have to state their preferences. In order to reduce the complexity of the design and estimation, we decided to only include two stimuli for each choice set.

It is also important to refer that, before presenting the choice sets to the respondents, previous personal interviews were carried out in order to test the simplicity and objectiveness of the questionnaire.

On table 3 we can observe an example of a choice set that was presented to the respondents:

Table 3 – Choice set example

CARD 1		Alternative A	Alternative B
Unlimited calls (included)	from the landline to the 3 mobile phones	No	Yes
	from the 3 mobile phones to the landline	Yes	No
	between the 3 mobile phones	Yes	No
Monthly fee (paid by the landline’s customer)		10 €	25 €
Retention Period		12 Months	No
I prefer:			

Additionally, in order to determine the attractiveness of the Family Box, two choice sets were specifically created. The first one compared a stimulus (representing the

light Family Box version) to a no-choice stimulus, while the second compared a stimulus (the complete Family Box version) to a no-choice solution (see choice sets on Appendix B).

Measurement of preferences:

In order to measure the consumers' preferences we followed a choice-based conjoint analysis. The reason to proceed with such analysis, instead of rating or ranking, is that it provides increased realism to the choice task because the respondent chooses a full profile stimulus from the choice set, instead of evaluating each stimulus separately (as illustrated on appendix B).

To achieve a higher diversification of evaluations, five different versions of the questionnaire were developed, each one with seven choice sets (only the two regarding the Family Box's attractiveness were common among the different questionnaires). At total 52 different stimuli were presented.

Due to the fact that the dependent variable of our analysis is of nominal dichotomous nature, and that we cannot assume a monotonic relationship as the respondents' stated choice not following a natural ordering, we follow a stochastic utility model. This model assumes a linear utility function that depends on the attributes of the product plus an unobservable error term.

Thus, we consider the following utility function:

$$U = \beta_0 + \beta_{L2M}L2M + \beta_{M2L}M2L + \beta_{M2M}M2M + \beta_{FIDEL}FIDEL + \beta_{PRICE}PRICE + \varepsilon$$

(1)

In which all the independent variables are considered dummy variables (except for PRICE):

- L2M: represents the existence (or absence) of unlimited calls from the landline to the mobile phones of the group
- M2L: represents the existence (or absence) of unlimited calls from the mobile phones to the landline of the group

- M2M: represents the existence (or absence) of unlimited calls between the mobile phones of the group
- FIDEL: represents the existence (or absence) of a twelve month retention period
- PRICE: represents the monthly fee associated with the proposed solution.

We also adopted an alternative specification where price is incorporated in the model through three dummies variables, therefore, allowing for a nonlinear effect of price on utility.

$$U = \beta_0 + \beta_{L2M}L2M + \beta_{M2L}M2L + \beta_{M2M}M2M + \beta_{FIDEL}FIDEL + \beta_{D10}D10 + \beta_{D17,5}D17,5 + \beta_{D25}D25 + \varepsilon \quad (2)$$

In which:

- D10 takes the value of 1 when the monthly fee of the stimulus is equal to 10€. For other price levels, it takes the value of 0.
- D17,5 takes the value of 1 when the monthly fee of the stimulus is equal to 17,5€. For other price levels, it takes the value of 0.
- D25 takes the value of 1 when the monthly fee of the stimulus is equal to 25€. For other price levels, it takes the value of 0.

Assuming that the unobservable error terms follow a log Weibull distribution we obtain the conditional logit model. «In this model the probability of an individual choosing alternative j is a simple function of the explanatory variables» (Varno Verbeek, 2008, pp.221).

The estimation of models (1) and (2) was made by using the statistical software Stata.

Chapter Four: Research instrument and Sample Characterization

Considering the time and budget constraints, the data was collected through a self-administrative survey. Our target population is anyone over 24 years old that belongs to a household of 3 or more members. Also, we decided to use a convenience sample by distributing the questionnaire through our own social network which also diffused the survey among their social network members that fit the target population.

The questionnaire was divided in three sections: the first aimed to identify the respondent's profile while the second to obtain the stated preferences for each choice set presented. The final section intended to obtain some social-economic data from the respondent (see Appendix B for more detail).

Also, a pre-test was carried out in order to test the simplicity, objectiveness and understanding of the questionnaire from the respondents' perspective.

From the 111 questionnaires handed between January 2010 and May 2010, we excluded 15 questionnaires (9 did not fit the target population and 6 were not completely filled).

As such, our sample is composed by 96 validated questionnaires which represents a 86,49% successful response rate. On table 4 we can observe the sample characterization.

Table 4 – Sample characterization

Age		Household dimension	
[25;34]	40,6%	3	40,6%
[35;44]	25,0%	4	52,1%
[45;54]	18,8%	5	7,3%
[55;64]	13,5%		
>64	2,1%		

With landline		Monthly landline expenditure (€)		Household's mobile phones (#)		Monthly mobile expenditure (€)	
No	13,5%	[0;5]	25,0%	0	0,0%	[0;10]	19,8%
Yes	86,5%	[6;10]	20,8%	1	0,0%	[11;20]	37,5%
		[11;15]	13,5%	2	16,7%	[21;30]	16,7%
		[16;20]	6,3%	3	28,1%	[31;40]	5,2%
		[21;25]	12,5%	4	30,2%	[41;50]	7,3%
		>25	8,3%	>=5	25,0%	>50	13,5%
		NA	13,5%				

Gender		Academic qualifications		Average After-Tax Income for Household	
Female	37,5%	< 2nd grade	2,1%	[0;1000]	1,0%
Male	62,5%	3rd grade	7,3%	[1001;2000]	19,8%
		High School	26,0%	[2001;3000]	29,2%
		University	64,6%	[3001;4000]	17,7%
				>4000	32,3%

It is important to note that our study can face some potential sample biases due to the convenience sample followed. Therefore, by looking to the sample characterization, we identify the following: (1) the majority of the respondents have between 25 and 44 years old; (2) approximately 90% of the respondents have a high school or university academic qualification; (3) only 1% stated a household income (after taxes) equal or lower than €1000.

Taking into account that the Family Box is clearly targeted at young families, the consumers between 25 and 44 years old are considered the preferred target. Therefore, we decided to disregard the first bias.

As for the second, according to INE database (available at INE's website¹), 22% of the active population on the age range between 25 and 44 years old have an university academic degree while 54% have an academic qualification equal or lower than the third grade. These results confirm the high bias in terms of academic level.

Regarding the household income bias, if we take into account the INE database ("Inquérito aos Orçamentos Familiares," 2000), we observe that it does not present a

¹ Available at

http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0000245&contexto=bd&selTab=tab2

high deviation, particularly when bearing in mind the educational level of our sample (see table 5).

Table 5 – Yearly After-Tax Income for household

Household	Yearly After-Tax Income
with 3 or more members	20.660 €
No 65 year-old members or older and that the head of the family has the primary school academic level	15.324 €
No 65 year-old members or older and that the head of the family has a university academic degree	43.000 €

Available at INE's website²

To sum up, we recognize that the results of our study can be limited by the potential sample biases, particularly in terms of education degree and consequently in terms of household income (after-tax).

² http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaquas&DESTAQUESdest_boui=70257&DESTAQUESmodo=2

Chapter Five: Empirical results

In this chapter, we will analyze the data collected in the survey and present the estimation results for the sample and the segments considered.

As mentioned previously, we considered two alternatives:

A) Full Sample:

$$U = \beta_0 + \beta_{L2M}L2M + \beta_{M2L}M2L + \beta_{M2M}M2M + \beta_{FIDEL}FIDEL + \beta_{PRICE}PRICE + \varepsilon \quad (1)$$

B) Full Sample (with dummy price variables):

$$U = \beta_0 + \beta_{L2M}L2M + \beta_{M2L}M2L + \beta_{M2M}M2M + \beta_{FIDEL}FIDEL + \beta_{D10}D10 + \beta_{D17,5}D17,5 + \beta_{D25}D25 + \varepsilon \quad (2)$$

Before proceeding with the estimation results, we stated the expected results:

Table 6 – Expected Results and justifications for each independent variable

Variable	Expected Result	Justification
Landline to Mobile (L2M)	slightly positive	The decrease of the landline usage and the fact that this type of communications only represents 14% of the landline communications (see appendix A).
Mobile to Landline (M2L)	slightly positive	This type of communication only represents 7% of those originated from a mobile phone.
Mobile to Mobile (M2M)	Positive	The higher preponderance and increase of mobile on-net communications (see appendix A).
Retention period (FIDEL)	slightly negative	We hypothesize that being restricted to a product for a period of time has a negative connotation among customers, even more when the Economy is not on favor.
Monthly Fee (PRICE)	negative effect	The basic economic theory tells us that the increase on price implies a negative effect on utility.

Next, we compare the estimates and goodness of fit indicators of models (1) and (2) in order to determine whether the inclusion of price dummy variables in the model significantly improves the quality of the results.

In table 7 we provide the significance tests for each of the utility functions:

Table 7 – Significance test for the full sample and full sample with dummies

	Full Sample	Full Sample (with dummy price variables)
Likelihood	-220,53836	-220,29819
Choice sets	480	480
Nº of respondents	96	96
LR chi2	224,34	224,82
Prob > chi2	0	0
Pseudo R2	0,3371	0,3379

«The larger the value of the log likelihood (i.e., the closer the negative value to zero), the better the parameters do in producing the observed data» (Fred C. Pampel, 2000, pp.45). However, it is important to consider that «the log likelihood value has little intuitive meaning because it depends on the sample size and number of parameters, as well as on the goodness of fit» (Fred C. Pampel, 2000, pp.45).

As for the chi-square test, or the so-called Hosmer and Lemeshow’s goodness of fit, we observe that the model fits the data.

As for the coefficients estimation, which represents the impact on the utility due to the inclusion of the respective variable (i.e., when the dummy variable is equal to 1), we observe that the variation between both utility functions is residual (see table 8). Moreover, the dummy price variables almost represent a linear function (see figure 1).

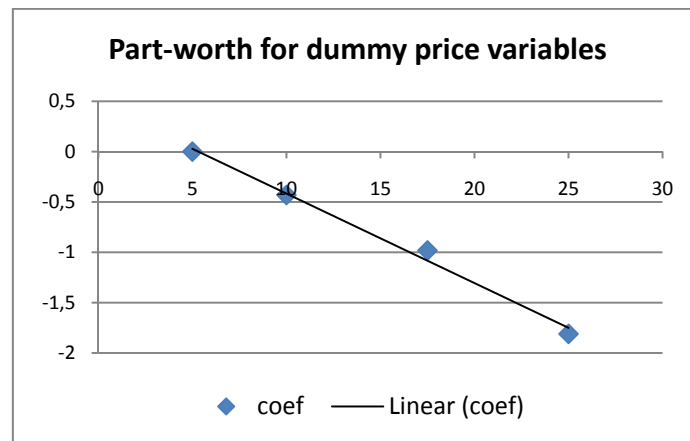
Therefore, in order to simplify the interpretation of the results, we decided to disregard the model with dummy price variables.

Table 8 – Estimated results for the full sample and for the full sample with dummy price variables:

	Full Sample		Full Sample (with dummy price variables)	
	Coef.	P> z .	Coef.	P> z
L2M	0,5222812	0,001	0,558685	0,001
M2L	0,6731268	0	0,6913163	0
M2M	1,944783	0	1,990227	0
FIDEL	-0,2650498	0,037	-0,2707518	0,038
PRECO	-0,0884297	0	NA	NA
D10	NA	NA	-0,4305671	0,015
D17,5	NA	NA	-0,9816503	0
D25	NA	NA	-1,810255	0

Note that all the variables are statistically significant for a level of 0,01 (except for Fidel and D10 that are statistically significant for a level of 0,05).

Figure 1 – Coefficients estimators and linear regression



Additionally, a priori segmentation was developed with the aim to answer the research questions stated before and to perform a deeper analysis among different groups.

Thus, for the purpose of our analysis we will consider the following segments:

1. Age range between 25 and 44 years old
2. Respondents with a landline
3. High landline spending (€11 or more)
4. High mobile phone spending (€21 or more)
5. Female Gender
6. University academic qualifications
7. Household After-Tax income equal or higher than €3001
8. Potential Family Box subscribers (includes the respondents that stated preference for at least one of the Family Box versions.)

By proceeding with the estimation of the full sample and the segments considered, we observe that, for all the regressions, the model fit the data (see table 9 for more detail).

Table 9 – Test of significance for all the regressions considered

Segments	Log Likelihood	Choice sets	Nº of respondents	LR chi2 (5)	Prob > chi2	Pseudo R2
Full Sample	-220,53836	480	96	224,34	0	0,3371
Age range [0;24]	-153,55166	315	63	129,58	0	0,2967
Landline	-186,19343	415	83	202,93	0	0,3527
High landline spending	-88,226507	195	39	93,87	0	0,3473
High Mobile spending	-91,974804	205	41	100,24	0	0,3527
Female Gender	-76,317361	180	36	96,9	0	0,3883
University qualification	-129,78219	310	62	170,19	0	0,396
Income >= 3001	-104,47536	240	48	123,76	0	0,372
Family Box	-173,99707	355	71	144,14	0	0,2929

As for the coefficients, which represent the impact on the utility due to the inclusion of the respective variable (i.e., when the dummy variable has values equal to 1), we observe that all are aligned with the expected results (see table 10).

Table 10 – Estimated results for the full sample and segments considered:

	PRICE		L2M		M2L		M2M		FIDEL	
	Coef.	P> z	Coef.	P> z	Coef.	P> z	Coef.	P> z	Coef.	P> z
Full Sample	-0,0884297	0	0,5222812	0,001	0,6731268	0	1,944783	0	-0,2650498	0,037
Age range [0;24]	-0,0758331	0	0,3805913	0,032	0,5427117	0,003	1,738756	0	-0,1880987	0,202
Landline	-0,0963211	0	0,4773596	0,006	0,6343718	0	1,972247	0	-0,2779223	0,048
High landline spending	-0,0672898	0,003	0,6536837	0,01	0,5409141	0,027	1,898674	0	-0,5681017	0,005
High Mobile spending	-0,0924777	0	0,4762105	0,047	0,6608475	0,008	2,052963	0	-0,2588386	0,19
Female Gender	-0,0778412	0,002	0,4783203	0,063	0,8060183	0,006	2,18724	0	-0,4431917	0,041
University qualification	-0,1442136	0	0,7892499	0	0,6836383	0,001	2,393106	0	-0,0594782	0,728
Income >= 3001	-0,101674	0	0,8294283	0,001	0,8293591	0	2,305504	0	-0,1315948	0,481
Family Box	-0,0632731	0	0,4853007	0,003	0,6272446	0	1,722904	0	-0,3256007	0,481

Regarding the relevance of each independent variable, we observe that all the coefficients are statistically significant at the 5% level except for the:

- Retention period (FIDEL), which is only significant for the full sample and for the “With landline” and “High landline spending” segments.
- Landline to mobile communications (L2M) for the “Female” segment

In order to compare and interpret the consumers’ preferences, we estimate the willingness to pay for attribute level x by using the following formula:

$$WTP_x = \frac{\beta_x}{-\beta_{PRICE}}$$

Note that the denominator represents the marginal disutility of price

In table 11 we present the different Willingness to pay for each one of the 3 types of unlimited communication variables, as well as for the retention period variable (we marked the WTP in red for the variables which were not relevant for the model).

Table 11 – Estimated willingness to pay

	L2M	M2L	M2M	FIDEL
Full Sample	5,91 €	7,61 €	21,99 €	-3,00 €
Age range [0;24]	5,02 €	7,16 €	22,93 €	-2,48 €
Landline	4,96 €	6,59 €	20,48 €	-2,89 €
High landline spending	9,71 €	8,04 €	28,22 €	-8,44 €
High Mobile spending	5,15 €	7,15 €	22,20 €	-2,80 €
Female Gender	6,14 €	10,35 €	28,10 €	-5,69 €
University qualification	5,47 €	4,74 €	16,59 €	-0,41 €
Income >= 3001	8,16 €	8,16 €	22,68 €	-1,29 €
Family Box	7,67 €	9,91 €	27,23 €	-5,15 €

Family Box attractiveness:

One of the purposes of this study is to evaluate the attractiveness of the light and complete Family Box solutions. Therefore, as mentioned above, two of the choice sets were created with a purpose. On table 12, we present the different rates for potential Family Box’s subscribers, from which we can conclude:

- The Family Box solution appears to be very attractive and that the complete solution is more attractive than the light solution.
- The “High mobile spending” segment is the one that shows more interest for both solutions (closely followed by the “High landline spending” segment).
- The “University qualification” segment, strangely, has the lowest attractiveness rate. A possible explanation is that this segment is more rational and as such, has considered more carefully the trade-offs involved in the choice tasks.

Table 12 – Family Box Attractiveness

	Light	Complete
Full Sample	50,00%	59,40%
Age range [0;24]	52,40%	55,60%
Landline	49,40%	59,00%
High landline spending	52,80%	69,80%
High Mobile spending	53,70%	70,70%
Female Gender	47,20%	55,60%
University qualification	43,50%	48,40%
Income >= 3001	45,80%	56,30%

Chapter 6: Conclusions and further research

In this chapter we will present our main conclusions on the topic and formulate some implications from the managerial point of view, such as how to tailor and communicate the product to some groups. Also, some limitations to our study will be presented as well as some suggestions for future research.

6.1. Conclusions

Nowadays, we observe the emergence of social network based price plans. Our study aims to provide some insight on this subject by evaluating customers' preferences for a convergent voice price plan that allows unlimited calls within a restricted social network (composed by a landline and 3 mobiles phones).

In our analysis of the full sample we find that **Mobile to Mobile** is the type of communication that has the **highest willingness to pay** (€21,99) and that **Landline to Mobile** has the **lowest willingness** (€5,91). These results may be justified by the decrease of landline usage and the higher relevance of mobile communications (see appendix A). As for the **retention period**, it is **negatively valued by consumers** (-€3,00).

So, we concluded that **from a managerial point of view it is appropriate to leverage the landline to mobile communications by tying it with mobile communication** and, therefore, maximizing the extraction of consumers surplus.

In addition, our study was also aimed to analyze how consumers' preferences vary among different segments. From all the segments considered, we concluded that:

- **A convergent voice price plan is most valued by the “High landline spending” segment.**

We observe that this segment has the highest willingness to pay for landline to mobile and mobile to mobile communications (64,48% and 28% higher than the full sample). Therefore, it is not surprising that it also has the highest value when summing all the willingness to pay of the different type of unlimited calls. Consequently, we consider the “high landline spending” segment as the principal target of a convergent voice price plan.

Additionally, we observed another interesting fact: the “landline” segment presents lower willingness to pay than the full sample, particularly in terms of the landline to mobile communications. Thus, merely having a landline cannot be considered as a relevant segment as we have to ensure that the landline consumers have a high spending level related to it.

This behavior is due to the fact that the landline to landline represents approximately 80% of landline communications and that nowadays most of the landline’s price plans include unlimited calls for such type of communications which have become a commodity. The only motive for a higher monthly fee on a landline to mobile communication price plan is the landline to mobile communications as well as international phone calls (as these are charged an ongoing tariff). Therefore, it is not surprising that this segment presents the highest willingness to pay for landline to mobile communications.

➤ **The consumers with high mobile spending have lower willingness to pay for communications between mobiles and landlines than the consumers with a low mobile spending.**

When comparing the “High mobile spending” segment to the full sample, we observe that the willingness to pay for mobile to mobile communications is almost the same (0,94% higher), while landline to mobile and mobile to landline communications show a lower one (13% and 6% under).

- **Female consumers have the highest willingness to pay for mobile to landline communications**

We conclude that female consumers present the highest willingness to pay for mobile to landline communications (€10,35) as well as a high willingness to pay for mobile communications (€28,10). Also note that if adding both values, we will find that these consumers have the highest willingness to pay for mobile-originated communications.

Additionally, we find that landline to mobile communications are not statistically significant ($P > |Z| = 0,063$).

- **The consumers with upper income present a higher willingness to pay for landline to mobile and mobile to landline communications than consumers with lower income.**

Regarding the “High income” segment, we observe that the landline to mobile and the mobile to landline communications present a much higher willingness to pay (€8,16 for both) when comparing to the full sample. On the other hand, the willingness to pay for mobile to mobile communications is similar to the one of the full sample.

- **The consumers with a university academic qualification present a lower willingness to pay for all the types of communications than those with lower qualifications.**

Our analysis shows that the “University qualification” segment presents the lowest willingness to pay for mobile to landline and mobile communications.

These results emphasize that this type of consumers can be considered as more rational and as such, considered the trade-offs, as mentioned above. This can be pointed as one factor for such a low willingness to pay.

➤ **The complete Family Box solution is more attractive than the light solution**

As for the Family Box product, we observe that the complete solution always presents higher attractiveness rates than the light solution.

6.2. Managerial recommendations

As mentioned above, we considered that among certain targets, a convergent voice price plan can be considered as a competitive advantage for the provider by increasing the customers' switching costs and by retaining and leveraging the landline communications.

Despite the high attractiveness rate obtained, we observed a lack of awareness of such product. Thus, and considering the conclusions stated above, our recommendations focus on the product promotion:

1. Personalized marketing communications on the landline's invoice

Given that the "high landline spending" segment is the one with the highest willingness to pay, we suggest a direct marketing approach by presenting a notification on the landline's invoice for customers that spend more than €6 on contacts associated to 3 mobile phones. This message should point out the actual spending associated with such contacts not only but also give notice that for €10 the customer could realize unlimited calls to those contacts and from those contacts to the landline phone.

2. Upselling for customers with a special plan for landline to mobile communications

We suggest a direct promotion of both light and complete Family Box solutions to customers that have a special price plan for landline to mobile communications. From a managerial perspective, this upselling could leverage the landline and mobile

communications. Moreover, by associating members to the Family Box product, creating a network effect, we will observe an increase on consumers' switching costs. As further research, it could be interesting to analyze the preferences of such segment.

3. Promote the complete Family Box solution from the mobile's perspective

The Family Box is a product clearly aimed at the landline service as the monthly fee is paid by the landline customer. However, we observed that the complete solution, which includes mobile communications (with highest willingness to pay), has the higher attractiveness rate. Thus, we suggest advertising the complete solution from the mobile perspective, targeting even this communication to the female gender as they give high value to mobile communications.

Also, we recommend the possibility of increasing the number of mobile phones on the group in order to obtain more members of the member's social network, and so maximizing the consumers' utility.

4. Emphasize the cost-optimization advantage of the Family Box solution

As all the unlimited communications are related to a monthly fee supported only by the landline customers, they control the monthly expenditure on communications shared by the Family Box members. Thus, it can facilitate an effective cost optimization, while selecting an appropriate price plan for mobile and landline services.

6.3. Limitations and further analysis

In this section we will point out some limitations of our study and recommend further analysis.

In terms of limitations, besides the sample biases mentioned above, we highlight the reduced dimension of our sample and the inexistence of a no-choice option, which can affect the respondents' preferences by choosing the stimulus with a lower monthly fee or without retention period.

As for further analysis, we would suggest running a study to determine the Family Box's awareness as, despite the high attractiveness' rates for the Family Box, we observed that the respondents did not know about the existence of such product.

Furthermore, considering that most of the landline's price plans nowadays include unlimited calls for landline to landline communications, we recommend analyzing how such commodity can affect the behavior of the landline usage. Also, it could be interesting to determine how consumers perceive mobile communications as a substitute of landline communications.

As a further research, it could be interesting to analyze the preferences of consumers that already have a price plan that offers more attractive tariffs for landline to mobile communications.

Additionally, we recommend evaluating the consumers' preferences for a product similar to the complete family box solution, but that also allowed unlimited calls for 3 landlines chosen by the consumers.

Finally, we suggest a deeper analysis to the consumers that already have a special price plan for landline to mobile communications.

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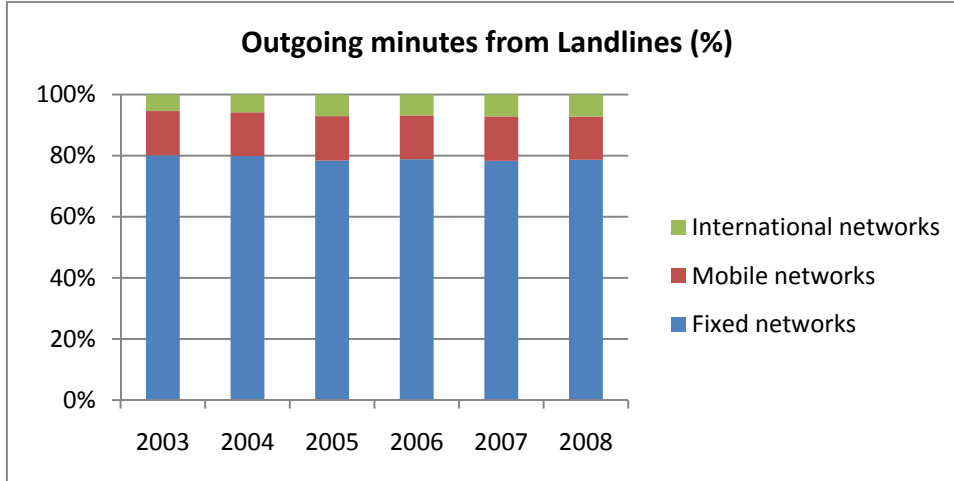
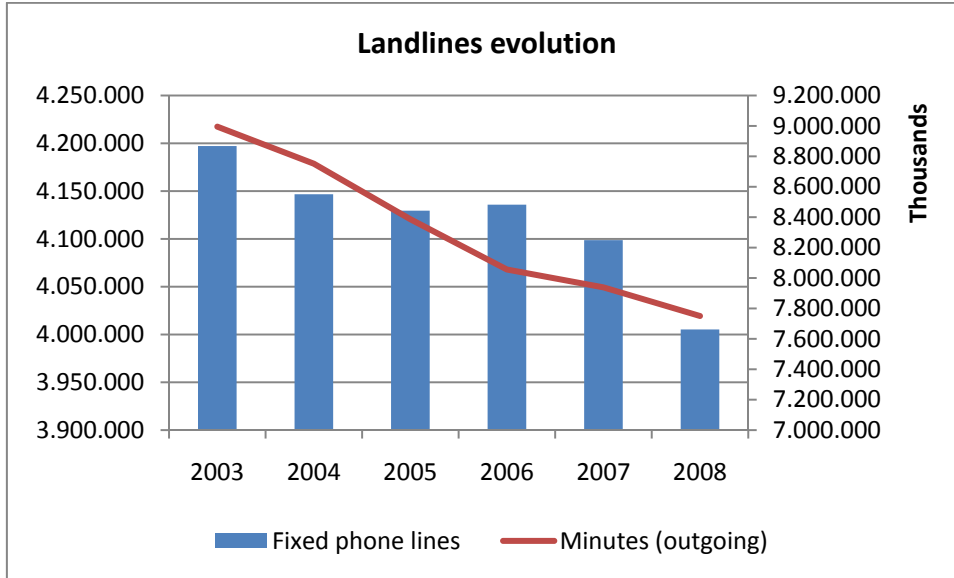
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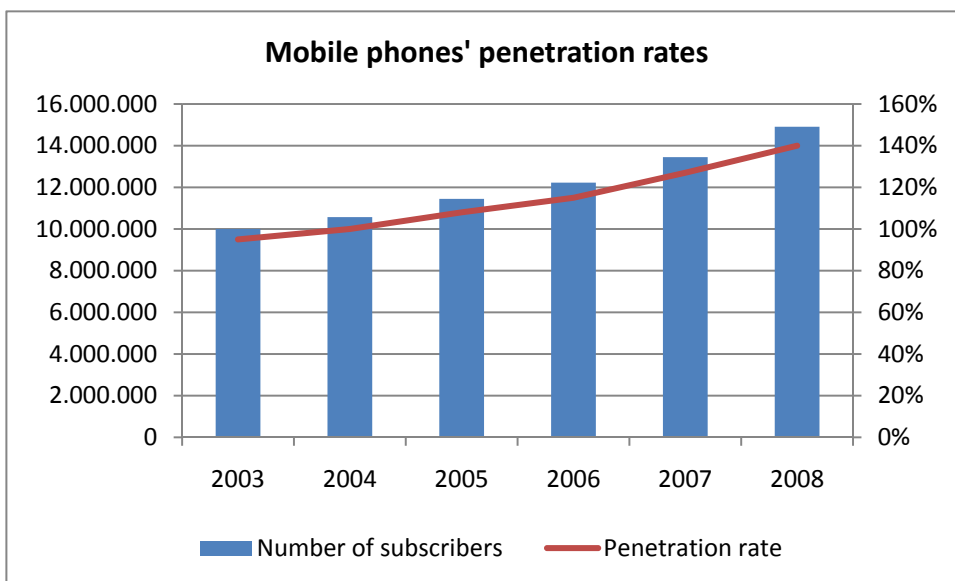
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Chapter 8: Appendices

8.1. Appendix A - Portuguese telecommunications market data





Outgoing calls, minutes and duration from mobile phones

	2003	2004	2005	2006	2007	2008
Calls (outgoing)						
mobile on-net	66,4%	66,5%	67,3%	66,8%	66,7%	68,0%
mobile-landline	9,3%	8,5%	7,9%	8,0%	7,8%	7,0%
mobile-international	3,0%	3,2%	3,2%	3,4%	3,5%	3,5%
mobile-off-net mobile	21,3%	21,7%	21,5%	21,8%	21,9%	21,5%
Minutes (outgoing)						
mobile on-net	67%	67%	68%	68%	69%	70%
mobile-landline	9%	8%	7%	7%	7%	6%
mobile-international	5%	5%	5%	5%	5%	5%
mobile-off-net mobile	20%	20%	20%	20%	20%	19%
Average Call Duration (in minutes)						
mobile on-net	1,73	1,78	1,82	1,92	1,99	2,11
mobile-landline	1,59	1,59	1,62	1,61	1,69	1,82
mobile-international	2,77	2,6	2,58	2,58	2,59	2,6
mobile-off-net mobile	1,61	1,63	1,67	1,72	1,76	1,77

8.2. Appendix B – Questionnaire

In this section we only present one of the five versions of the questionnaire developed in this paper and also the choice sets that were specifically developed to estimate the family box attractiveness:

INQUÉRITO SOBRE SERVIÇO CONVERGENTE DE COMUNICAÇÕES DE VOZ FIXA E MÓVEL

Bom dia/tarde. O meu nome é Nuno Mesquita. No âmbito da minha tese, estou a realizar um estudo académico sobre serviço convergente de comunicações de Voz Fixa e Móvel. O seu contributo é fundamental pelo que agradeço a sua colaboração. Trata-se de um questionário anónimo e confidencial com o intuito de obter a opinião das pessoas, não havendo, por isso, respostas certas ou erradas.

A. Preliminares

A1. Por favor, diga-me em qual dos intervalos se situa a sua idade?

0 - 24 25 – 34 35 – 44 45 – 54 55 – 64 65 ou mais

Caso tenha seleccionado “0 – 24”, o seu questionário termina aqui. Obrigado pela sua colaboração.

A2. Contando consigo próprio, por quantas pessoas é composto o seu agregado familiar?

1 2 3 4 5 ou mais

Caso tenha seleccionado “1” ou “2”, o seu questionário termina aqui. Obrigado pela sua colaboração.

A3. O seu agregado familiar utiliza telefone fixo na sua residência?

Sim Não

Caso tenha seleccionado “Não”, passe directamente para a questão A5.

A4. Podia indicar em qual dos intervalos se situa a despesa mensal habitual com o seu telefone fixo?

0€ - 5€ 6€ – 10€ 11€ – 15€ 16€ – 20€ 21€ – 25€ 26€ ou mais

A5. Diga-me, por favor, quantos telemóveis estão a uso no seu agregado familiar?

0 1 2 3 4 5 ou mais

Caso tenha seleccionado “0”, ignore a próxima questão.

A6. Podia indicar, por favor, em qual dos intervalos se situa a sua despesa mensal habitual com o seu telemóvel?

0€ - 10€ 11€ – 20€ 21€ – 30€ 31€ – 40€ 41€ – 50€ 51€ ou mais

B. Preferências por tarifários

Imagine que estava a considerar a possibilidade de mudar de tarifário no seu telefone fixo (ou de passar a ter um). Vários dos tarifários disponíveis permitem associar um grupo (constituído por 3 telemóveis à sua escolha) ao seu telefone fixo e assim usufruir de algum tipo de chamadas ilimitadas entre estes.

Estes vários tarifários diferem nas seguintes características:

- Incluem ou não algum dos seguintes tipos de chamadas ilimitadas:
 - Do seu telefone fixo para os 3 telemóveis
 - Dos 3 telemóveis para o seu telefone fixo
 - Entre os 3 telemóveis
- **Acréscimo na mensalidade do telefone fixo** – alguns destes tarifários implicam um aumento na sua mensalidade actual, em troca de certos benefícios.
- **Período de fidelização** – alguns destes tarifários implicam que se comprometa a não mudar de tarifário ou de operador por um período de 12 meses.

Neste questionário iremos pedir-lhe para nos indicar as suas preferências fazendo escolhas em alguns cartões semelhantes ao do seguinte exemplo ilustrativo:

CARTÃO 1 – Exemplo		Alternativa A	Alternativa B
Chamadas ilimitadas (incluídas)	do seu telefone fixo para os 3 telemóveis	Não	Sim
	dos 3 telemóveis para o seu telefone fixo	Sim	Não
	entre os 3 telemóveis	Sim	Não
Acréscimo na mensalidade do telefone fixo		10 €	25 €
Período de fidelização		12 Meses	Não
Eu prefiro:		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Alternativa A (observe a Alternativa A no cartão)

Esta alternativa permite realizar **chamadas ilimitadas dos 3 telemóveis para o seu telefone fixo** e ainda **chamadas ilimitadas entre os 3 telemóveis associados**, mediante um **acréscimo na mensalidade no seu telefone fixo de 10€** com um **período de fidelização de 12 meses**.

Alternativa B (observe a Alternativa B no cartão)

Por sua vez, a alternativa B permite realizar **chamadas ilimitadas do seu telefone fixo para os 3 telemóveis associados**, mediante um **acréscimo na mensalidade no seu telefone fixo de 25€** e o **período de fidelização é inexistente**.

Neste exemplo, o suposto inquirido prefere a alternativa A. Mas este é apenas um exemplo. Cada pessoa tem as suas preferências.

Agora considere por favor os seguintes cartões, tendo em atenção as características de cada alternativa. Para cada cartão apresentado, identifique a alternativa que prefere.

B3. Das duas alternativas apresentadas, qual é a sua preferida?

CARTÃO 3	
Chamadas ilimitadas (incluídas)	do seu telefone fixo para os 3 telemóveis
	dos 3 telemóveis para o seu telefone fixo
	entre os 3 telemóveis
Acréscimo na mensalidade do telefone fixo	
Período de fidelização	
<i>Eu prefiro:</i>	

Alternativa A
Sim
Sim
Não
10 €
Não
<input type="checkbox"/>

Alternativa B
Não
Não
Não
0 €
Não
<input type="checkbox"/>

B6. Das duas alternativas apresentadas, qual é a sua preferida?

CARTÃO 6	
Chamadas ilimitadas (incluídas)	do seu telefone fixo para os 3 telemóveis
	dos 3 telemóveis para o seu telefone fixo
	entre os 3 telemóveis
Acréscimo na mensalidade do telefone fixo	
Período de fidelização	
<i>Eu prefiro:</i>	

Alternativa A
Sim
Sim
Sim
20 €
Não
<input type="checkbox"/>

Alternativa B
Não
Não
Não
0 €
Não
<input type="checkbox"/>

C. Dados Socioeconómicos

Para terminar a entrevista, e desde já agradecendo a sua colaboração, gostava de lhe colocar algumas questões de carácter meramente estatístico. Relembro-lhe que o questionário é de carácter anónimo e confidencial.

C1. Qual o seu Género?

- Masculino
- Feminino

C2. Qual o seu nível de Habilitações Académicas?

- 2º Ciclo (6º ano de escolaridade) ou menos
- 3º Ciclo (9º ano de escolaridade)
- Ensino Secundário (12º ano de escolaridade)
- Ensino Superior (Licenciatura ou mais)

C3. Gostaria que respondesse à seguinte pergunta se faz favor:

Assinale por favor a letra que melhor corresponde ao rendimento mensal do seu agregado familiar depois de deduzido os impostos?

- €1.000 ou menos → F
- € 1.001 – € 2.000 → M
- € 2.001 – € 3.000 → D
- €3.001 – € 4.000 → R
- >= € 4.001 → B

OBRIGADO PELA SUA COLABORAÇÃO!

8.3. Appendix C – Family Box Flyer

06-07-2009

CHEGOU A BOX QUE VAI DAR QUE FALAR NA SUA FAMÍLIA



FamilyBox

É conversa de família.

Com o FAMILY BOX fale grátis entre 3 números TMN à sua escolha e o número PT da sua casa:

- Chamadas Fixo-Móvel: Grátis do número PT da sua casa para os 3 telemóveis TMN.
- Chamadas Móvel-Fixo: Grátis dos 3 telemóveis TMN para o número PT da sua casa.
- Chamadas Móvel-Móvel: Grátis entre os 3 telemóveis TMN.



ADESÃO GRÁTIS

	Chamadas Grátis		
	Mensalidade	Entre o nº PT da sua casa e 3 Telemóveis TMN	Entre os 3 Telemóveis TMN
Family Box Light	€10	✓	-
Family Box	€20	✓	✓

Mensalidades promocionais válidas até 31 de Dezembro de 2010. Mensalidade após promoção de €12,50 e €25 para Family Box Light e Family Box respectivamente. Válido para adesões até 30 de Setembro de 2009. De forma a garantir a prestação de um serviço de qualidade a todos os seus Clientes, a PT e a TMN reservam-se o direito de definir uma Política de Utilização Responsável aplicável às comunicações gratuitas.



FamilyBox

Fale o que quiser entre 5 números TMN e o telefone PT da sua casa.

- **Chamadas Fixo-Móvel:** do número PT da sua casa para os 5 números TMN.
- **Chamadas Móvel-Fixo:** dos 5 números TMN para o número PT da sua casa.
- **Chamadas Móvel-Móvel:** entre os 5 números TMN.



ADESÃO GRÁTIS



Entre o nº PT da sua casa e vários números TMN	Chamadas Incluídas	
	Family Box	Family Box Light
1 destino	-	6€
2 destino	15€	8€
3 destino	20€	10€
4 destino	25€	12€
5 destino	30€	14€

Mensalidades válidas para adesões até 31 de Dezembro de 2011. Valores com IVA incluído à taxa de 23%. O plano Family Box Light não inclui chamadas Móvel-Móvel. Planos sujeitos a política de utilização responsável, com um nº de minutos intra-plano gerados por cada nº registado de até 1000 minutos.