Will consumers make optimum decisions towards phone plans?

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Abstract: There are more and more products and services are selling at a monthly payment rate on the market now. It is interesting to know how does consumers perceive such monthly rates. The following thesis focuses on consumers' ability to calculate total monthly payments and consumers financial literacy. This thesis shows consumers have underestimated total price over the contract period, longer contracts increase the price gap between real price and estimated price. Thesis suggest government introduce regulation requiring companies show both monthly payments and total contract payment to help consumers to make the cheapest choice.

Contents

Chapter 1: Introduction

Problem statement:

Purchasing on credit is becoming more and more popular worldwide. Consumers now would not only purchase a house, car or yacht but also electronics, vacation or furniture on credit. Do consumers really understand how much they are going to pay in total? Many articles point out that consumers are not good at processing installment payments, as consumers are not used to calculate non-round numbers (see for example, Chen and Rao 2007). It is important to know whether consumers understand purchasing on credit calculations and preferences when choosing between one time payment and monthly payments.

Consider a customer who is choosing between a phone contract with and without phone from a service network. Given the phone and service plan, he or she needs to purchase the phone from either the network company or the electronics retailer. For most of the cases, purchasing a phone from the network service company requires a lower initial payment but higher total price compared with purchasing a phone from the electronics retailer. Some of the plans even require no initial payment for the phone in a two-year service contract. It is therefore interesting to know whether consumers face difficulties calculating the total payments when they decide to purchase a phone on credit and whether customers underestimate the total price or have biased view towards the case when initial phone price is cheaper. According to Franses and Vlam (2011), consumers often cannot compare the actual total period cost with one time payment cost easily and will make less favored purchasing choice.

In this thesis, I am interested in whether customers understand the calculation of future payments for mobile phones, whether longer contract periods lead to more biased estimation and whether the government can come up with regulations that help

consumers to make the optimum choice. Mobile network providers usually offer a bundle contract with monthly service plan and cellphone to customers. It is an ideal example that is relevant in people's lives. For example, consumer can purchase and use the phone in the market mainly in two ways. Consumers can either purchase the phone separately from the electronic store and subscribe a yearly SIM-only plan at any mobile operator or subscribe the phone from a mobile network provider with yearly plan.

Main research questions:

Will consumers make optimum decisions towards phone plans?

Sub-questions:

1. How large is the gap between estimated total monthly payments and total actual payments by customers?
2. Do more payments, comparing 12-month payments with 24-payments, lead to more biased estimation?
3. How can the government come up with policies that help consumers to make the suitable phone plan?

Academic relevance:

Customer purchasing on credit has been studied and published by many scholars. For example, Sriram, Chintagunta and Agarwal (2010), Manchanda, Ansari, and Gupta. (1999), Lambert-Pandraud, Laurent and Lapersonne (2005), Navarro-Martinez et al. (2011). Most of these papers focus on consumers' ability from two aspects. The first aspect is to understand math calculations and the second aspect is to see whether consumers are able to plan payment financially before purchase, also known as

financial literacy. For example, Chen and Rao (2007) and Allen (1988) researched consumers' ability to understand decimal, percentage calculation and consequences of math illiteracy; Adkins and Ozanne (2005) and Lusardi and Mitchell (2008) studied the financial illiteracy of mass consumers. However, one key limitation in previous studies is that subjects have flat rate price. For example, you can purchase a TV at 39 Euros monthly over one year or 449 Euros for one time payment, but what about the prevalent 3-pillar price plan[1] now? Do consumers understand how much they are going to pay in total under a 3-pillar price plan over a time period? My contribution here is to test the two previously mentioned theories under a 3-pillar price plan in one case and see whether consumers understand the phone plan and hence make the optimal choice. This paper also contributes the current academic research with better insight about consumers' cellphone plan service choice when consumers' have ambiguous total payments estimation.

Managerial relevance:

Government and policy makers can get insight about current deceptive commercials and pricing strategies and to regulate price information shown on commercials. I believe purchasing on credit is quite useful to many consumers with different purchasing preferences, but consumers are also entitled the right to know exact amount of payment in installment. This pricing strategy has implemented in the supermarket already, such as Albert Heijn provide unit price per kilo or liter for food or laundry detergent respectively. Better and clear regulations on price will help consumers to make the right choice and reduce efficiency loss for the whole society.

[1] 3-pillar price plans include an initial down payment, a monthly payment and extra cost not covered from

Chapter 2: Theory

To start with, it is important to have some background knowledge about the decision-making process. Kotler et al. (2009) defined five-stage model for the buying decision process. The five-stage model consists problem recognition, information search, evaluation of alternatives, purchase decision and post-purchase behavior. Clearly, the purchasing process starts long before the actual purchase and has the influence to consumers after purchase.

Briefly, problem recognition was triggered when normal needs come to consumer. Consumer then starts to search the information relate to the solution. Such information comes from personal information, commercial information, public information and experiential information. During the stage of information search, consumers will face sets involved in consumer decision-making. Kotler et al. (2009) defined 5 sets relating to consumer decision-making, total set, awareness set, consideration set and decision. Afterwards, consumer will evaluate the information obtained in the previous stage with his or her own belief and attitudes. Consumer will then form the preferences based on previous evaluation and purchase the goods or service. After purchase, consumer might experience either positive or negative feelings from noticing certain product features that will have the impact for further purchasing behavior towards purchased products or service.

In this case, many factors influence a consumer to purchase a phone such as needs, function, age, income, reputation of the company and price of the phone and cellphone service. Besides, online media and magazines also function as a channel to influence consumers' choice by comparing different devices at the same time. Surprisingly, even the way a human interacts with a computer has impact on consumers' cellphone purchasing decision, Curran, Woods and Riordan (2006). Whilst people believe price is an important factor when choosing a product, Sriram,

Chintagunta and Agarwal (2010) argue technology related products have unique characteristics. For example, the price for technology products will decline over time while quality typically improves; the durability of such products is relatively low. Therefore consumers' purchasing behavior does not depend on price solely, it depends on the trade off between anticipated timing of the purchase of the related technologies and price. Kimloglu, Nasir and Nasir (2010) even ran a factor analysis conducted on 32 different attributes to which consumers attach importance in purchasing a mobile phone and 9 major decision-making criteria emerge from the analysis. They divide customers into four clusters and believe cellphones can gain meaning and value over time to its owner.

The decision process for a consumer is rather complicated for the cellphone case. All the factors mentioned above have direct impact on people's preference when purchasing a phone. This thesis mainly focuses on the stage "information search" and "evaluation of alternatives". Two aspects, mental price calculation and customer financial literacy, will be examined closely. This is rather important stage because consumers might not make the ideal choice if the evaluation of alternatives comes from biased information.

Mental Calculation:

Under the current business scheme, networking companies usually charge consumers in two ways, mainly two and three-part tariff. Two-part tariff is a pay as you go plan charge consumers a flat rate. Besides than the initial phone payment, the total bill depends on how many minutes did a consumer called in the previous month. A three-part tariff plan is a contract plan allowing a consumer to pay a lower initial phone payments and call certain minutes a month at a fixed rate, for example 30 Euros per 500 minutes per month, but the consumers will pay extra for the minutes called beyond the price plan.

Pricing plans in the Netherlands generally consist of a down payment, a percentage discount if applicable, discount monthly payment if applicable, regular monthly payment and VAT. This is a rather complicated procedure for a customer to calculate the total installment payment, which include addition, multiplication and percentage calculation. Estelami and Hooman (2003) studied the consumers' evaluation effort for multi-dimensional prices and found consumers are not able to calculate such complicated equations swiftly and accurately. This paper mentioned above provided one of the basic assumptions for my paper that most of consumers' perceived total payment deviates from the real total payment dramatically. Webb (1986), Chatterjee et al. (2000) also found consumers are not able to process math calculations easily.

Wonder, Wilhelm and Fewings (2008) examined consumers' choice when dealing with exact interest rate and comprehensive information dealer provides to customer on automobile loan choice, but more and more goods and services selling on market now are available in installment payment, which does not show the exact interest rate but one time down payment price and future monthly payments price information only. Intuitively, people have higher involvement and motivation to calculate the cost of a big life decision than daily expendable goods, say a house vs. a phone. When people plan to purchase a new phone, price might not have the highest weight to make the decision. A unique function, limited edition or trendy design possibly weights heavier than price. Haeran and Delvecchio (2004) have show that commercials, especially at the point of purchase, deviate the decision set when consumer do not fully understand or has problem with final price calculation. When price is no longer the most important factor, it can be understood that people may change their purchase decision because they revealed a new feature of the desired phone or some of the phone plans are temporarily under discount.

Above all, it is therefore interesting to know what is the choice a customer makes over phone plans when all the distractions are absent. It is therefore fair for customers

to make optimum decision and present government a vision to regulate current network service market.

The paper written by Franses and Vlam (2011) shows consumers not only lack the skills to calculate monthly payment plan but also that they underestimate the eventual debt size. It is therefore interesting to see the whether such financial illiteracy applies to cell phone plan and whether consumers have more biased estimations when the contract payment period is longer. It is ideal to study the effect in this case because phone plan usually comes with 1-year or 2-year contracts, which are 12 payments or 24 payments. Whether more payments play a role to affect consumers perception price can be examined clearly later in this paper.

Hypothesis 1: Mental calculation leads to underestimation of the total payments.

Financial literacy:

Financially, there are many pricing aspects to consider when consumers make a choice to purchase a new phone and a corresponding new service plan. People should be aware that a cellular service price plan with phone or without phone has a different price plan composition. What can be noticed here first is the plan with phone allows consumers to pay the first bill at a very attractive rate. The cost of the device is spread evenly through out the contract period. SIM-only contract require consumers to purchase separate from the service plan. Therefore the latter service plan has higher initial payment but lower monthly payments. Navarro-Martinez et al. (2011) focus on credit card repaying behavior and consequences of bank offering first lowest required payment. The study shows that a lower down payment can induce the purchasing behavior significantly. It is also confirmed from a telecom research that lower down payment or free gifts induce consumers to use more than might be expected based on their previous usage (Ascarza, Lambrecht and Vilcassim 2012). The purchasing

behavior mentioned here could be one of the reasons that induce consumers to choose the lower initial payment option. For the most of the plans, cellphone contract comes with the phone has higher total payment. Network companies here can be regarded as a bank offering the product now but charging the price later.

Hypothesis 2: More monthly payments, in other words longer contract period, makes it harder for consumers to evaluate the real total payments. Therefore consumers have more biased total payments estimation for 24 payments than for 12 payments.

This research here combined consumers' comprehension about credit on both math calculation and ability to understand future financial payments with cellphone plan choice. It also bridge consumers' credit comprehension from topic "pre-sell math calculation" and topic "future monthly payment", which has not been researched before. This research about phone plan contract, which seems have no connection with other commercial products and services on the market, combines the customer decision from math calculations and future payments topic will actually be more representative on general purchasing on credit choices. The result therefore has implication for mass daily dependable goods. Hence it will be interesting to know whether shown both monthly payments and total price of certain product will change consumers' choice.

Hypothesis 3: Plan shown the total payments over the contract period help consumers to make the cheapest choice.

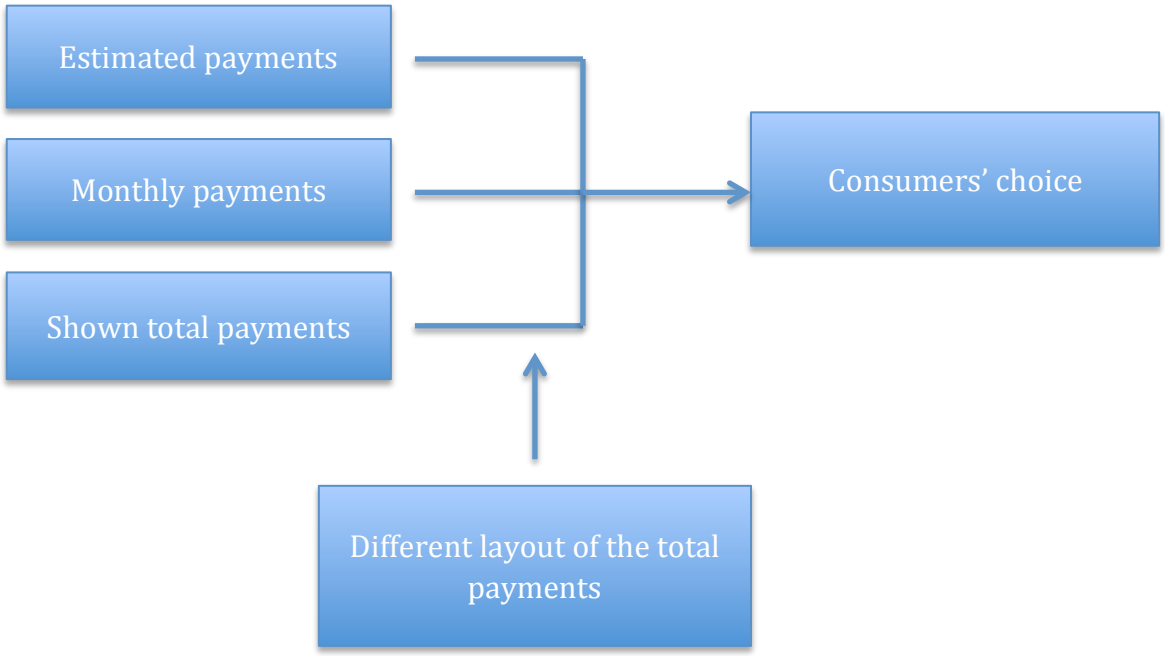
Moderator effect:

Brasel and Gips (2008) and Krugman et al. (1995) have argued that consumers react differently when the commercial has different layouts. It is believed there is a "best", center-left side, visual attention area on the commercial. It is therefore interesting to

know whether consumers have different preferences when total actual price was shown at different part of the commercial.

Hypothesis 4: Contents shown on the center-left side will get more attention from readers and hence will help consumers to make decision.

Theoretical framework:



Chapter 3: Data and methodology

Research design:

This thesis concerns the choice consumers made when choosing a phone plan. What is interested in here is which price plan a consumer will choose. By analysis the sum of the choice, we will know whether hypothesis stands for the most of the consumers. It is therefore convenient to use quantitative research design to understand consumers' behavior and to help consumers to make the ideal choice. Qualitative method is not the best choice here, because the motivation and reason why consumers choose one product over the other is not that much important in here. By building hypothesis based on previous researches, I can get a better an understanding about consumers' behavior towards price tag in both situation where full price and monthly payments is given to the consumers. Only by providing the solid test values can inform the government whether current regulation needs to be improved and/or enforced.

By analyzing data from the questionnaire, I can get the descriptive data such as the highest estimation, the lowest estimation and average value of the estimation towards consumers' estimation when only monthly payment is given. Charts will be provided to reader to see the sample distribution. By visualize the data obtained from the survey can give reader the impression of the directions in the large picture. ANOVA could be used to test the different choice between phone plan with a total cost and monthly cost. It can also test whether more payments, longer contract, would make consumers have more biased estimation by testing the proportional difference between the plans. T-test will also be used here to determine whether total estimated payments are different significantly from total actual payments and whether estimated price is either overestimated or underestimated; Z-test is used to see whether showing full payments in the survey will change consumers' choice over the price plan.

Survey explanation:

Survey was spread to people focusing on preference over purchasing behavior towards cellphone contract come along with and without the IPhone 5, 1-year or 2-year contract. Some of Lambrecht's studies, such as Lambrecht, Seim and Skiera (2007), Ascarza, Lambrecht and Vilcassim (2012) and Lambrecht and Skiera (2006), focus on the two and three-part tariff, uncertainty of consumers' usage and the optimum of usage for consumers in the real world in order to make the tariff simple and straightforward, plans from T-Mobile will be used. This is a suitable service plan because consumers have a sufficient number of minutes and unlimited text message within Holland. In this case, we only focus on the first two parts of the pricing scheme, initial phone payment and service payment. The survey of this study consists five versions. Versions 1 and 2 consist of a preference question and two estimation questions. Versions 3, 4 and 5 consist only of a preference question. Versions 1 and 2 do not include the actual total payments, which reflect the real market commercial presentation. In other words, version 1 and 2 list the information consumers receive about the product and the price plan in the current market. Versions 3, 4 and 5 show the total payments to consumers. The purpose of showing the total payments is to see whether consumers will make different choice when total payment is presented. All the pictures and prices are derived from the official Dutch website of Apple and T-Mobile. Although the survey has been modified to integrate information from both Apple and T-Mobile, it still carries the real purchasing image, which reflect the real purchase scenario. In order to make the choices comparable, the survey only provides respondents the relevant information to make the preference choice. The survey mentioned above is a suitable plan to research because only consumers' preference over complicated total price estimation is interested.

The preference choice is coded as 1 or 0, where 1 indicates preferred option and 0 indicates non-preferred option. After answering the preference question, respondents need to evaluate the total payments over one year or two years without seeing the

pricing plan in version 1 and 2. The purpose of comparing the estimated price and real price is to see how large is the difference between the estimated payment and the actual payment in 1-year and 2-year contract. The use of a calculator is not allowed in this stage. For example, version 1 asks consumers to choose between 676 Euros down payments and 28 Euros per month against 429.95 Euros down payments and 57.5 Euros over one year with the same phone and service plan; version 3 asks people to choose plans between 1012 Euros and 1119.95 Euros over one year with the same phone and service plan. In order to see how large is the difference between the estimated total price with actual total price, I also calculated the difference between individual estimation and real total price in first and second survey. A sign is give to indicate overestimation or underestimation, where 1 indicates overestimation and 0 indicates underestimation.

Data:

To make it straightforward, this thesis used stimuli that relied on an IPhone and T-Mobile service provider in the Dutch market[2] to test consumers' preferences. Surveys were conducted at the Erasmus University campus. There was no sampling frame with respect to gender, age, race and education level. The reason why the survey was distributed at Erasmus University is because college students are easy to reach when writing a master thesis. Such convenience sample is also cheaper to get compared with other methods, for example panel data, yet it still has the ability to deliver a good sample. The respondents were asked to fill out the survey individually and the use of calculator is not allowed in the first and second survey. Respondents were first to answer the preference question and then a estimation question if applicable.

[2] See appendix 1 for survey example

Chapter 4: Results

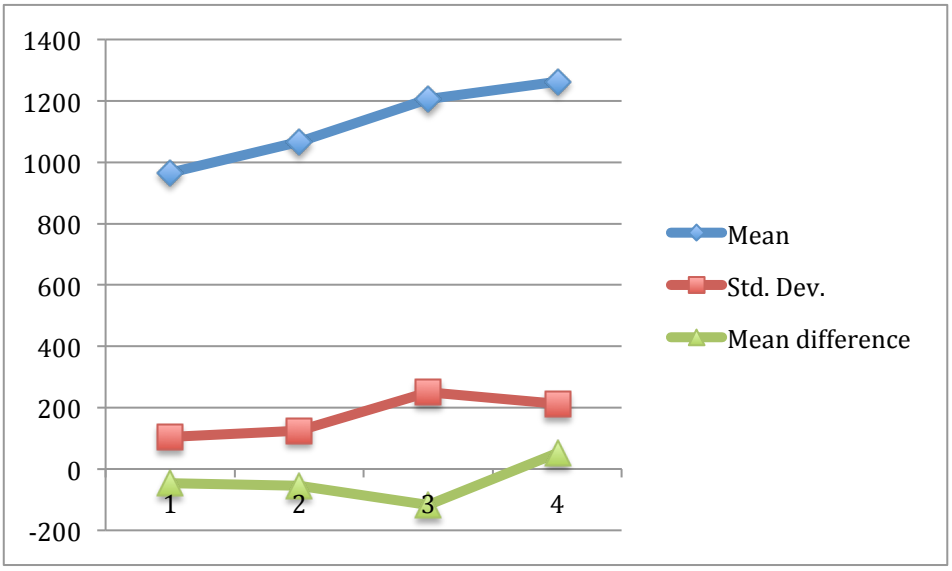
Result:

The result is divided into four parts, where each of the hypotheses will be discussed and supported by SPSS analysis individually.

Hypothesis 1: Mental calculation leads to underestimation of the total payments.

At a glance of chart 1, it can be seen 24-month data, indicated as 3 and 4 in the chart, has higher standard deviation compare with 12-month contract, indicated as 1 and 2 in the chart. Surveys 1.1, 1.2 and 2.1 also have negative mean difference. It is therefore expected that people underestimated the total payments.

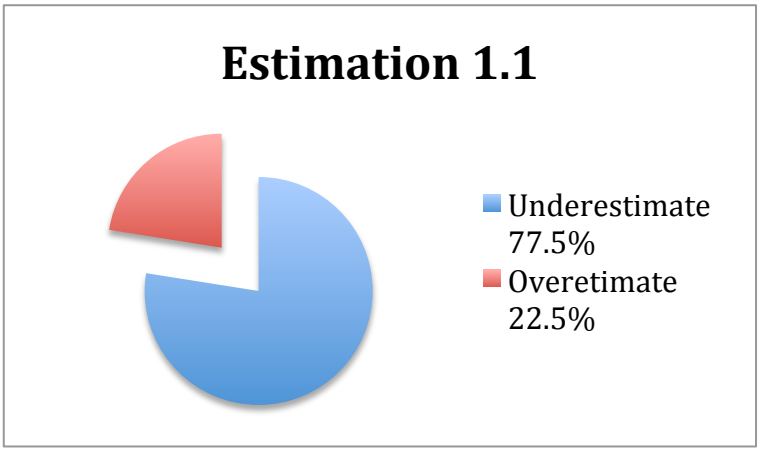
Chart 1



Pie charts fortify the hypothesis. There are 77.5% and 85%, see chart 2, of the respondents underestimate the total cost with and without the IPhone in the first survey respectively; 67.5% and 65%, see chart 3, of the responses underestimate the total cost with and without the IPhone in the second survey respectively.

Overestimation is indicated as 1 and underestimate is indicated as 0 in the SPSS result[3].

Chart 2



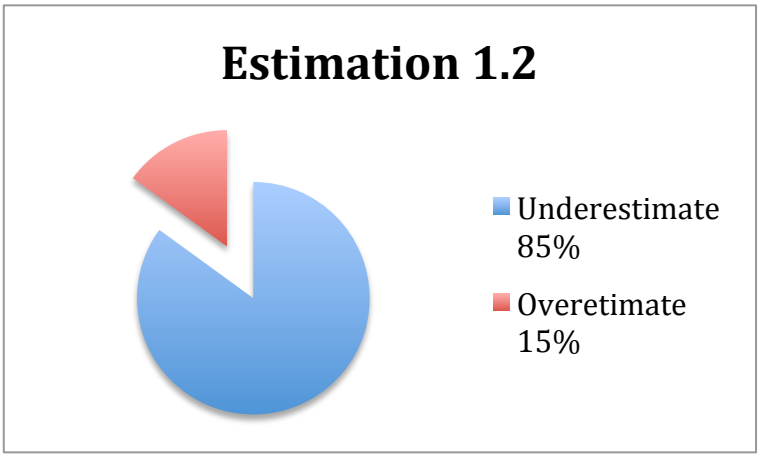
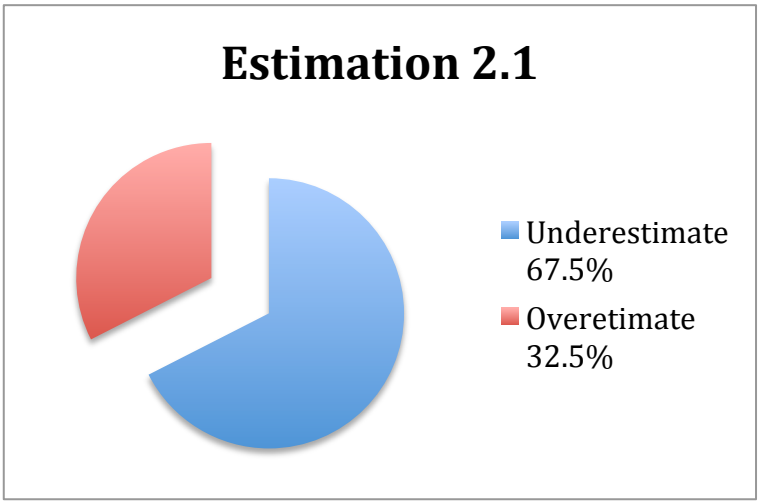
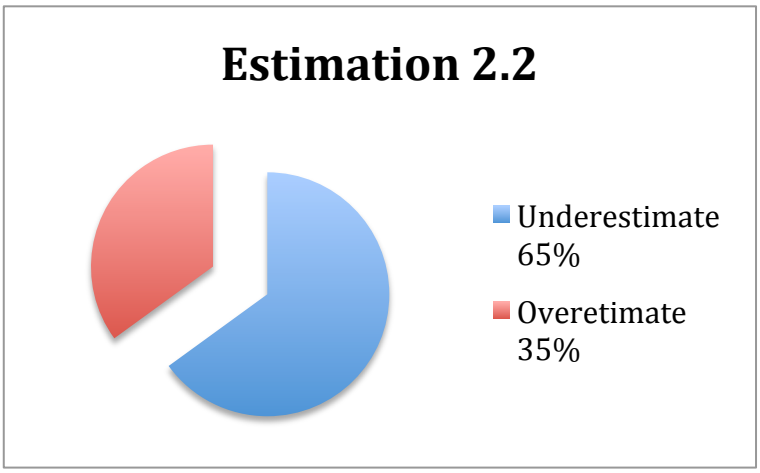


Chart 3



[3] Pie charts were calculated from frequency table. See appendix 2.



T-test, see table 1, was performed here to see whether mentally calculated total price is significantly different from actual total price. The test result showed that the estimated total price is significantly different from the actual total price for the survey with and without the IPhone contract. The p-value here are both significant at 0.008 for the first survey. The mean difference between estimated price and actual price is -46.3 and -54.475 respectively for contract without the IPhone and with the IPhone in the 12-month contract.

The second survey data also partially provide the insight that estimated total price is significantly different from the actual total price in the contract where the consumer purchases IPhone individually, survey 2.1. The p-value is significant at 0.005. The mean difference between estimated price and actual price is -117.8.

It is therefore obvious that consumers' mental calculation result is underestimated compared with the total real price; hence consumers may make the biased decision based on underestimated price.

Table 1 T-test

Survey	Mean	Std. Dev.	Test Value	T	Sig.(2-tailed)	Mean difference
1.1	965.70	104.621	1012	-2.799	.008	-46.300
1.2	1065.48	124.005	1119.95	-2.778	.008	-54.475
2.1	1206.20	249.326	1324	-2.988	.005	-117.800
2.2	1262.50	212.274	1209.95	1.566	.126	52.550

Hypothesis 2: More monthly payments, in other words longer contract period, makes it hard for consumers to evaluate the real total payments. Therefore consumers have more biased total payments estimation for 24 payments than for 12 payments.

It is understandable that survey 2 has higher estimated payments and hence higher bias than the payments and bias in survey 1 in general. 20 Euros difference in estimation over a total payment of 1000 is different from a total payment of 100. Hence it is only meaningful to compare the difference in proportional difference rather than absolute value. In order to test this hypothesis, I therefore calculated the proportional difference, see table 2, which is the difference between the estimated and real payment difference over the real price, for each response in survey 1 and survey 2.

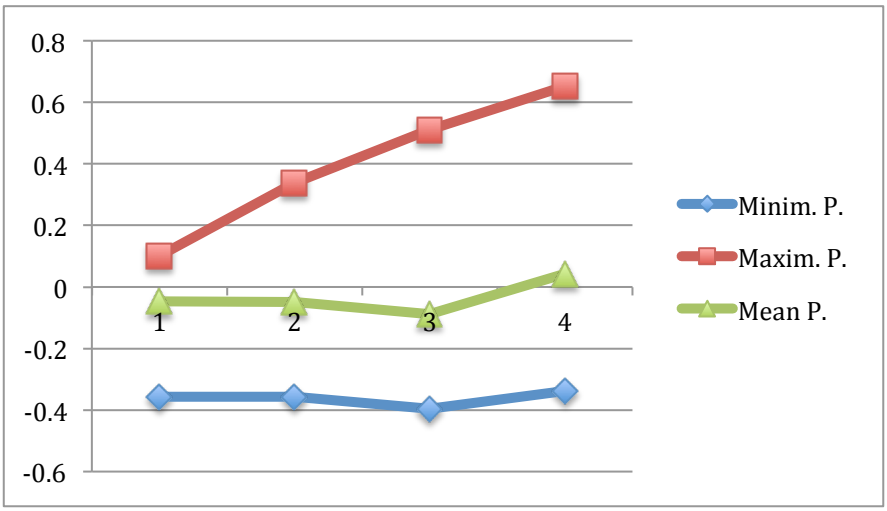
Table 2 Proportional differences

Survey	Mean	Std. Dev.	Minim. P.	Maxim. P.	Mean P.
1.1	965.70	104.621	-.3577	.1008	-.045751
1.2	1065.48	124.005	-.3571	.3393	-.048641
2.1	1206.20	249.326	-.3958	.5106	-.088973
2.2	1262.50	212.274	-.3388	.6530	.043432

By comparing same contract, the contract receiving the Phone from the service provider and purchasing the Phone individually, over 1-year and 2-year, it is clear the proportional difference between survey 1.1 and 2.1 is different and 1.2 and 2.2. Survey 2.1 has not only higher maximum differences, 0.5106 compared with 0.1008, but also higher minimum proportional differences, -0.3958 compared with -0.3577, than survey 1.1. More importantly, the mean proportional difference is almost twice as large in survey 2.1 than survey 1.1, -.0890 compared with -0.458. It is also the case when comparing the survey 1.2 and 2.2. Survey 2.2 has higher maximum proportional difference, 0.6530 compared with 0.3393, than survey 2.1 and survey 2.2 has higher mean proportional difference, 0.4343 compared with -0.4864.

Chart 4 below visually shows the difference between the proportional difference in both survey 1 and survey 2.

Chart 4



ANOVA was performed, see table 3, to test whether proportional difference is significantly different from each other when comparing survey between 1.1 and 2.1 and between 1.2 and 2.2. Results show the longer contract period made consumers harder to give a close to actual estimated price. The proportional difference is significant, P-value is 0.006, in the contract when IPhone is provided. For the absolute

value term, figure also shows the estimated price has higher standard deviations in the 24-month contract compared with 12-month contract, which are 104.621 vs. 249.326 for contract without IPhone and 123.005 vs. 212.274 for contract with IPhone.

Table 3 ANOVA on proportional difference

		Sum of Squares	F	Sig.
Contract without IPhone	Between group	0.037	1.619	0.207
Contract with IPhone	Between group	0.170	7.879	0.006

The estimated price gap is also significantly different from each other, when compare the contract with IPhone in 12-month and 24-month survey in absolute value term[4] under the contract when IPhone is provided from the network service company. The p-value is 0.007 when perform an ANOVA test. Price gap might be significantly different when compare the contract without IPhone in the 12-month and 24-month survey if more people is asked during the survey, because the p-value is 0.098, which is marginally significant.

Based on the argument above, it is partially proved that consumers give a more biased estimation when contract is longer under the contract when IPhone is provided.

Hypothesis 3: Plan shown the total payments over the contract period help consumers to make the cheapest choice.

In order to see plan shown the total payments over the contract period help consumers to make the cheapest choice, it is important to know whether consumers' choice

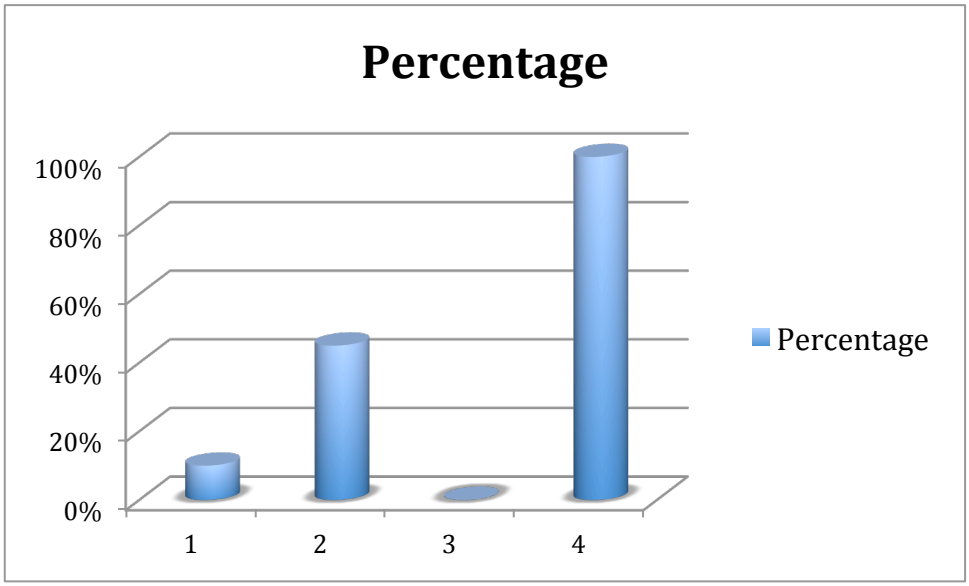
[4] See appendix 3.

different significantly when comparing the choice under monthly payment and the choice when total payments is provided. The table and chart below has shown how many responds choose the first plan in each survey and the percentage out of total responds.

Table 4 Consumers' choice preference over first plan in each survey

Survey	Observation	First plan	Percentage
1	40	4	10%
2	40	18	45%
3	40	3	0.075%
4	40	40	100%

Chart 5



It is visually clear at least choice over the contract for two year is very different from each other. 100% of the total responds choose the first plan on 2-year contract when total price is given compared with 45% when total price is absent in the survey.

Z-test, see table 5, is performed to test whether the choice difference is significantly different from each other. It is clear that consumers' choice is between survey 2 and 4

differs from each other significantly. The P-value is 0. Consumers' choice between survey 1 and 3 is at marginally difference. The P-value is 0.0808.

Table 5

Z-test 1: One-year contract

Survey	Observation	Plan 1 preferred	Z-value	P-value
1	40	4	1.4002	0.0808
3	40	3		

Z-test 2: Two-year contract

Survey	Observation	Plan 1 preferred	Z-value	P-value
2	40	18	12.3369	0.0000
4	40	40		

The argument above shows consumers make different choices if total price is shown on the survey when the network service company provides IPhone. It is partially support the hypothesis that total price help consumers to make the cheapest choice.

Hypothesis 4: Contents shown on the center-left side will get more attention from readers and hence will help consumers to make decision.

I did not find moderator effect here by putting total price at a different place on the survey, different layouts of survey. Consumers made the same choice even if the total price was located in a different part of the survey. Hence no test was performed here. The contract in the survey, contract with IPhone, is more attractive than the contract without the IPhone. Contract with the IPhone is not only cheaper in the total price, but also a lot cheaper in the first payment, 129.95 Euros vs. 676 Euros.

Robustness test:

Sriram, Chintagunta and Agarwal (2010) studied the utility customers derive from purchasing technology related products. They found a unique discount pattern for computer related products. Discount rate was used to determine the purchasing choice, which is not entirely relevant for current cellphone business selling trend because monthly payment is used here and it is a fixed amount. This paper comes from marketing prospective rather than financial prospective. Discount rate is irrelevant for this research. It is rare for a customer to calculate the cost using discount rate for a cellphone on a monthly base. Besides, estimation questions in the first and second survey were based on mental calculations. It is very hard for respondent to calculate the estimation question with discount rate factor taken into account when help from calculator is absent. Further more, hypothesis 1 assumes consumers will underestimate the total price. Run a T-test to compare the estimated price with discounted total price will make previous significant P-value insignificant, because a lower test value in T-test now would be closer to the estimated total payments.

Table 6 has shown the previous significant value in surveys 1.1, 1.2 and 2.1 become insignificant when discount rate is taken into account. It is especially the situation when 5% discount rate is taken into account. P-value has changed to 0.919, 0.938 and 0.896 for the survey 1.1, 1.2 and 2.1 respectively. Previous insignificant P-value in the survey 2.2 became significant in all tested discount rate, 0.001 and 0. Because hypothesis 1 assumes estimation of total payments is underestimated, so such result provided in table 6 is reasonable and further proves hypothesis 1 is correct. In other words, people tend to underestimate the total payments over the contract period.

Table 6 T-test when discount rate is taken into account

3% discount

Survey	Mean	Std. Dev.	Test Value	T	Sig.(2-tailed)
1.1	965.70	104.621	983	-1.046	0.302
1.2	1065.48	124.005	1087	-1.098	0.279
2.1	1206.20	249.326	1248	-1.060	0.296
2.2	1262.50	212.274	1141	3.620	0.001

5% discount

Survey	Mean	Std. Dev.	Test Value	T	Sig.(2-tailed)
1.1	965.70	104.621	964	0.103	0.919
1.2	1065.48	124.005	1067	-0.078	0.938
2.1	1206.20	249.326	1201	0.132	0.896
2.2	1262.50	212.274	1097	4.931	0.000

Chapter 4: Conclusion

Conclusion：

Consumers face difficulties when dealing with price in monthly payment. My thesis has shown consumers tend to underestimate the total price when only monthly payment is given on the price tag. It is therefore hard for consumers to make the ideal choice because the price level consumers formed before purchasing is biased. Besides, consumers have larger price gap between estimated price and actual price in the 2-year contract. 24-month payment price gap standard deviation is almost twice as large as 12-month payment price gap.

Hypothesis 1: Mental calculation leads to underestimation of the total payments.

The result has shown that mental calculation makes consumers to underestimate the total payments over the contract period in 3 out of 4 cases. The estimated price differs from the actual price significantly.

Hypothesis 2: More monthly payments, in other words longer contract period, makes it hard for consumers to evaluate the real total payments. Therefore consumers have more biased total payments estimation for 24 payments than for 12 payments.

Longer contract period does make consumers have more biased estimation. The paper tested the proportional difference between the 1- year and 2-year contract. It is proved that contract provides IPhone made consumers give more biased estimation comparing with 12-month payment and 24-month payment.

Hypothesis 3: Plan shown the total payments over the contract period help consumers to make the cheapest choice.

Tests have shown consumers make different choice when total price is shown in the survey. In the 2-year contract, consumers clearly make different choice under the

same price plan when total price is shown. Surprisingly, all respondents prefer the first price plan in survey 4 compared with 45% of the respondents in survey 2, despite two surveys contain the same price plan structure.

Hypothesis 4: Contents shown on the center-left side will get more attention from readers and hence will help consumers to make decision.

No difference has been found under this hypothesis. Both survey 4 and survey 5 responded first plan is preferred over the second and hence there is no difference between the best visual part in the commercial in here.

Chapter 5: Implication

Implication:

Although this thesis did not prove the hypothesis entirely through the test results, it is still clear that consumers can be better advised and informed when total amount of payment is shown in the commercials. It should be noticed that the IPhone was not available in the Apple store until recently and there are no studies about the recent market for the IPhone SIM-only plan. Hence this study is new to research. It will have valuable implications for the government about how to improve the current regulations for cellphone contract.

When total price has shown on the survey, consumers have different preference under 24-month contract when IPhone is provided from the mobile service company. Because consumers are likely to underestimate the total payments of the contract, they will choose a less suitable price plan. It is therefore advised for government to enforce the regulation by requiring companies to show total price over the contract period along with the monthly payment in the commercials.

I did not find the moderator effect that different layouts of the survey could change consumers' choice. It could be the case if more responses can be obtained.

Limitation and further research:

This thesis has some limitations. During the survey, respondents have different levels of involvement. Therefore some respondents may have more attention and understanding about the survey, while others simply want to finish the survey as soon as possible. Estimation calculation time could be added in the next similar research. I also found people have very different math ability during the survey. Even people

with similar involvement level have dramatically different time to give an estimated price. This phenomenon is so obvious in the second survey. Survey takes so long when people are asked to calculate a base rate multiple 24 times.

Due to limitation, I only collected 40 responses for each survey. More responses should be asked next time if possible to reach a more accurate conclusion.

This thesis assumes customers who choose the price plan will stay with the mobile service company for the entire contract period. It should be noticed that mobile service is a unique business. It involves customer retention, customer lifetime value and high customer switching cost. More aspects should be taken into consideration when examine the mobile network service in the relevant studies.

Appendix:

Appendix 1

Survey 1

1.1

Stel voor dat u een aankoop van een IPhone 5 met een-jaar-service contract overweegt. U kunt de aankoop van de telefoon doen bij Apple en u daarmee abonneren op een SIM-Only optie bij T-Mobile of u kunt een telefoon kopen met een abonnement bij T-Mobile.

Alle verstrekte informatie weerspiegelt de reële marktprijs en is inclusief BTW (21%).

Welke optie spreekt u het meest aan?

Keuze 1: Koop de telefoon van Apple en abonneer je op een SIM-Only abonnement van T-Mobile.

1.2

Keuze 2: Koop de telefoon en het abonnement van T-Mobile.

De twee opties hebben omvatten dezelfde telefoon en dezelfde service.

Gebaseerd op je geheugen, wat zou je totale geschatte waarde zijn voor beide telefoonopties?

- Totale geschatte waarde voor optie met telefoon _____
- Totale geschatte waarde voor optie zonder telefoon _____

Survey 2

2.1

Stel voor dat u een aankoop van een IPhone 5 met twee-jaar-service contract overweegt. U kunt de aankoop van de telefoon doen bij Apple en u daarmee abonneren op een SIM-Only optie bij T-Mobile of u kunt een telefoon kopen met een abonnement bij T-Mobile.

Alle verstrekte informatie weerspiegelt de reële marktprijs en is inclusief BTW (21%).

Welke optie spreekt u het meest aan?

Keuze 1: Koop de telefoon van Apple en abonneer je op een SIM-Only abonnement van T-Mobile.

2.2

Keuze 2: Koop de telefoon en het abonnement van T-Mobile.

De twee opties hebben omvatten dezelfde telefoon en dezelfde service.

Gebaseerd op je geheugen, wat zou je totale geschatte waarde zijn voor beide telefoonopties?

- Totale geschatte waarde voor optie met telefoon _____
- Totale geschatte waarde voor optie zonder telefoon _____

Survey 3

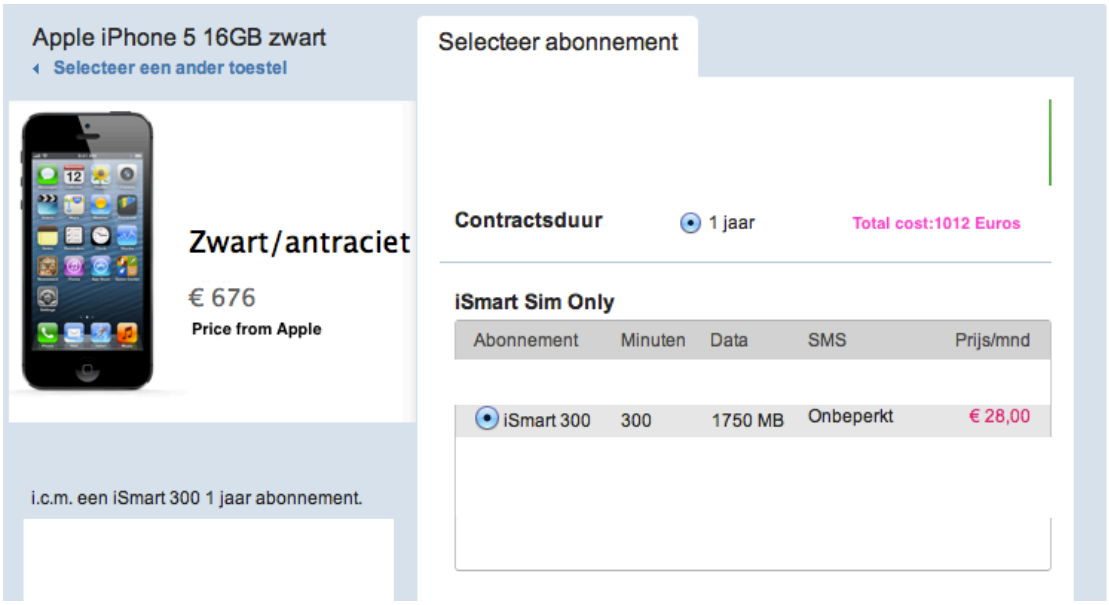
3.1

Stel voor dat u een aankoop van een IPhone 5 met een-jaar-service contract overweegt. U kunt de aankoop van de telefoon doen bij Apple en u daarmee abonneren op een SIM-Only optie bij T-Mobile of u kunt een telefoon kopen met een abonnement bij T-Mobile.

Alle verstrekte informatie weerspiegelt de reële marktprijs en is inclusief BTW (21%).

Welke optie spreekt u het meest aan?

Keuze 1: Koop de telefoon van Apple en abonneer je op een SIM-Only abonnement van T-Mobile.



3.2

Keuze 2: Koop de telefoon en het abonnement van T-Mobile.

De twee opties hebben omvatten dezelfde telefoon en dezelfde service.

Survey 4

4.1

Stel voor dat u een aankoop van een IPhone 5 met twee-jaar-service contract overweegt. U kunt de aankoop van de telefoon doen bij Apple en u daarmee abonneren op een SIM-Only optie bij T-Mobile of u kunt een telefoon kopen met een abonnement bij T-Mobile.

Alle verstrekte informatie weerspiegelt de reële marktprijs en is inclusief BTW (21%).

Welke optie spreekt u het meest aan?

Keuze 1: Koop de telefoon van Apple en abonneer je op een SIM-Only abonnement van T-Mobile.

4.2

Keuze 2: Koop de telefoon en het abonnement van T-Mobile.

De twee opties hebben omvatten dezelfde telefoon en dezelfde service.

Survey 5

5.1

Stel voor dat u een aankoop van een Ihone 5 met twee-jaar-service contract overweegt. U kunt de aankoop van de telefoon doen bij Apple en u daarmee abonneren op een SIM-Only optie bij T-Mobile of u kunt een telefoon kopen met een abonnement bij T-Mobile.

Alle verstrekte informatie weerspiegelt de reële marktprijs en is inclusief BTW (21%).

Welke optie spreekt u het meest aan?

Keuze 1: Koop de telefoon van Apple en abonneer je op een SIM-Only abonnement van T-Mobile.

5.2

Keuze 2: Koop de telefoon en het abonnement van T-Mobile.

De twee opties hebben omvatten dezelfde telefoon en dezelfde service.

Appendix 2

Survey 1

Survey 1.1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	31	77.5	77.5	77.5
	1	9	22.5	22.5	100.0
	Total	40	100.0	100.0	

Survey 1.2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	34	85.0	85.0	85.0
	1	6	15.0	15.0	100.0
	Total	40	100.0	100.0	

Survey 2

Survey 2.1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	27	67.5	67.5	67.5
	1	13	32.5	32.5	100.0
	Total	40	100.0	100.0	

Survey 2.2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	65.0	65.0	65.0
	1	14	35.0	35.0	100.0
	Total	40	100.0	100.0	

Appendix 3

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
bias 1	Between Groups	102245.000	1	102245.000	2.797	.098
	Within Groups	2851248.800	78	36554.472		
	Total	2953493.800	79			
bias 2	Between Groups	229087.013	1	229087.013	7.581	.007
	Within Groups	2357063.975	78	30218.769		
	Total	2586150.988	79			

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