

**FACULDADE DE ECONOMIA  
UNIVERSIDADE DO ALGARVE**

Relationship Marketing and Consumer Behavior  
In Fast-Moving Consumer Goods

João Manuel Pinto e Castro

Thesis presented to obtain a doctoral degree  
in Management  
(Ramo de Gestão, especialidade de Marketing)

Supervisor: Prof. Eduardo Casais

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## **DEDICATION**

To my parents. To my wife. To my children.



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**Relationship Marketing and Consumer Behavior in Fast-Moving Consumer Goods**  
**Author: João Pinto e Castro**  
**Supervisor: Eduardo Casais**

## **ABSTRACT**

The present dissertation investigates the adequacy of relationship marketing concepts to markets for fast-moving consumer goods. Supporters of the relationship marketing approach urge companies to focus their marketing efforts on the retention of their most valuable customers. This recommendation flows from the belief that loyalty rather than penetration is the best way to grow a brand.

Relationship marketing emerged in the context of service marketing, but in recent years its scope widened to the point where a number of authors consider it a new paradigm of marketing relevant for any company in any type of market. Namely, interest for relationship concepts has been growing among manufacturers of fast-moving consumer goods who try to overcome the limitations of traditional mass marketing approaches. However, in contrast to the dominant Howard-Sheth theory of consumer buyer behavior, the NBD-Dirichlet theory of purchase behavior predicts that, when repeat-buying behavior prevails, such relationship marketing strategies will not work as expected.

In fact, given empirical evidence that: a) what basically separates a leading brand from the other brands in any given category is that is bought by more consumers; b) loyalty does not vary much from one brand to the other; and c) brands with higher penetration rates also command more loyalty, marketing programs geared toward increased loyalty run the risk of either not reaching their goal or doing it at an absurdly high cost. For these reasons, we wanted to test the hypothesis that relationship marketing programs are not able to generate increasing market share for fast-moving consumer goods. On the other hand, in case a positive impact was identified, we also wanted to know what specific behavioral variables were instrumental in bringing about that effect.

Having obtained permission from a large multinational manufacturer of fast-moving consumer goods operating in Portugal to examine the purchase data of both a test and a control group in the context of a relationship marketing program, we were able to follow their respective behaviors during a period of ten quarters. The behavioral variables

retained for analysis were market share, penetration rate, buying rate, purchase frequency, and expense per purchase occasion. The analysis was conducted at three different levels: corporate, division, and product.

Thus, a comparison was established between behavior in the test group and behavior in the control group. The differences between both groups led to the creation of a new set of time-series whose evolution was analyzed in order to verify:

- a) Whether any positive evolution could be identified in the test group relative to the control group during the period under study; and
- b) Whether such effects could be related to the relationship marketing program.

In short, our basic conclusion is that, on the basis of the available data, it is not possible to conclude that the relationship marketing program we investigated has had an irrefutable positive impact on the analyzed purchase variables whether at the corporate, the division or the product level.

While our results cannot be interpreted as meaning that relationship marketing is absolutely ineffective in markets for fast-moving consumer goods, they nevertheless reinforce the suspicions raised by some authors regarding the applicability of relationship marketing principles to low-involvement repeat-buying, inasmuch as they seem to confirm the predictions of the NBD-Dirichlet theory of purchase behavior. Important implications follow for marketing theory, management practice, and future research.

**Key-words:** Relationship marketing, CRM, repeat-buying behavior, fast moving consumer goods, loyalty programs, consumer panels.

**Comportamento de Compra e Programas de Relacionamento com os Clientes**  
**Autor: João Pinto e Castro**  
**Orientador: Eduardo Casais**

**RESUMO**

A presente dissertação investiga a adequação dos conceitos do marketing relacional aos mercados de bens de consumo correntes. Os adeptos do marketing relacional incitam as empresas a focalizarem os seus esforços de marketing na retenção dos seus clientes mais valiosos. Esta recomendação decorre da crença de que a fidelização é uma forma mais eficaz de assegurar o crescimento de uma marca do que a penetração.

O marketing relacional emergiu no contexto do marketing de serviços, mas mais recentemente o seu âmbito alargou-se ao ponto de alguns autores o considerarem um novo paradigma do marketing relevante para qualquer empresa em qualquer tipo de mercado. O interesse pelos conceitos do marketing relacional cresceu designadamente entre os fabricantes de bens de consumo correntes empenhados em superar as limitações das tradicionais abordagens do marketing de massa. Todavia, em oposição à teoria dominante do comportamento de compra do consumidor de Howard-Sheth, a teoria NBD-Dirichlet do comportamento de compra prediz que, em situações de compra repetida, essas estratégias de marketing relacional não produzirão os resultados esperados.

Na realidade, tendo em conta evidência empírica segundo a qual: a) o que basicamente distingue as marcas líderes das restantes numa dada categoria é o facto de ela ser adquirida por mais consumidores; b) a lealdade não varia muito de marca para marca; e c) as marcas com maiores taxas de penetração também registam maior lealdade, os programas concebidos para fidelizar os clientes correm o risco de ou não atingirem o seu propósito ou atingirem-no por um custo absurdamente elevado. Por essas razões, pretendíamos testar a hipótese segundo a qual os programas de marketing relacional são incapazes de gerar ganhos de quota de mercado para bens de grande consumo. Por outro lado, caso fosse possível identificar algum impacto positivo, gostaríamos de saber que variáveis comportamentais específicas seriam responsáveis por esse efeito.

Tendo obtido autorização de um grande fabricante de bens de consumo correntes a operar em Portugal para examinar os dados de compra de um grupo de teste e de um grupo de controlo no contexto de um programa de marketing relacional, foi-nos possível

acompanhar os seus comportamentos respectivos ao longo de um período de dez trimestres. As variáveis de comportamento retidas foram a quota de mercado, a taxa de penetração, a taxa de compra, a frequência de compra e o gasto por ocasião de compra. A análise foi conduzida em três níveis distintos: empresa, divisão e produto.

Assim, foi estabelecida uma comparação entre o comportamento no grupo de teste e o comportamento no grupo de controlo. As diferenças entre os dois grupos conduziram à criação de um novo conjunto de séries cronológicas cuja evolução foi analisada com o objectivo de verificar:

a) Se seria possível identificar qualquer evolução positiva no grupo de teste em relação ao grupo de controlo durante o período escrutinado; e

b) Se tais efeitos poderiam ser atribuídos ao programa de marketing relacional.

Resumidamente, a conclusão fundamental é que, a fazer fé nos dados disponíveis, não é possível concluir que o programa de marketing relacional investigado tenha tido um impacto positivo irrefutável sobre as variáveis de compra analisadas, seja ao nível da empresa, das divisões ou dos produtos.

Embora estes resultados não permitam concluir que o marketing relacional é absolutamente ineficaz em mercados de bens de grande consumo, eles contribuem no entanto para reforçar as suspeitas levantadas por alguns autores relativamente à aplicabilidade dos princípios do marketing relacional à compra repetida de baixo envolvimento, na medida em que parecem confirmar as predições da teoria NBD-Dirichlet do comportamento de compra. Decorrem daqui importantes consequências para a teoria do marketing e a prática da gestão, bem como para futuras investigações neste domínio.

**Palavras-chave:** Marketing relacional, CRM, comportamento de compra repetida, bens de consumo de alta rotação, programas de fidelização, painéis de consumidores.

# Chapter 1

## Introduction

### 1.1 - BACKGROUND TO THE RESEARCH

The purpose of this investigation is to contribute to the understanding of the effectiveness of a variety of marketing strategies usually grouped under the designation of relationship marketing, an expression coined about two decades ago to describe certain practices that attempted to transform the way marketing was traditionally managed.

Relationship marketing started as a reaction against what was considered by some as an excessively transactional approach, characterized by an almost exclusive focus on the moment when the buyer and the salesman meet each other to operate an exchange (Levitt, 1983). Within the transaction marketing approach, critics said, the main marketing effort was concentrated on the sale itself, ignoring what happened after its conclusion. As Levitt (1983) pointed out: “The relationship between a seller and a buyer seldom ends when a sale is made. Increasingly, the relationship intensifies after the sale and helps determine the buyer’s choice the next time around.” However, marketing departments tended to treat each buying occasion as if it were the first and last one and to ignore the peculiarities of the repeated buying process.

Roughly at the same time, Berry (1983) complained that “efforts to retain existing customers are minimal” and added: “this view of marketing is needlessly restrictive and potentially wasteful”. He then went on to define (possibly for the first time ever) relationship marketing as “attracting, maintaining and – in multi-service firms – building customer relationships” (Ibid.).

By 2001, a mere twenty years after Levitt and Berry had expressed these concerns, Customer Relationship Management (a concept akin to relationship marketing) had grown so big, that, according to some estimates (Varey, 2002, p.XV), the industry revolving around it was worth more than 20 billion £ (approximately 30 billion €) and two in three corporations were said to have at least attempted a CRM project. The European retail industry is said to have spent 2.5 billion euros in the management of loyalty card programs

(probably the most common type of CRM program) in 1999, while the number of cards in circulation amounted to 350 million in the same year (Wall Street Journal, 2000). A Google search of the World Wide Web for the expression CRM identified 142,000 pages in June 2000; 552,000 pages in June 2002; 19,200,000 pages in November 2004; 24,500,000 pages in April 2005; and 72,100,000 pages in September 2005. A similar search for relationship marketing showed 63,600 pages in June 2002; 382,000 pages in November 2004; 548,000 pages in April 2005; and 1,760,000 pages in September 2005.

The companies that espouse relationship marketing principles are specially interested in its ability to protect the existing customer base from competitive attacks. Thus, in a general way, the last decades witnessed a tendency within marketing departments for a continuous move of money and effort from customer acquisition to customer retention, sustained by the belief that it is far more economical to make a new sale to an existing customer than to acquire a new one. In fact, according to Berry and Gresham (1986), “marketing costs per unit of sales are typically lower for existing customers than for customer prospects”. This growing concern with the protection of the existing customer base translates into an attempt to deepen and enhance the relationship of the company or brand with its customers, in order to create entry barriers to competitors who might try to seduce them. This explains the designation of relationship marketing adopted by this growingly accepted trend of contemporary marketing thought.

Companies operating in the fast-moving consumer goods industries, among them some of the largest in the world such as Procter & Gamble, Unilever, Nestlé, Danone, Kraft General Foods or Master Foods, have grown increasingly interested in relationship marketing in the recent years. Having noticed that very often about 20% of their customers account for roughly 50% of their sales and an even larger proportion of their profits (Hallberg, 1995), they started experimenting with programs designed to induce the loyalty of their best customers. The purpose of these companies is to change the purchase behavior of consumers, getting them to buy more frequently, to increase their feed rate, to buy more at each purchase occasion or to reduce brand-switching. These programs in turn stimulated the collection of information on individual customers (something that had never been done before in this industry) and led to the building of huge marketing databases.

Relationship marketing – sometimes also known as CRM or one-to-one marketing<sup>1</sup> – has its origins in four main bodies of ideas active in the marketing profession. The first one is business-to-business marketing and specially the work of the Industrial Marketing and Purchasing Group (IMP), which has always stressed the importance of relationships in the interaction between buying and selling companies (Ford, 1980; Ford, 1990; Ford *et al.*, 2002). The second one is services marketing, with its emphasis on the intangibility of the offer and the importance it pays to service encounters at the moments when the actual brand performance is confronted with the expectations of its customers (Grönroos, 1990a; Grönroos, 2000). The third one is total quality management, starting with the evaluation of non quality costs and going on to the systematic identification of the main causes of customer dissatisfaction (Parasuraman, Zeithaml and Berry, 1985; Crosby, Evans and Cowles, 1990; Reichheld and Sasser, 1990). Finally, the fourth one is the old tradition of direct marketing (kept for a long time at the margins of mainstream marketing), with its insistence on the need for a personal relationship with each individual customer based on the understanding of his real value to the company (Wunderman, 1996).

The fact that huge sums are nowadays being invested in CRM programs and systems urges marketing managers to justify these expenses. Is relationship marketing in fact a good idea? Do these programs really work? What kind of return on investment can be expected? Is purchase behavior significantly changed? Which behavior variables change more significantly in response to relationship marketing programs? Which variables should managers focus on? And finally: which relationship marketing strategies prove more effective in practice?

In spite of the increasing acceptance of its basic concepts and of the growing interest that they have awakened in both business and academic circles, some skepticism has been voiced concerning the real effectiveness of relationship marketing (Fournier, Dobscha and Mick, 1998; *The Economist*, 2001), the most serious criticisms being those that question the specific ways in which these strategies can (or cannot) influence the buying behavior of the consumers involved in this type of initiatives (Dowling and Uncles, 1997; Dowling, 2002).

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<sup>1</sup> For a discussion of these different designations, see Chapter 2, Section 2.4.

The debate on this subject revealed three different kinds of situations (Kumar & Reinartz, 2005):

- a) First, it is somewhat surprising to notice that many companies implementing relationship marketing programs do not care, or do not know how, to monitor properly its results, thus inhibiting an objective and rigorous evaluation of the selected strategy;
- b) Second, several cases have been reported of companies that abandoned relationship marketing programs after some years of frustrating efforts, having found them to be a complete waste of time and money;
- c) Finally, some companies feel perfectly happy with the results of their relationship marketing programs, yet are unable to identify precisely the factors that explain such success.

## **1.2 – RESEARCH PROBLEM**

Any relationship marketing program – any marketing program, for that matter – is necessarily dependent on certain presuppositions about how consumers will react or not to certain kinds of stimulus. In other words, it is grounded on a theoretical model of consumer behavior. Marketing managers resort to certain strategies or tactics because they believe that they are able to generate appropriate responses from consumers. Thus, for instance, certain types of sales promotions are supposed to generate trial; advertising is supposed to induce favorable attitudes and brand-switching behavior; and customer satisfaction is supposed to increase brand allegiance. While some marketing devices have become so common that their effectiveness is now taken for granted, the truth is that they are all dependent on some hypothesis relating a certain cause to a certain effect or, in other words, on some implicit explanatory theory, even when the manager is unaware of the origin of his own beliefs.

As it happens, we presently have not one, but at least two main alternative theories on the way marketing works: the Howard-Sheth theory (Howard and Sheth, 1967; Howard and Sheth, 1969), continuously and successively refined since it was first propounded in the



last century in the mid-60s, on the one hand; and the repeat-buying or NBD-Dirichlet theory<sup>2</sup>(Ehrenberg, 1972; Goodhart, Ehrenberg and Chatfield, 1984; Ehrenberg, 1988), or, shortly, Dirichlet theory (Goodhart, Ehrenberg and Chatfield, 1984), mostly available in the form of generalizations built on empirical investigations, on the other hand. Each of these theories has diametrically opposed consequences as to how marketing should be managed and how a relationship marketing program should be conducted (Ehrenberg 2002).

As we will show in a later chapter, the Howard-Sheth theory admits in principle the feasibility and effectiveness of loyalty relationship marketing strategies. Loyalty programs can succeed or fail on their own merits, depending on the amount of competence and care invested in their planning. Encouraged by this lack of prevention, managers trained in this school of thought tend to see no basic conceptual problems in loyalty programs and to adopt them as a legitimate weapon when their purpose is to retain customers and induce repeat-buying.

On the contrary, the NBD-Dirichlet theory flatly objects to certain ideas located at the very core of relationship marketing as it is usually taught and practiced. Among other things, the NBD-Dirichlet theory sustains that certain fixed relations exist between penetration and loyalty, such that the best-selling brand will also usually command higher loyalty from its customers. This well documented phenomenon, known as double jeopardy, disturbs whatever naive faith marketing managers might have in ill-conceived loyalty schemes. Should double jeopardy be interpreted as an iron law impossible to circumvent? Or is it rather the result of a lack of managers' efforts to invest properly in the retention of their customer base?

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<sup>2</sup> NBD stands for Negative Binomial Distribution. As will be later shown in Chapter 3, Ehrenberg has resisted presenting a comprehensive alternative theory of buyer behavior. He does it on the grounds that only empirical generalizations can provide us with genuine and relevant theories, and that, given the present state of the research, it is still too early to jump into definitive conclusions. However, Ehrenberg and his associates recently started using the expression "NBD-Dirichlet theory" to describe their own view (see, for instance, Ehrenberg, Uncles & Goodhart, 2002). We will therefore use it, while stressing that, for the time being, we only have some elements of the theory, not a complete and detailed model addressing all the issues that we would expect a buyer behavior theory to explain. As a consequence, its full implications have not yet been drawn out.

Therefore, while analyzing whether and how relationship marketing works, we will at the same time be testing those two alternative explanations of consumer behavior in the well defined context of fast-moving consumer goods markets. If relationship programs do work by increasing loyalty, the NBD-Dirichlet theory would have to be considered defective. On the other hand, if we were to find no proof of their effectiveness, the NBD-Dirichlet theory would be corroborated and the Howard-Sheth theory would be found at the very least incomplete.

In the first place, we want to know whether relationship marketing programs work at all, that is, whether they are able to increase the sales or the market share of a given company or of a given brand. We also want to investigate the magnitude of the changes that those programs can trigger and, if possible, compare the extra profits that they generate with the costs incurred to obtain them. This would give us at least some idea of what kind of cost-benefit relation can be expected.

Then, in case those macro-effects are found to exist and to be significant, we want to identify the chain of effects that leads to them. In order to do so, we will have to decompose market share into its underlying variables, such as penetration, buying rate, purchase frequency and expense per occasion, and then see in what direction and by how much they change as a result of a relationship program. This information would be invaluable, since it would allow managers to know where their efforts should be concentrated in order to maximize the efficiency of relationship strategies. In fact, it should be noted that, at the present time, the available theory provides no practical guidelines as to what behavior variables are more likely to induce the desired results whether in terms of sales or in terms of profitability.

Finally, we want to know how those effects evolve in time. More specifically, how fast do they show up? Are they immediate and sudden, or do they go on growing slowly and cumulatively for a long time after the program starts? Moreover, how does the time pattern of the effects of relationship marketing programs compare with the ones of advertising and sales promotions?

### 1.3 – JUSTIFICATION FOR THE RESEARCH

As previously mentioned, relationship marketing strategies, initially tested and developed in services and business-to-business markets, have lately become increasingly popular in fast-moving consumer goods. In Portugal alone we can mention at least four important long term programs: Unilever, Nestlé, Marterfoods, and Pescanova. This list leaves aside other initiatives aimed at a similar target group, undertaken in recent years by retailers like Pingo Doce (Dominó) and Intermarché (Clube Qualité), for instance.

The startling fact, however, is that not only in Portugal but also in the world at large, there is a remarkable scarcity of empirical quantitative research on the alleged effectiveness and efficiency of relationship marketing programs in general and in particular of loyalty programs. Sharp and Sharp (1997, 1999) pioneered this line of research examining a major loyalty program in Australia, soon to be followed by Nako (1997), who studied frequent-flyer programs. Dowling and Uncles (1997) voiced a number of criticisms based on a wealth of published data concerning loyalty programs in several industries, but the evidence they use is mainly anecdotal and unsystematic. Bolton et al. (2000) further explored the implications of loyalty program membership, while Verhoef (2003) specifically addressed the implications of customer relationship management principles for consumer markets regarding customer retention and customer share development. Meanwhile, Dowling (2002) discussed the conditions that might recommend the application of relationship management principles to consumer markets. But the most remarkable contribution came from Meyer-Waarden (2004), who assessed the impact of a French retailer loyalty card by analyzing single-source panel data.

Most of the existing empirical research on the effects of loyalty programs on buyer behavior reports mixed results. As a rule, it has been found that their effectiveness is far from guaranteed, and that their measured impact is rather weak. In these circumstances, many authors advise managers to avoid taking the initiative of launching relationship programs and to resort to them only as a defensive tactic to protect its customer base whenever the competition moves first. Furthermore, with the exception of retailers' programs, practically no research addressed consumer markets, since no proper panel data could be obtained, thus restricting the available information to single company sales data. As noted by Sharp and Sharp (1999), researchers have encountered difficulties in constructing classical experimental designs which require a control benchmark, either in

terms of a set of consumers not exposed to the program, or data on what buying behavior was like prior to the program launch.

In July 2002, the Marketing Science Institute (2004) included the assessment of the impact of customer relationship management among top-tier priorities after conducting focus groups of senior marketing executives and leading academic researchers and organizing a formal vote by member companies. The establishment of such priorities by the Marketing Science Institute signals which issues leading corporations see as important for improving business practice through academic research and guides decisions on research projects, reports, and conferences.

On the other hand, Day and Montgomery (1999) mention the understanding of how customers really behave as a fundamental issue that research should focus on, specially as the emphasis of marketing shifts from transactional to relational exchanges. In their view, specific questions about brand loyalty take central place in this new setting such as:

“Is observed loyalty shaped more by inertia and situational factors than by strongly held preferences? Is divided and polygamous loyalty more reflective of actual behavior than clear-cut allegiance to a single brand? (...) What can be claimed about the extent of loyalty and the payoff from efforts to induce greater loyalty?”

#### **1.4 – METHODOLOGY**

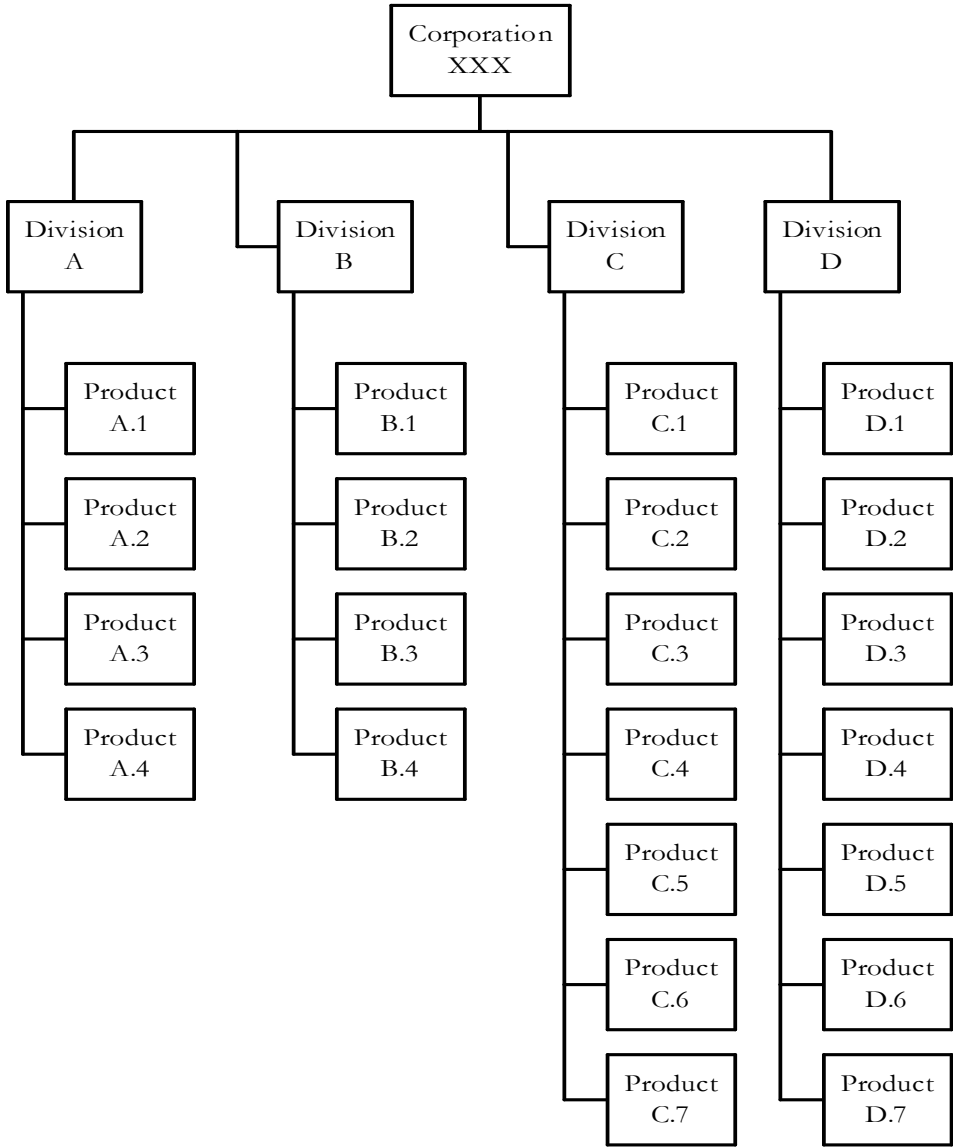
We chose to study a CRM program launched by a major manufacturer of fast-moving consumer goods that has been running in Portugal since the beginning of 2001. Among the major reasons for this choice were the innovative features and the complexity of the marketing concepts and techniques involved. However, the decisive factor was no doubt the quantity and quality of the available information and the extent to which it fitted the purpose of our investigation.

The main empirical source of the data used in our research is the consumer panel of TNS, a multinational market research company operating in Portugal, and the sub-panel specifically created to track the CRM program of XXX in this country. At the time of our investigation, this panel covered 1,826 households chosen to represent the universe of 3,594,279 households that according to the INE Census existed in Portugal in 2001. The TNS panel belongs to the self-administered diary type, requiring from its members the

registration in writing of its weekly purchases in a number of product categories. It provides frequent, continuous, complete, detailed and reasonably accurate information on the actual behavior of consumers.

Since special care was taken to register information on purchase patterns before the program launch in period “zero”, it is possible to compare the situation prior to the start of the experience with the subsequent behavior of the same customers. Furthermore, panel members were classified as either “exposed” (test group) or “non-exposed” (control group) to the program. As the exposed sample, with a mere 200 members, was much smaller than the non-exposed one, a sub-sample of the latter was chosen whose profile closely matched the profile of the former in order to ensure that like was compared with like. The experimental design thus involves the comparison between, on the one hand, pre and post-launch periods and, on the other hand, exposed and non-exposed customers. The control group provides a benchmark against which we can evaluate the differences in behavior that occur in the test group. Assuming both groups are affected by the same sampling errors, this scheme allows us to isolate the true effects of the relationship program, since the only difference between the test group and the control group is that the former was exposed to the program while the latter was not.

Figure 1.1  
Organization Chart



Source: The author.

Following the Organization Chart displayed in Figure 1.1, the analysis was conducted at three different levels:

- a) Corporate level – The first level of analysis aggregates all XXX brands included in the program.
- b) Division level – The second level of analysis aggregates XXX brands participating in the program at the division level. Four XXX divisions are considered: A, B, C, and D.
- c) Brand or product level – The third level of analysis considers separately each of the twenty-two XXX brands or products involved in the program.

A total of five behavior variables were tracked: market share, penetration share, buying rate, purchase frequency and purchase per occasion. Three data series were considered in each case: control group, test group and differences between both. As a consequence, a total of 405 time-series were initially inspected using data from the consumer panel. Of course, not all of them are equally trustworthy, especially because the sample of the exposed group of households turns out to be very small in the case of some products.

## **1.5 – OUTLINE OF THIS THESIS**

Chapter 2 presents in a structured and synthetic way the central ideas and concepts of the relationship marketing paradigm and discusses its relevance for marketing management in the prevailing competitive conditions in which companies operate in the beginning of the 21<sup>st</sup> century. We start with a historical overview of the transition from transactional to relationship marketing using as an illustration the case of the automobile industry. This helps us understand how the marketing environment was gradually transformed as the 20<sup>th</sup> century progressed and how those changes called for new business practices, among them relationship marketing. We review the key concepts underlying relationship marketing and confront them in a systematic fashion with the more traditional perspectives in order to highlight their originality and to discuss their relevance. Next, real-world applications of relationship marketing in several industries in the last twenty years are briefly presented and its future prospects considered. We note that relationship marketing

faces new challenges when managers try to apply it to fast-moving consumer goods, specifically regarding the possibility of creating strong relations between brands and consumers when low involvement prevails. To conclude, we present some of the most important criticisms that have been directed to relationship marketing, both on a practical and on a theoretical level, paying special attention to skeptical views on its alleged impact on consumer buying behavior.

The purpose of Chapter 3 is to confront two basic theories of buyer behavior: the Howard-Sheth theory and the NBD-Dirichlet theory. The importance of this confrontation comes from the fact that, since they make different predictions about what results should be expected from loyalty programs, they cannot be both simultaneously right. The chapter starts with a broad historical perspective of the process that, beginning with certain practices initiated by some large American manufacturing companies in the second half of the 19th century, gave birth to the principles of modern marketing as an attempt to systematize those practices in order to facilitate its dissemination and teaching. Practice thus preceded theory by several decades, and, when theory started to catch up, a need was felt for a satisfactory model of buyer behavior that could lay the foundations for solid and knowledgeable marketing practice. The marketing mainstream adopted a cognitive theory whose central piece is the Howard-Sheth model (Howard and Sheth, 1967; 1969) presented in detail in this chapter. An alternative view developed by Ehrenberg (1972, 1988), based on empirical generalizations challenged the prevailing view and gradually came to be seen as a serious alternative. We show how the Howard-Sheth theory plays a central role in the dominant paradigm of marketing, over-determining other parts of prevailing marketing theories and practices. We follow with the identification of the precise way how the building of a consumer behavior theory allowed the creation of a complete marketing theory, and then go on to show how those ideas in turn influenced the practices that had originated them in the first place. Next, the markedly divergent NBD-Dirichlet theory put forward by Ehrenberg is presented and discussed in some detail and its consequences to brand loyalty strategies and tactics are made explicit. Ehrenberg believes to have shown, on the basis of the analysis of consumer panel data, that many accepted ideas on buying behavior are mere fantasies. Those ideas are, however, deeply ingrained in current theories propagated by the marketing textbooks currently in use. In this chapter we present the main results obtained by Ehrenberg in decades of investigations, suggesting how they can



be used to correct the traditional perspective on buying behavior, while putting forward a certain number of hypotheses that might help to redirect marketing and communication strategies. This task is not made easier by the fact that Ehrenberg himself has proved more effective in the demolition of rival theories than in the proposition of a comprehensive alternative theory that might dispute the leading role of the Howard-Sheth model. We finish the chapter by confronting both theories point by point, laying the ground for the specification of the hypothesis of our investigation.

Chapter 4 summarizes the ideas discussed in the previous chapters and formulates the hypotheses to be tested. We start by discussing the implications of the NBD-Dirichlet theory for relationship marketing. Several authors have in particular questioned, in the light of Ehrenberg's findings, the ability of loyalty programs to work as expected. All this amounts to ask if customer retention is in fact a good way to grow a brand. The literature also helps us to formulate some hypotheses on how relationship programs might work. In order to outline specific hypotheses, we need to understand the determinants of market share and how they relate to loyalty. We review in this chapter the inter-brand migration model (Rossiter and Percy, 1987; 1997), the Parfitt-Collins formula (Parfitt and Collins, 1968) and the sales equation used by Ehrenberg (1972, 1988). The chapter closes with the presentation and justification of the research hypotheses regarding the general impact of loyalty programs on sales and market share, on the behavioral variables that govern market share and on the time pattern of that hypothetical impact.

Chapter 5 introduces and explains the adopted methodology. We begin with a short description of the XXX CRM program for reference purposes, including a discussion of its origins, motivations, objectives, overall design, infrastructure and metrics. Next, consumer panels are introduced and their merits as a tool of data collection are discussed. The reliability of panel data depends crucially on the methods of panel recruitment and management. For this reason, we explain in some detail the workings of consumer panels in general, and in particular the organization of the TNS panel that supplied the data for this investigation. Of course, the sub-panel created to track the behavior of the exposed group of households is also given special attention because of its critical importance. To conclude, the statistical methods used are briefly reviewed and justified.

Chapter 6 presents at length the results of the investigation at each of the levels of analysis: company, divisions and individual brands. For this purpose, tables and graphics are used to summarize in an easily understandable way the vast amount of data collected during the investigation. Descriptive statistical tools are combined with analytical ones to provide a complete and balanced perspective of the results of the research. Whenever necessary, the limitations of the available data are pointed out and its consequences to the robustness of the conclusions are discussed.

Finally, Chapter 7 explicitly relates our empirical findings to each of the hypotheses of the research and states our main conclusions regarding the research problem. We discuss the implications for theory and suggest how policy and practices could be affected by our results, with due care to the methodological limitations that became apparent in the course of our work. We conclude by proposing future research on several topics in order to improve the current state of our knowledge.

## **1.6 – DELIMITATIONS OF SCOPE AND KEY ASSUMPTIONS**

The choice of the area of fast-moving consumer goods was determined by several different reasons. Fast-moving consumer goods played a leading role in the development of the mass marketing techniques that came to epitomize marketing itself for decades. But manufacturers of this type of goods were relative latecomers to relationship marketing and there is considerable curiosity to see how successful its concepts and techniques will prove useful in this domain. The largest companies operating in consumer market goods are known to spend heavily in traditional media advertising. If they would come to embrace the new marketing paradigm, this would entail a major change with significant repercussions to advertising agencies and to the media that depend on the source of revenue that advertising provides them.

As previously noted, there is a considerable lack of research regarding the success or relationship marketing programs in this type of markets. Possible explanations of this failure are that either researchers were denied access to the information generated by the existing programs for reasons of confidentiality or, after careful scrutiny, that information proved inadequate to conduct a scientific investigation.

Once we decided to focus on this particular type of market, the range of options was immediately restricted to a small number of relationship marketing programs. Moreover, only one of them, the CRM XXX program, had created metrics that met the criteria required by a scientific experimental design. However, after careful inspection of the available data, several limitations became clear, of which the most significant were: a) a relatively limited time-span; b) the small sample used to represent the test group; c) the variables retained for analysis; d) the impossibility of reworking the basic data in order to classify it and analyze it in different ways. We will discuss each of them in turn:

- a) **Limited time-span.** The available data covers a relatively short time period of only ten quarters or, in other words, two years and a half. This makes it impossible to determine the seasonality of the data and very difficult to fit a trend line. After ten quarters, XXX decided to reconstruct the data according to a different methodology, which means that the time-series was in fact broken, becoming useless for our purposes after that date.
- b) **Small sample of the test group.** The test group was found by crossing the list of panel members with the list of customers enrolled in the program. As should be expected, only a small number of households met both criteria, leading to an overall sample of no more than 200 members. At the company and division level this creates no problem, since a large proportion of the sample purchased at least once one of the relevant brands at any given quarter. However, in some low penetration categories it became impossible to get accurate estimates of some variables since sometimes no more than four or five households bought the XXX brand under analysis in some quarters. As a consequence, we do not have complete and reliable information in several product categories.
- c) **Variables retained for analysis.** The variables retained for analysis by XXX do not match fully our needs. One of the main limitations is that, within the test group, only information regarding the purchase of XXX brands was collected. For this reason, it was not possible to perform certain analysis regarding the adequacy of the Dirichlet model to describe the observed data or test some laws of purchase put forward by Ehrenberg (1972, 1988). On the other hand, some loyalty measures, such as the feed rate (also called share of requirements or share

of wallet), could not be calculated.

- d) **Impossibility of reworking the basic data.** Some of the previous problems might have been solved by regrouping the available data in different ways, were it not for the fact that, by the time our investigation started, the original data files were no longer available. The reason for this was that, after the publication of the INE Census of 2001 in 2002, the composition of the panel used by TNS was changed because it no longer reflected adequately the structure of the country's population.

## 1.7 – CONCLUSION

This chapter summarized the purpose, justification and methodology of this research. Additionally, it outlined its general structure and organization, as well as its key assumptions. Having laid the foundations for our dissertation, the report can now proceed with a detailed description of the research and of its results according to the plan discussed in this chapter.

## Chapter 2

# The New Paradigm of Relationship Marketing: Concepts and Theories

### 2.1 - INTRODUCTION

The interest in relationship marketing has grown steadily in business and academic circles in the last few decades (Sheth and Parvatiyar, 2000). However, large differences of opinion remain concerning its meaning and scope, not to mention all too common misunderstandings of the definition of the concept itself (Brown, 1994; Brown, 1999; Brown, 2000; Brown and Maclaran, 1994). Is relationship marketing a mere passing fad like so many others, or has it come to stay? In the second alternative, which particular circumstances determined its emergence and recommend its use? Does it really differ from direct marketing, one-to-one marketing and CRM? And, above all: is it really effective?

It seems that the expression relationship marketing was used for the first time by Berry (1983), although it would be fair to note that his ideas concur largely with those previously presented by Levitt (1983) in a seminal article. The concept of relationship marketing was formerly used to stress the specificity of services marketing: if services are by nature intangible, the marketing manager should therefore direct his attention to the administration of the relationship with the customer (Gummesson, 1987; Grönroos, 1990b). On the other hand, it also served to criticize the limitations of the 4 Ps (or marketing-mix) model, introduced by Neil Borden (Borden, 1964) in the late 40s and until very recently generally accepted as the dominant paradigm of marketing management (Berry and Gresham, 1986; Brownlie and Saren, 1992).

The present chapter lays the basic ground for our investigation. We show through a historical case-study how relationship marketing emerged gradually as an alternative to pure transaction-led marketing. We then investigate the origins of this transformation by linking them to the new marketing environment in which companies now compete. Next, the key concepts of relationship marketing presented in the literature are briefly reviewed and discussed in connection to their real life applications. The chapter concludes with an

introduction to some contentious issues that have contributed to raise doubts regarding the effectiveness of relationship marketing.

## **2.2 – FROM TRANSACTIONAL TO RELATIONSHIP MARKETING: THE CASE OF THE AUTOMOTIVE INDUSTRY**

It should be stressed that this renewed interest in the relational dimension of marketing represents a total inversion in the orientation and priorities of modern marketing, which, by emphasizing the anonymity of the customer inherent to the large scale commercial systems created in the aftermath of the Industrial Revolution, was precisely characterized by the prevalence of transactions over relationships (Wunderman, 1996). However, looking back to the emergence and evolution of modern relationship marketing, it has been noted that, taking a long historical view, transaction marketing looks like a short hiatus of no more than a century and a half, corresponding to the so-called industrial era, and was entirely determined by the very special economical and social conditions that came with it (Sheth and Parvatiyar, 2000).

The automotive industry will be used as a case-study to illustrate a more general trend that brought about a transformation of the way marketing and sales activities are conducted, slowly but steadily replacing the traditional transactional approach by a relational one as the 20th century progressed.

### **2.2.1 – Ford Motors**

The first cars equipped with internal combustion engines were built in France and Germany in the 80s of the 19th century.<sup>3</sup> However, the motor car remained during the following decades inaccessible to common mortals, only at the reach of millionaires and aristocrats. Each car was built to order in small workshops where groups of skilled workers joined efforts to craft the vehicle. The production system was artisan, slow and costly. In the year 1895, for instance, Peugeot and Panhard Levassor only produced 72 cars each, and Benz 135 cars, a remarkable figure for those times (Tedlow, 1990).

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<sup>3</sup> This section is based mainly on Drucker (1955, 1973), Pine II (1993), and Tedlow (1990).

### ***Mass production and mass commercialization***

By launching the Ford T in 1908, Henry Ford revolutionized this situation in such a way that he deserves to be considered the true creator of the car industry. His strategy was based in the reorganization of the production process, structured around the assembly chain along which the vehicle was moved as the parts were successively adjusted to the main body. When Ford's engineers introduced the assembly line to Model T production in October 1913, the amount of labor time spent making a single car dropped from 12 hours and 8 minutes to 2 hours and 35 minutes (Pine II, 1993). Six months later, Model Ts could roll off the assembly line at the rate of 1,000 a day, with the average labor time dropping to just over an hour and a half (Ibid.). The principle of flow embodied in the assembly line must be considered the guiding concept of mass production.

Naturally, this method demanded the previous standardization both of the parts fitted into the car and of the final product itself, being an indispensable step to mass production and the subsequent reduction of production costs. Furthermore, as the efficiency of the system grew and the scale of production expanded, the cost compression went on, in such a way that, vindicating the initial bet of Henry Ford, Ford T's sale price decreased to the point where the average American citizen could in fact afford to buy a car. As revolutionary as the transformation operated by Ford in the organization of manufacturing might have been, this was but a small, although essential, part of the whole story. In fact, mass production demanded mass commercialization, and Ford was also a radical innovator in this respect.

To begin with, in the first years of the 20th century the potential of the car market was in no way obvious. On the contrary, the prevailing opinion regarded the automobile as no more than a luxury toy for the lucky few, and denied that things might ever be otherwise. Following this line of thought, president Woodrow Wilson stated that the automobile would lead directly to the triumph of socialism, given that everybody wanted it but only the rich could afford it (Tedlow, 1990). However, Ford was not alone in his conviction that it would be possible to lower the price of the automobile until it could be at the reach of the masses, nor was he the first industrialist who tried to build inexpensive cars in large quantities. Olds Motor Works of Ransom E. Olds started the production of the "Merry Oldsmobile", of which 600 were made in 1901 and 5,000 in 1904, proving

that there was a significant demand for a vehicle at a price tag of 650 dollars – about a third of the average price then prevalent in the market (Ibid.). However, financial problems made worse by conflicts among the owners kept the company from achieving its purpose of market massification. In 1907, another entrepreneur, Alanson P. Brush, launched the Brush Runabout at a very low price of just 500 dollars, but the quality of the car was so obviously flawed, namely by using wood parts instead of metal ones, that it was rejected by the public, and the project was definitely abandoned in 1912 (Ibid.).

### ***The “Universal Car”***

Henry Ford chose a different way. Although he believed, as the previously mentioned pioneers also did, in the possibility of building a car “for the great multitude (...) so low in price that no man making a good salary will be unable to own one” (cit. by Tedlow, 1990), he also believed, unlike them, that it should be “constructed with the best materials, by the best men to be hired, after the simplest designs that modern engineering can devise” (cit. by Tedlow, 1990). Thus, besides rejecting the lowering of the product quality as the most appropriate strategy to reduce costs, he also approached the task of car massification in a methodic and rational way. There is nothing strange in this attitude, specially coming from an engineer by training. However, Henry Ford’s method largely transcended the perspective of a merely competent engineer. He understood clearly that the first thing to do would be to specify the features that a Universal Car (as he was fond to call it) should have, and to project the vehicle in conformity with those attributes, believing that only in this way the objective of the low production cost might be correctly addressed. He started by listing the attributes that the “universal car had to have”: (1) “quality in material to give service in use”; (2) “simplicity in operation – because the masses are not mechanics”; (3) “power in sufficient quantity”; (4) “absolute reliability”; (5) “lightness” to carry on “through sand and mud, through slush, snow, and water, up hills, across fields, and roadless plains”; (6) “control – to hold its speed always in hand”; (7) economy, as a result of its lightness (cit. by Tedlow, 1990).

On the other hand, Ford also thought that “the way to make automobiles is to make one automobile like another automobile, to make them all alike – just like one pin is like another pin when it comes from a pin factory” (cit. by Tedlow, 1990). Therefore, cost reduction would not be the result of poor quality materials or sloppy assembly, but of the



standardization of the parts used and of the operations process itself. His great goal was simplicity of design and execution: “the less complex an article, the easier it is to make, the cheaper it may be sold, and therefore, the greater number may be sold” (cit. by Tedlow, 1990). It is seldom mentioned that, in his search for the idealized product obeying the above mentioned list of attributes, Ford spent five years testing eight different models (A, B, C, F, K, N, R and S) until he finally hit on the right product: the Ford T. When he finally launched it, the price was still 850 dollars, much higher than his target of 600 dollars which he estimated to be the maximum that would allow the massification of the automobile (Tedlow, 1990). Four years later, in 1912, he at last reached that target; and in four more years, he had already managed to bring it down to 360 dollars. Meanwhile, demand reacted as Henry Ford predicted, with sales jumping from 5,986 units in 1908 to 577,036 in 1916 (Ibid.). The full measure of his triumph can only be evaluated by knowing that, in 1914, the competitive product closer in quality to Ford T was sold at the double of its price (Ibid.).

### ***Henry Ford as a marketing man***

While Ford took no interest in commercial activities as such, the truth is that, as can be seen, the business system he conceived fits perfectly the modern definition of the marketing concept. To begin with, he identified carefully the needs of a large mass of American citizens; then, he translated them into detailed specifications; finally, he organized the production process in order to ensure that the car might be sold at a suitable price. Once this process was concluded, “the product sold itself”, as Peter Drucker (1955) predicted it would whenever marketing reaches a level of excellence. At the same time, fordism can be regarded as a prototype of mass marketing. In fact, Ford designed a master strategy aimed at the absolute concentration of the resources in one single product: the “Universal Car”, the car for everybody that, taking advantage of economies of scale and experience, could be marketed at a very low price, a key weapon to stimulate demand and increase continuously the company’s market share (Tedlow, 1990). The effort to maximize profits through the expansion of the scale of operations – selling a very large number of units at a low margin instead of selling few units at a high margin – is the essence of the production and commercialization system that Americans created and spread worldwide. The democratization of consumption, in line with the cultural foundations of the American society, was no doubt its final purpose.

### 2.2.2 - General Motors

In 1920, when the Du Pont Company, a chemical giant corporation, took over General Motors, this company was no more than a collection of bankrupt factories<sup>4</sup>. The new President Pierre Du Pont, who had neither the patience nor the inclination to manage an automobile company, appointed Alfred Sloan Jr. to the job, at that time general manager of Hyatt, a factory of roller bearings that was part of the group. Sloan had started his career as a manager when he bought a fledgling manufacturer of auto parts that, after eighteen years of dramatic growth, was resold to General Motors – with Sloan as part of the package. As to General Motors, it had been created by the visionary but chaotic genius of William Durant in 1908, when he merged Buick, which he already controlled, with Oldsmobile and Cadillac, together with a number of parts and accessories manufacturers such as roller bearings, rims, radiators, horns, and starting, ignition and lighting systems. With Durant at its head, General Motors went on to absorb Chevrolet and attempted repeatedly but unsuccessfully an association with Ford.

After the take-over of General Motors by Du Pont, its Executive Commission charged Sloan with the task of designing a plan to save the company, with a special recommendation to consider the best way to imitate the strategy of Ford (Drucker, 1955; Sloan, 1971). Like Ford, Sloan was a skilled engineer for whom the automobile industry had no secrets. According to his habit, he proceeded to study in depth all the multiple angles of the problem at hand. He concluded very shortly that the imitation of the Ford strategy was not a good idea. In 1920, Ford commanded a 56% market share with its Ford T – still the only model produced by the company (Tedlow, 1990). As to General Motors, in spite of being the number two company in the industry, its sales of cars and trucks amounted to less than 13% of the total market (Ibid.). Sloan was therefore convinced that it would be a mistake to attack directly a competitor several times more powerful (Sloan, 1971).

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<sup>4</sup> This section is based on Chandler (1962), Drucker (1955, 1973), Pine II (1993), Sloan (1971), and Tedlow (1990).

### ***Changes in the marketing environment***

On the other hand, Sloan was also conscious that, although the basic strategy of Ford had stayed the same between 1908 and 1920, the market and the consumers had changed radically. The first (and the most important) of those changes was the relationship between the public and the automobile. While in 1908 the car was still a new and exciting product, in 1920 it was already owned by a third of American families, and, given the rapid growth of the penetration rate, very soon, in 1923, half of the American families would be in that situation (Tedlow, 1990). At the time when the Ford T was launched, the possibility of acquiring a basic convenience of motor transportation at a miraculous price seemed to everybody an irresistible value proposition. Twelve years later, however, many things had changed. The market was drawing close to the point of saturation. In itself, the ownership of a car has ceased being a status symbol. Drivers were no longer beginners: they were more knowledgeable and therefore considered critically the offers available in the marketplace. The extension and quality of the roads had improved extraordinarily. Car support services, from repair workshops to gas stations, not to mention the dealers themselves, had proliferated throughout the country. The substitution market had outgrown the first buy market, originating a vast market for used cars.

### ***Giving in to the “whims” of the consumer***

Sloan deduced correctly from this premises that the Ford T would very soon be an obsolete product and that, accordingly, it was necessary to understand where the market was heading to in the 20s. If there was anything worth copying in Ford, that would be his effort to understand the underlying forces at work in the market, not his later and stubborn persistence in sticking to a rigid concept of the business during a long period of twelve years. At Ford Company, the slogan was: “Do not give in to the whims of the consumer” (cit. by Tedlow, 1990). Seen under this light, the famous words of Ford – “the consumer can choose whatever color he likes, as long as it is black” (Ibid.) – acquire a new meaning. It was no longer simply a matter of refraining the introduction of disturbing factors that could destroy the simplicity and economy of the production process, but a wish to deny the necessity of adaptation to the new times. As James Couzens, the main architect of the Ford distribution system, wrote, the project of Henry Ford was now that of “standardizing the client” (cit. by Tedlow, 1990).

Sloan saw very clearly this weakness of the Ford system, and also understood that the new realities of the market environment gave General Motors the opportunity to challenge its gigantic rival. He decided, in consequence, to “give in to the whims of the consumer” in three key points: creation of a differentiated product line directed to the different types of consumers; introduction of an annual model in order to accelerate the obsolescence of the competitive products; very attractive credit offers (Tedlow, 1990). To our purpose – the understanding of the development of the modern marketing concept – the first point is the crucial one. Sloan opposed to the ideal of the “universal car” a new slogan: “a car for every purse and every purpose” (Sloan, 1971). By doing this, he not only admitted openly that the market was fragmenting into several sub-markets, each of them with different preferences and choice factors, but also tried to take advantage from the main distinctive feature of General Motors: the diversity of its factories and the subsequent offer of a varied product line to the market.

### ***A new product policy***

In the past, however, that variety had been a weakness, not a strength. First, General Motors had no model that could compete successfully with Ford in the low price segment. Second, in the middle segment, General Motors offered a large variety of makes and models that competed with each other on features and prices, in fact making life easier for its competitors. Third, most makes, with the exceptions of Buick and Cadillac, lost money in 1921. All these facts revealed the absence of a comprehensive strategy and, most of all, the lack of a clear product policy.

Sloan proposed as an alternative a strategy based on the segmentation of the market and a compatible definition of the product line (Sloan, 1971). According to him, the company should offer a different car for each price level, starting at the lowest level and going up to a car with superior features but still produced in large quantities, thus avoiding the tiny luxury market. The gaps between the different prices should be neither too wide nor too narrow, because the first option would leave some space to the competition, and the second one would increase the number of models on offer and prevent economies of scale. Finally, the company should not offer two different models in the same price segment.

Six different price brackets were defined to implement this general orientation: (a) \$450 - \$600; (b) \$600 - \$900; (c) \$900 - \$1,200; (d) \$1,200 - \$1,700; (e) \$1,700 - \$2,500; (f) \$2,500 - \$3,500 (Ibid.). The new price structure meant that General Motors would have a complete line of cars, and that it would be such that each car would be designed according to its position in the total product line. In addition, each car should be positioned closely to the top limit of its price bracket and its quality should attract not only customers willing to pay somewhat more than they had planned in order to have a better car, but also buyers attracted by a price perceived as very low considering that its features were very similar to those of the cars in the segment immediately above. They would thus be able to compete on quality against the cheaper models and on price against the more expensive ones. Coherently with this strategy, General Motors would not try to sell any car at a price identical to Ford. It would instead endeavor to produce a much better car than Ford and sell it at a slightly higher price.

### ***From mass marketing to segmentation***

The strategy conceived by Sloan turned out to be an unqualified success. While the Ford Motor Company, still tied to outdated notions, entered a declining phase, the renewed General Motors surpassed its direct rival and became the new leader of the industry. Sloan stressed repeatedly the importance of preserving the basic principles of mass production and commercialization in the context of the new strategy, because, in his mind, the return to the workshop system was not an option. On the contrary, according to him the new challenge would be to take advantage of the spectacular growth of the market to explore economies of scale within each market segment. Be that as it may, the decisive point of the strategic maneuver conceived and implemented under Sloan's direction was no doubt the segmentation of the market into relatively homogeneous sub-groups as an alternative to the undifferentiated marketing that had previously been presented as the sole, universal and indisputably valid doctrine.

In the same way that Ford revealed the frightening power of mass marketing as the natural and indispensable complement to mass production, the surprising recovery of General Motors from its ashes announced the new era of segmented marketing. It should be noted, however, that beyond the different approaches chosen by each company, both illustrate perfectly the relevance of the modern marketing concept.

### 2.2.3 - Toyota

In 1929, Kiichio Toyoda visited the Ford factory in Baton Rouge to become acquainted with the new production methods invented in that plant<sup>5</sup>. At that time, however, Toyota was a textile company that, following the instructions of the Japanese military government, wished to learn how to build automobile vehicles. Many years later, in 1950, the total accumulated number of cars produced by Toyota still did not amount to more than 2,685 vehicles, while in the same year Ford turned out an average of 7,000 cars a day (Womack, Jones and Roos, 1991).

#### *Just-in-Time Management*

The peculiarities of the Japanese economy and society urged Toyota to develop a very original approach to the automobile market, revolving around *just-in-time* methods of managing the assembly line and total quality management. One of the most relevant consequences of this approach is the flexibilization of the production process. While the efficiency of Fordism was dependent on the large scale manufacturing of uniform products, the system developed by Toyota strived to reduce as much as possible the cost of variety through a continuous effort to bring down the minimum economically viable quantity. In the late 40s, setups for large processes took from two to three hours. It took until the mid-50s to reach the hour mark, with most processes achieving a fifteen minute setup by 1962 and three minutes by 1971 (Pine II 1993). Leaving aside the details of the matter, irrelevant for our present concerns, the important point to stress is that, unlike the American system, the Japanese one lends itself marvelously to be guided, not by the rhythms of production unilaterally decided by the manufacturer according to standards of technical excellence, but by the fluctuations and whims of demand, that is, by the tastes and preferences of the consumers. As soon as the early 90s, Toyota managed to offer five-day delivery of customer-ordered cars in Japan (Pine II 1993).

Therefore, one should not be too surprised that the distribution and commercialization system created by Toyota differed markedly from the ones idealized by

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<sup>5</sup> The main sources for this section were Deming (1986), Pine II (1993), Womack, Jones and Roos (1991).

either Henry Ford or Alfred Sloan. In the American system, the cars produced in the factories are pushed through the distribution channels, pressing dealers to get rid of them as fast as possible by using all the familiar promotional tools of the hard-sell school of marketing. On the other side, the Japanese system gives priority to the understanding of the needs to be satisfied in any particular moment, without forgetting the occasional pressure to respond to special and unusual requests. This of course demanded a much more intimate contact with existing and prospective clients.

### ***Toward relationship marketing***

To begin with, Toyota created six different distribution channels, each one of them specialized in a part of the product line (Womack, Jones and Roos, 1991). One channel dealt only with luxury cars, another one with sports cars, and so on. Naturally, the employees at the point of sale were better prepared to dialogue with well defined segments of clients. In addition, the salesmen did not just wait for the clients to walk into the dealership: they went after them and visited them in their homes (Ibid.). They could thus define in detail the profile of each family: how many cars of each type does the family own? Who drives them? When where they bought? What space is available for parking? What kind of use is given to the cars? How large is the family? When is the family planning to replace its cars? And so on.

Under these conditions, the sale of a car turns out to be the logical conclusion of a relationship between Toyota and its customers. What is at stake is not an occasional transaction between two strangers, but a well planned effort to maximize the flow of revenues that a given customer can bring to the company in the long term. Because each customer was from the start treated as a member of the Toyota family, the adoption of information technologies in this context was quite easy. Each “member” has a personal card that he can insert in any of the ATM-type machines of Toyota where he will be able to add, change or eliminate the information that the company has on himself (Ibid.). As early as 1990, door-to-door contact was already complemented by distance customized contact, allowing the customer to access interactive databases on product features, financial conditions, etc.

What we witness here is a clear evolution away from a marketing system that we can describe as massified, anonymous, product-centered and transaction-oriented toward a

new one that is customized, one-to-one, interactive, customer-centered and relationship-oriented. In a word, from transaction marketing to relationship marketing. This trend became even clearer during the last decade. According to Maxton and Wormald (2004), the automobile industry is presently being transformed by some powerful forces. One of them is the fragmentation of the market, leading to lower production runs. Another one is dissatisfaction with the costly system of building cars for stock, not to order. A third one is innovative modular construction, in which a larger part of the car is put together by parts suppliers.

The proliferation of models and variations is in fact making the automotive business increasingly complex to manage, as the number of combinations of style and fittings in some vehicles run into billions, a situation that Henry Ford would have found hard to imagine (The Economist, 2004). Given the huge range of models that car companies now offer, they had to design factories that are completely flexible, able to switch instantly from one model to another, using common platforms that serve as a basis for a whole range of models. So the new approach to manufacturing means that, instead of figuring out in advance which models and which variants will be sold, cars should ideally be built to order.

To summarize, this brief overview of the automobile industry in the 20<sup>th</sup> century shows four major trends at work:

1. On the demand side, markets became increasingly fragmented into smaller and smaller segments as the growing affluence of consumers stimulated the emergence of more specialized needs and tastes;
2. On the supply side, producers responded through the differentiation of their goods and the proliferation of product variants and options;
3. Management principles and techniques were adapted to the new situation in order to satisfy the new need for variety while keeping unit costs under control;
4. Information and communication technologies were developed to help transform production and marketing away from uniformity and toward



flexibility and customization.

In the next section we will describe in more detail the new marketing environment that emerged as a consequence of the demise of mass production and mass marketing.

## **2.3 – THE NEW MARKETING ENVIRONMENT**

A number of authors<sup>6</sup> view relationship marketing as a new era of marketing, driven by the transformation of economic, social and technological conditions at work during the last decades. Among the most frequently mentioned causes of this transformation are: (a) more knowledgeable and demanding customers; (b) ever greater segmentation of the markets and proliferation of products and brands; (c) increasing bargaining power of distributors; (d) media fragmentation and saturation; (e) mass customization; (f) application of information technologies to marketing management; (g) emergence of interactive communications. Let us now see in turn how each of these factors contributed to undermine the effectiveness and efficiency of mass transaction marketing and pave the way to relationship marketing.

### **2.3.1 - More knowledgeable and demanding customers**

The education level of the population in most countries increased continuously during the 20th century, namely through the generalization of basic schooling. In a group of selected countries including France, Germany, Japan, the Netherlands, the United Kingdom and the USA, average schooling increased from 6.4 to more than 11 years between 1913 and 1987 (Maddison, 1991). As a consequence, consumers are now better equipped to search, understand and interpret the information they need to evaluate correctly the adequacy of the products on offer to their specific needs. Moreover, they also have more choice options as a consequence of the introduction of free competition in more and more industries and markets. Two main results derived from this: on the one

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<sup>6</sup> Among them Rapp and Collins (1987, 1991, 1994), McKenna (1991, 1995), Peppers and Rodgers (1993, 2004, 2005), Pine II (1993), and Grönroos (2000). On the other hand, Mayer (1991), Weilbacher (1993) and Corstjens and Corstjens (1995), among others, present a particularly lucid diagnosis of the present marketing situation, largely coinciding with the preceding authors, even if, unlike them, their analysis does not lead to an explicit recommendation of a relationship marketing approach.

hand, companies are forced to offer products tailored to the specific needs of smaller groups of consumers; on the other hand, consumers are now less vulnerable to false advertising promises.

Mitchell (2001) talks about the “organized customer”, someone who uses new technologies, namely the internet and the new forms of digital intermediation, to take control of the situation. As soon as consumers became aware that they have the ability and the capacity to look for and find by themselves the best offers available, they started exercising that power. Therefore, in the new era, the dominant form of marketing will revolve around helping buyers to buy, instead of helping sellers to sell. Consumers are now in the process of creating their own media on the internet (Blackshaw and Nazzaro, 2004), using it to educate one another about products, brands, services, personalities and all kinds of issues.

As a consequence, consumers have moved “from isolated to connected, from unaware to informed, from passive to active” (Prahalad and Ramaswamy, 2004). Interactions of customers among themselves and with firms create new possibilities previously unknown. The creation of value is no longer the exclusive province of suppliers in isolation from consumers. The typical situation now tends to be one where suppliers and customers are jointly involved at points of interaction in the creation of value that is unique to the individual consumer (Prahalad and Ramaswamy, 2004; Peppers and Rogers, 2004, 2005). The relationship between both parties takes central stage. The market becomes a forum where dialogue among the consumer, the firm, consumer communities, and networks of firms take place and evolve on a continuous basis. Nowadays, the brand can best be defined as the total experience that results from the relationship considered as a whole (Pine II, 1999; Schmitt, 1999).

### **2.3.2 - Segmentation of markets and product proliferation**

One of the main side effects of economic development was the launch of new products aimed at ever smaller groups of consumers, as we saw in the case of the automobile industry. Henry Ford thought that a single universal product aimed at a homogeneous and undifferentiated market would be quite enough; unlike him, Alfred Sloan glimpsed the first stages of a general trend toward the fragmentation of the market into different segments according to the wishes of a customer base, itself differentiated in

economic and social terms; finally, Toyota started a new path leading to the systematic fragmentation of markets into subcategories or niches: family cars, luxury cars, sports cars, station-wagons, four-wheel-drive, mixed passenger-cargo, monovolumes, sport utility vehicles, pick-up trucks, mini-vans and so forth, not mentioning different colors, motors and accessories.

This trend was by no means limited to the automobile industry. Some authors believe segmentation “is the market-oriented company’s creed” (Corstjens and Corstjens, 1995). It is a natural reaction against the commoditization of their offer and the price-based competition that it implies. Segmentation is generally believed to reduce competitive pressure as it makes competitive products less substitutable.

On the other hand, this tendency for a growing segmentation of the markets mirrors the evolution of society itself in the late 20<sup>th</sup> century. According to Lyotard (1979, 1993), we now live in the Postmodern Era, characterized as a period of dissolution of traditional large social groups (namely social classes), breakup of all-embracing ideologies and extreme individualism. At the same time, we observe the recomposition of social links in new terms, sometimes likened to a new kind of tribalism (Maffesoli, 2000). The word “tribe” refers to the re-emergence of a number of apparently archaic values, whose common denominator is the communitarian dimension. These modern urban tribes are however not defined in ethnic or local terms, they exist mainly under the form of symbolic and ritual commitment. On the other hand, tribe membership is not exclusive or stable: individuals belong to different tribes at the same time and jump frequently from one to the other during their lifetime. The tools of traditional sociological analysis are believed by some authors to have become less relevant to classify properly modern individuals, and the same can be said of socio-demographic segmentation analysis (Cova, 1996). Tribal marketing supersedes segmentation strategies as individuals and communities based on cultural affinities take center stage (Cova, 1999; Cova and Cova, 2002).

In line with these social transformations, consumer needs and wishes tend to specialize, and thus large categories and segments break down to smaller and less stable units in order to satisfy the consumer’s desire for variety (Corstjens and Corstjens, 1995). Product categories tend to fragment into ever smaller subcategories, whose exiguous dimension makes it harder, or even impossible, to apply the usual techniques of mass

marketing. In fact, markets nowadays fragment faster than they expand. Each new segment, sub-segment and sub-sub-segment is, on average, smaller than the previous ones. When this happens, markets have reached the hyper-segmentation stage (Corstjens and Corstjens, 1995). The launch and consolidation of new brands is for these reasons increasingly difficult, creating a pressure to extend the range of existing brands instead of promoting new ones. The profit margins generated by niche brands are simply too low to warrant advertising in the mass media. As a consequence, traditional methods of brand and product management, and perhaps of marketing itself, are sometimes said to be in crisis (Brown, 1994; 1999).

### **2.3.3 - Bargaining power of retailers**

In the traditional marketing system, producers of goods tended to consider retailers as their natural allies in the process of bringing the products to the consumers. However, as the concentration of retailing increased in more and more markets, this cooperative attitude came to an end. At best, retailers now behave as the hardest of clients, taking advantage of their bargaining power to force increasingly exacting conditions; at worse, they compete directly against them offering consumers their own private brands. Very often, the top 3-5 major national accounts of a producer may control 50% or more of the market in most industries. Even a very large corporation such as Procter & Gamble may be in trouble when 18% of its worldwide sales (and 25-30% of its US sales) go through Wal-Mart. Distribution and shelf space often have to be purchased, particularly for new product introduction. Manufacturers have a hard time controlling promotional merchandising and may even be banned from visiting the stores at will. In a word, retailers no longer behave neutrally toward the competing brands; on the contrary, they are now an interested party in the process of consumer choice (Seth and Randall, 1999; Wileman and Jary, 1997).

Retailers have three main advantages over manufacturers when it comes to influencing consumers (Corstjens and Corstjens, 1995). The first is their direct, physical, contact with consumers: the supermarket has come to be understood as a powerful medium in itself. The second is their control of the point of purchase marketing-mix variables, including presence and prominence in store, promotions, prices, sampling, merchandising and special displays. The third is their access to data on consumer buying behavior, providing valuable insights into what makes customers buy.

As a consequence, the interaction with customers at the point of sale became more difficult for the manufacturers, and the effectiveness of mass media advertising was reduced. The allocation of marketing expenses was substantially altered, with a larger part being diverted to trade promotions that bought shelf-space, while the advertising efforts were reduced proportionally.

Referring specifically to fast-moving consumer goods, Corstjens and Corstjens (1995) state:

“Students should not be taught that distribution is a marketing mix variable to be bought (e.g. via sales force pressure), just like advertising, when this is no longer the case. Pricing, promotions and merchandising are no longer controlled by the manufacturers. Manufacturers have to consider retailers as a separate force on the market.”

As a consequence, retailers have managed to capture a larger share of the value created, increasing significantly their margins at the expense of the producers' profits as the balance of power changed in their favor. This situation is not sustainable in the long term for manufacturers, and demands, therefore, a radical reformulation of their marketing strategies.

#### **2.3.4 - Media fragmentation and saturation**

The phenomenon of audience fragmentation can be illustrated by the example of TV broadcasting in Portugal, which only started as late as 1956. Twenty two years passed by until a second TV channel was launched in 1978. During the 80s, affluent families already had access to foreign TV programs through satellite. In the beginning of the 90s, two private TV broadcasters started operating, and soon cable TV brought to Portuguese homes a choice of 50 different channels. Besides the generalist channels, there are now channels for different viewer interests (news, sports, movies, history, arts, music, biography, nature, etc.) or aimed at different target groups (women, youths and children). The evolution of the other media classes followed a similar pattern, as the offer tried to match the specialized demands created by the proliferation of different publics whose identity is mainly determined by common cultural interests.

Of course, the fragmentation of mass media audiences is merely a special case of the above mentioned general trend toward market segmentation. It has been gaining

ground in television, with the explosion of cable and satellite generalist or thematic channels, but also in other media classes like press or radio. Media fragmentation offered marketers the chance to target specific groups. Yet, it also made mass communications increasingly expensive and less attractive. This phenomenon directly threatened the cost-benefit combination that used to make the mass media so attractive to advertisers. As each individual insert is now aimed at fewer and fewer consumers and therefore impacts a decreasing share of the target audience, its cost per contact becomes relatively more expensive when compared with the alternatives.

This point was duly emphasized by Unilever Chairman Niall Ferguson:

“In the 1960s you could reach 80 per cent of women in the US between the ages of 18 and 49, which is our main target audience, with three minutes of network television per week. And you got your three minutes largely by buying cheap airtime during the day. If you wanted to replicate that coverage today, you would have to buy 250 advertising spots at various times of the day at astronomical cost, and at least 40 per cent of them would have to be at primetime.” (Fitzgerald, 1998)

WPP, one of the world’s largest marketing and advertising groups, expresses a similar idea in its 2004 Annual Report and Accounts:

“In the US, for example, prime-time network television used to reach 90% of households. A few years ago it was 50%; today it is perhaps only 33%. There are, of course, still programs with significantly increased reach, like the Super Bowl or Academy Awards. But they remain in relatively fixed supply and their prices are bid up as a result. That is why a 30-second Super Bowl ad costs \$2.4 million and an Academy Award slot \$1.5 million. This is not a situation that can last, particularly when significant segments of the population seem to go missing. For instance, US audience ratings indicate that young men have disappeared on Monday nights – perhaps gaming on the internet or watching out-of-home in bars – and housewives have defected from soap operas.” (WPP, 2004)

The saturation of the media space reinforces the previously mentioned negative consequences of media fragmentation, since it also contributes to make advertising less effective and less efficient. It has been reported, for instance, that between 1996 and 2000, the marketing costs per vehicle of the three largest American automakers increased by 87% to \$2,900 per vehicle, while their combined market share declined by 4% during the same period (McKinsey Report, cited by Kumar and Reinartz, 2005). It is interesting to note that this phenomenon is a direct consequence of the previous success of traditional marketing.

In fact, as the word went out that marketing really worked, not only the pioneering fast-moving consumer goods or automobile manufacturers, but also more and more industries, including banks, telecommunications or retail chains, not to mention not for profit organizations, gradually adopted these commercial practices. In spite of an expanding offer, demand grew much faster, turning advertising space into a scarce commodity; therefore, not only real prices increased, but media vehicles also allotted a larger share to advertising space as a proportion of total editorial space. Even if we do not take in consideration the possible irritation of consumers when faced with such heavy advertising bombing, this maneuver could not help reducing the impact of each individual insert by dispersing consumer attention solicited by a growing number of ads and commercials.

It should be understood that media fragmentation and media saturation reinforce each other. In fact, as reach decreases as a result of fragmentation, media planners try to compensate for this by buying increasing frequency, so as to insure the same level of GRPs (gross rating points), providing the advertiser has the financial means to pay for the effort. But, of course, this leads to higher levels of saturation, which in turn creates the conditions for the launch of new media vehicles. Advertisers find themselves locked in a situation of negative feed-back where media effectiveness and efficiency get worse and worse as time passes.

### **2.3.5 – Mass customization**

The new production methods are no longer designed to turn out standardized and uniform products or services in large quantities for homogeneous markets, with a focus on predictability, stability and control. The joint application of information technology and new management methods promoted the emergence of a system that creates variety and customization through flexibility and quick responsiveness (Pine II, 1993).

The incorporation of electronic devices in the assembly line, combined with flexible management techniques, allowed a dramatic reduction of the costs associated with the offer of variety. This came about as a complete reversal of the principles of production management as Henry Ford or Frederick Taylor understood them. In the beginning of the 20th century, the main way to reduce costs was to produce very large runs of homogeneous goods, exploring scale and experience effects (Conley, 1970), which in fact meant reducing variety to an absolute minimum. The extension of this principle to the distribution sphere

brought about a likewise massive and undifferentiated approach to the market: occasional differences between consumers would be disregarded in the face of restrictions imposed by large-scale uniform production.

With flexible production, the minimum “economic order quantity” is gradually reduced through the effort to bring down set-up times to the point when it eventually equals one single unit. In some modern factories, no two similar products come out of the assembly line. The ideal of customized production becomes a reality in more and more industries, thus creating, for the first time since the Industrial Revolution, the possibility of organizing production according to the needs and whims of the individual customer, that is, of fully organizing the company in agreement with the marketing concept. In due time, mass customization<sup>7</sup> – “a synthesis of the two long competing systems of management: the mass production of individually customized goods and services” (Pine II, 1993) – emerged as the distinctive feature of contemporary modes of production. This system was designed to provide simultaneously “variety and customization through flexibility and quick responsiveness” (Ibid.). Once again according to Pine II, it incorporated four basic management innovations:

- Just-in-time delivery and processing of materials and components;
- Reduction of setup and changeover times;
- Compression of cycle times through all processes in the value chain; and
- Production upon receipt of an order instead of a forecast.

### **2.3.6 – The application of information technologies to marketing**

Before the invention of computers, the manual retrieving and processing of information on individual customers became materially impossible as soon as its number exceeded a few dozens. For that reason, detailed customer files played only a minor part in some business-to-business markets – and virtually none in consumer goods markets. The technological revolution transformed radically this situation. As late as the mid-90s, the

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<sup>7</sup> The term “mass customization” seems to have been coined by Davis (1987).



whole Western economy had around one petabyte (1,024 terabytes, where 1 terabyte amounts to 1 trillion bytes) of data storage available; in 2005, half of that is used to develop a single oil field. In the late 90s, one gigabyte of PC memory was considered outstanding; in 2004, most computers came with at least 100 gigabytes of hard disk storage. At the same time, storage prices have fallen at an average of 40% annually over the years (Kumar and Reinartz, 2005).

As the computer revolution, driven by Moore's law<sup>8</sup>, reduced the cost of gathering, registering, storing, processing, analyzing, connecting and transmitting information, more and more companies started considering seriously the possibility of building marketing databases of their clients, including in them all the information they needed to manage the marketing process. In the words of Rapp (1991) the computer revolution has brought to marketing "three awesome powers": the power to record, the power to find, and the power to compare. This transformation originated a new type of marketing management, more concerned with the management of the client portfolio than with the management of the product portfolio. As a consequence, the focus of marketing management gradually moved from the product to the customer.

The plummeting costs of information processing mean that what was impossibly expensive yesterday becomes trivial today. Companies can keep and instantly retrieve the memory of the full history of its relationship with each individual customer. At the same time, technology created new and previously undreamed of possibilities. First, it allowed the creation of information-rich products and services of all kinds, from cars to clothes. Second, personalization, customization and interactivity became common place. Third, consumer databases moved to the center of virtually every business.

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<sup>8</sup> In 1965, Moore predicted that the number of components which could be packed onto a chip would double every twenty-four months. Moore's law, as it is called, has governed the rate of development of electronic devices during the past three decades. For instance, the Intel 8080 chip of 1974 had fewer than five thousand transistors; two decades later, the Pentium II had over five million (Jonscher, 1999).

### 2.3.7 – Emergence of interactive communications

Digitalization of information – that is, the coding of any kind of information into a language that uses only ‘zeros’ and ‘ones’ – has a number of far-reaching consequences. When media become digital, two things happen: a) bits mix effortlessly with other bits, making it easy to change and adapt information from different sources according to needs and circumstances; b) bits can inform us about other bits, which makes it possible to classify and organize information at will according to different principles, if necessary simultaneously, allowing each piece of information to include information on itself. Traditional media concentrate intelligence on the transmitter side; digital media moves some or much of it to the receiver. On the other hand, fiber created virtually infinite transmission capacity. As a consequence, the price of distributing digital information plummeted, thus creating a situation without precedents in the history of media. Receiving equipment (television sets, for instance), that used to be dumb, is now designed to interpret the large amounts of digital information it can access, and select only the relevant bits according to the needs and tastes of its owner. Smart TV sets become computers and each computer is connected to virtually all other computers in the world through the internet. In the end, however, the internet is less about information than about network communities (Negroponte, 1995).

The power of networking grows exponentially as indicated by Metcalfe’s law<sup>9</sup>: the more people join a network the more its members stand to gain from the interaction. Interactivity is therefore a crucial feature of the revolution operated in information and communication technologies in recent times. Naturally, interaction with customers has always been possible, either through personal contact or at a distance by mail or telephone, as mail-order companies used to do. However, this kind of interactivity was not only expensive but also unpractical. Although the greatest hopes of relationship marketing practitioners were, as late as the early 90s, directed to interactive television, the real turning point came about rather unexpectedly as a consequence of the massification of the internet

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<sup>9</sup> Metcalfe’s law states that the value of a network goes up as the square of the number of its users. If there are  $n$  people in a network, and the value of the network to each of them is proportional to the number of other users, then the total value of the network to all users is proportional to  $n \times (n - 1) = n^2 - n$  (Gilder, 1996; Shapiro and Varian, 1999).

after 1993.

The information and communication technologies changed the rules of competition in the networked economy in a fundamental way. Information remains costly to produce, but it is now cheap to reproduce and distribute, because multiple copies can be produced at very low and roughly constant costs. In the absence of significant distribution barriers at a world scale, firms that produce information commodities can only survive if they manage to build a monopoly. The other option is, of course, differentiation. Happily, the digitalization of the economy opens new opportunities for differentiation strategies. On one hand, digitalization makes versioning (that is, offering information products in different versions for different market segments) easier. On the other hand, interactivity stimulates the collection of information on the situation and tastes of each individual customer. Therefore, more and more companies tend to offer customized products and services to their customers based on the specific customer knowledge acquired in the course of their previous relationship (Shapiro and Varian, 1999).

## **2.4 – KEY CONCEPTS OF RELATIONSHIP MARKETING**

### **2.4.1 - Definitions**

Christian Grönroos put forward the following definition of Relationship Marketing:

“(The purpose of relationship) ... marketing is to identify and establish, maintain and enhance, and when necessary terminate relationships with customers (and other parties) so that the objectives regarding economic and other variables of all parties are met. This is achieved through a mutual exchange and fulfillment of promises.” (Grönroos, 2000, p. 26).

Another definition, this one proposed by Gummesson (2002b) , is also cited approvingly by Grönroos (2000, p. 243):

“Relationship Marketing is marketing seen as relationships, networks and interactions”.

Completing his own definition, he adds:

“Identifying and establishing, maintaining and enhancing customer relationships implies, respectively, that the process of marketing includes the following:

1. market research to identify potentially interesting and profitable customers to contact;

2. establishing the first contact with a customer so that a relationship emerges;
3. maintaining an existing relationship so that the customer is satisfied with the perceived quality and the value received and is willing to continue to do business with the other party of the relationship;
4. enhancement of an ongoing relationship so that the customer decides to expand the content of the relationship by, for example, purchasing larger quantities or new types of goods and services from the same seller; and
5. terminating a relationship (...)" (Grönroos, 2000, pp. 243-4)

It is important to note that, in this approach, things like the direct contact with customers or the building of a marketing database are clearly considered secondary or tactical (Grönroos, 2000, p. 27). The main emphasis is placed on the decision to manage primarily relationships and not transactions. Another definition by Parvatiyar and Sheth points in the same direction:

"We define relationship marketing as the ongoing process of engaging in cooperative and collaborative activities and programs with immediate and end-user customers to create or enhance mutual economic value at reduced cost" (Sheth and Parvatiyar, 2000).

Among others, Gummesson (2002b) believes relationship marketing must be understood as a paradigm change. The expression "paradigm" has been given a specific technical meaning within the philosophy of science by Kuhn (1962). A paradigm is, in this sense, a broadly defined and generally unquestioned theory or set of beliefs, within which scientists conduct their research during a certain period of time. Paradigms are a positive phenomenon inasmuch as they provide a clear direction to the research efforts of the scientific community. However, they also tend to create a certain blindness toward both facts and opinions that do not easily fit into the prevailing theories. As a consequence, dominant paradigms – what Kuhn calls "normal science" – resist fundamental strategic changes until their internal contradictions reach a point when the whole structure crumbles and a new and revolutionary paradigm emerges.

According to Gummesson, relationship marketing offers a new and much needed foundation for marketing, including new values, new assumptions and new methods:

"Relationship Marketing in many ways offers a fresh view of marketing. (...) The paradigm shift has

partially taken place in the real world of marketing, but the shift is not properly echoed in theories, textbooks and education.” (Gummesson, 2002b)

The expression relationship marketing is currently used as synonymous to CRM, one-to-one marketing, database marketing, direct marketing or loyalty marketing. Properly understood, the CRM concept is indeed very close to the relationship marketing concept: it points toward a different way of organizing a business from top to bottom, a management philosophy directly connected to an updated version of the marketing concept itself (Brown, 2000). In practice, however, CRM has come to refer to the technological side of relationship marketing, possibly because the concept was in the beginning heavily promoted by providers of computer systems and software.

As to the other expressions – one-to-one marketing, database marketing, direct marketing or loyalty marketing – all of them designate important but secondary or merely one-sided perspectives of relationship marketing. One-to-one marketing deals with those special limit situations when it makes sense to create relationships with segments of one customer each (Peppers and Rogers, 1993; Peppers, Rogers and Dorf, 1999). Database marketing is a sub-domain of relationship marketing related to the use of a specific tool, the customer database, in the context of more general marketing strategies (Shaw and Stone, 1988; Hughes, 1996). Direct marketing grew out of mail order to embrace a vast area of direct communications that, under the impact of new technologies, evolved gradually into relationship marketing (Bird, 1989; 1993).

#### **2.4.2 - Motivations for the adoption of relationship marketing**

According to some authors (Sheth and Sisodia, 1995), contemporary marketing was unable to keep up with the efficiency gains of the other management functions. Grönroos (2000, p. 12) subscribes to this point of view: “there have been no major productivity gains in marketing during this 50-year period [from the 40s to the 90s of the last century]”. And he goes on to explain:

“The mass marketing approach is now less effective and less profitable. More and more markets are mature and over-supplied. New customers are more and more difficult to find. Therefore, it is becoming increasingly important to keep a firm’s existing customers. In many businesses, customers become profitable only after they have remained customers for some time.” (Grönroos, 2000, p. 23)

In other words, transaction marketing is believed to be inefficient because it spends proportionally too much money in the acquisition of new customers and not enough in the retention of existing ones, an approach inverse to the one preached by relationship marketing. Customer loyalty thus seems to be one of the main reasons why a growing number of companies takes an interest in relationship management. Although loyalty was always prominent among the preoccupations of direct marketing practitioners and authors (see, for instance: Bird, 1989; Hughes, 1996; Vavra, 1992; Hochman, 1992; Nash, 1993; Bird, 1993), it was Frederick Reichheld who succeeded in the task of focusing the attention of top management on the subject (Reichheld and Sasser, 1990; Reichheld, 1994, 1996). The data collected and presented by Reichheld tried to establish that companies that show higher levels of customer loyalty and retention also reveal higher levels of profitability and grow faster as well. This increase of profitability is caused both by cost reduction and revenue growth. On the side of costs, companies more effective in retaining their customers spend less money going after new clients. On the side of revenue, positive effects are more varied and complex. First, a company that retains its customers grows faster, which allows it to benefit from scale economies. Second, the margin generated by a customer is believed to be a function of the number of years that he remains as a customer. Reichheld gives five reasons for that:

- a) Acquisition costs, that, by definition, only happen once, are diluted among a larger number of sold units;
- b) If a customer remains loyal, there will be more opportunities to sell him other products or services (cross-selling) or to sell him more valuable options, features or complements (up-selling);
- c) A loyal customer means lower pre and post-sale service costs;
- d) A loyal customer recommends the company's products or services to family and friends, thus becoming a valuable ambassador and source of new customer acquisition;
- e) A loyal customer is ready to pay higher prices for the company's products or services, since this loyalty is caused by equally large satisfaction levels.

For all these reasons, Reichheld stated that, according to his experience, an increase of 5 percent points in the customer retention rate might generate a profit increase somewhere between 25 and 75 percent points, depending on the economics of the industry in question.

### **2.4.3 - Operational definitions of brand loyalty**

Reichheld measured brand loyalty by the duration of the time period during which a customer kept buying it. Although useful in many circumstances (for example: ownership of a credit card, car insurance, software utilization or provision of advertising services, all of them services that imply a contractual setting) this measure is not always appropriate. Reinartz and Kumar (2000, 2002) conducted extensive and detailed research to test the propositions according to which improved customer retention (1) increases profitability, (2) increases profits over time, (3) decreases the costs of serving customers, and (4) persuades customers to accept higher prices. None of them was found to hold in non-contractual settings. In the opinion of these authors, the reason why the link between loyalty and profits was weak had a lot to do with the crudeness of the methods, such as the RFM tool, commonly used to decide whether or not to maintain certain customer relationships (Reinartz and Kumar, 2002). When a different and more sophisticated method was used to score customers, it became possible to select which specific segments should be targeted for retention efforts, thus promising more profitable results than an indiscriminate loyalty strategy (Reinartz and Kumar, 2000).

The word loyalty has a number of different meanings. Thus, a brand loyal person may:

- Feel well disposed toward the brand – this is brand attitude
- Buy the brand more often than other brands in the category – this is a behavioral measure of actual preference
- Continue to buy the brand over long periods of time – this longevity of purchase corresponds to the Reichheld definition and may be understood as allegiance to the brand

Common sense tends to suggest that these different forms of loyalty are usually found together, that is, that the more people like a brand, the more they will prefer it to others and the longer their allegiance will last. Jacoby and Olson (1970) proposed a definition of loyalty that requires all the previously mentioned types of loyalty to be present. In accordance with this demand, Jacoby and Chestnut (1978) settled on the following definition of brand loyalty:

1. The biased (i.e. non-random),
2. behavioral response (i.e. purchase),
3. expressed over time,
4. by some decision-making unit (e.g. household, person)
5. with respect to one or more alternative brands,
6. which is a function of psychological processes (decision-making, evaluation)

In line with this view, Dick and Basu (1994) also sustain that the concept of loyalty implies positive attitude as well as positive behavior. Behavior without attitude would in their opinion be spurious loyalty caused by mere inertia or lack of choice. As a rule, loyalty is believed to materialize or reveal certain propensities of customers toward a brand. Some of these propensities are expressed through behavior, others through attitude (East, Sinclair and Gendall, 2000). Loyal behavior can thus be evaluated by different factors, such as:

- a) Total duration of customer retention
- b) Share of needs of the consumer in the product category satisfied by the brand (variously known as share of category requirements, share of wallet or feed rate)
- c) Number of brands bought or used by the customer during a certain period of time

Apparently, the measurement of loyal behavior would be enough, since this is in fact the final goal of the efforts aimed at customer retention. However, as previously noted, there are situations when the behavior loyalty indicators are high, not as a result of true



attachment to the brand, but as a consequence of the lack of alternatives or of awareness by the customer that they exist. This situation can happen, for instance, when a given supplier benefits from a monopoly position; when a customer is contractually bound to a supplier for a minimum period of time; or even when, because of distribution failures, other brands are not available when the corresponding need arises. In all these circumstances, measures of behavioral loyalty are of scarce value, since this “loyalty” to the brand is in fact forced and will disappear instantly as soon as the factors that inhibit free choice are removed. On the other hand, behavioral loyalty is sometimes very difficult to measure directly and accurately. For all these reasons, it is sometimes considered useful to resort to some kind of attitudinal measure, such as:

- a) Satisfaction level of the customer with the brand
- b) Trust level of the customer in the brand
- c) Dedication level of the customer to the brand
- d) Attitudes of the customer toward the brand
- e) Recommendation of the brand to other persons

The use of attitude variables to predict loyalty behavior in situations of free choice of the consumers is closely related to the theory according to which consumer buyer behavior is pre-determined by their attitudes, an idea that, as we will see in the next chapter, although central to the dominant theory of marketing, is open to considerable criticism. Some authors (East, Sinclair and Gendall, 2000) have in fact argued that, even when clients do have freedom of choice, no significant correlation between attitudinal loyalty and behavioral loyalty is found. Furthermore, it is also common to find a low correlation between the several behavior loyalty variables themselves. East, Harris and Lomax (2000), for instance, concluded, in a study of retail brands, for a low association between loyalty measured by the share of category requirements and loyalty measured by the duration of the retention period.

Therefore, not only there is no universally satisfactory single measure of loyalty, as it can also be insufficient to retain one measure of attitudinal loyalty on one side and one measure of behavioral loyalty on the other. In the present state of knowledge, it is

indispensable to ponder in a case by case basis which metrics will be more indicated, taking in account the strategic marketing objectives previously defined.

#### 2.4.4 - Customer lifetime value (CLTV)

The impact of the loyalty of the customer base on the company's profitability is a consequence of the possibility of capturing a larger share of each customer lifetime value (Reichheld, 1996). In fact, each client generates a profit (or loss) flow during the time he goes on buying the company's goods or services, which, at least in theory, can in some markets extend through his entire biological life<sup>10</sup>. This flow of profits depends simultaneously on the revenues generated and on the costs incurred, and it is commonly accepted by practitioners that loyalty affects both in a way that benefits the company. Finally, to make calculations more accurate, it is necessary to discount the future stream of revenues using an adequate interest rate.

The customer lifetime value (CLTV) can therefore be represented by this somewhat simplified formula<sup>11</sup>:

$$CLTV = \sum \{ \sum [ Q_{jt} (P_j - C_j) / (1 + r)^t ] \} - C_a \quad (2.1)$$

Where:

**CLTV** – Customer lifetime value

**t** – Time periods (1 a  $\infty$ )

**j** – Products acquired

**Q<sub>jt</sub>** – Quantity of product **j** acquired in period **t**

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<sup>10</sup> Instead, in those markets where the duration of the relationship is, by the very nature of things, ephemeral (babies' diapers, for instance) one of the main retention objectives will be to obtain the recommendation of the brand to other prospective clients so as to minimize the cost of the periodic renewal of the customer base.

<sup>11</sup> More complex versions of this formula can be found in the literature. See, for instance, Wayland and Cole (1997), and Blattberg, Getz and Thomas (2001).

$P_j$  – Price of sale of product  $j$

$C_j$  – Cost to produce and service product  $j$

$C_a$  – Cost of acquisition of the client

$r$  – Discount rate

The formula makes it clear that, setting aside the discount rate, which cannot be controlled by the company, the customer lifetime value can be increased in six different ways:

- a) Increasing the number of years during which he buys the goods and services of the company ( $t$ )
- b) Increasing the quantity bought of each product ( $Q_j$ )
- c) Increasing the number of products and services bought ( $j$ )
- d) Increasing the price of the products bought ( $P_j$ )
- e) Decreasing the cost of production and of service to the customer ( $C_j$ )
- f) Decreasing the cost of client acquisition ( $C_a$ )

The calculation of the customer value – the *gold number* in the terminology of direct marketing practitioners – also allows the determination of the maximum investment that can be made to acquire a new customer, and thus provides the basic building block of the relationship economics. If the investment is higher than the CLTV, the customer will always generate a loss; if it is identical to the CLTV, the company will barely break even; if it is lower, the positive rate of return can be easily computed dividing CLTV by  $C_a$  (cost of acquisition).

#### 2.4.5 – Differentiation and segmentation of the customer base

The traditional marketing management approach focuses on creating single or multiple-exchange transactions, and their profitability is determined by cost and price. Managers are usually concerned with the profitability of products, not with the profitability of customers. Consequently, they manage product portfolios (using tools like the BCG matrix, for instance,) not customer portfolios.

Instead, when the attention of managers is reoriented from products to customers, customer value becomes a central concern. But the mere calculation of the average customer lifetime value is in itself of limited relevance, since it can vary extraordinarily from one customer to another. Therefore, on a customer-base level, the key tool for analysis is the distribution of profitability within the customer base (Storbacka, 2000). Multiple studies conducted in entirely different market settings reveal that, while a relatively small number of customers account for a large proportion of the profits, many other customers only generate losses (Hallberg, 1995). Thus, some relationships in any customer base are profitable and some are unprofitable. Cooper and Kaplan (1991) state that in certain industrial markets 20% of the customers account for 225% of the total customer-base profitability. Empirical evidence from retail banks has shown that 20% of those banks' customers account for between 130% and 200% of the total profits (Storbacka, 1994). The Stobachoff index was created to measure the degree of deviation of a specific customer-base from a balanced "ideal" customer-base where each customer is equally profitable.

The understanding of the general pattern of distribution of the customer-base must be complemented by the scoring of each individual customer according to his value to the company or brand<sup>12</sup>. This operation of differentiation of customers is then followed by their classification into specific value segments. The revenue generated by a particular customer is usually only a fraction of the total value bought by him in the market or markets under consideration. Therefore, the value captured by each competitor depends on two factors: a) the total demand of the customer in the relevant category (generic demand)

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<sup>12</sup> We leave aside the very considerable practical problems of identifying each customer's value given that the available information is almost always scarce.

during a specific time frame (say, a year); b) the share of this demand addressed by the customer to the company's brand or brands during the same period (selective demand as a proportion of the generic demand). Thus, it is highly revealing to decompose each customer's lifetime value into two independent factors:

- a) Customer status relative to the product category. It reveals each customer's situation regarding his more or less intensive consumption or use, in order to determine his full potential value to the company. In fact, if only the actual customer value (that is, the current sales value) is taken in account, there is a definite possibility of wrongly classifying as low value customers some individuals simply because they are not buying from us at a given moment. The simplest classification distinguishes between heavy consumers, average consumers, light consumers and non consumers.
- b) Customer status relative to the brand. It expresses in a synthetic way the behavioral loyalty to the brand. Ideally, it should be evaluated by the percentage of the customer's needs in a specific area that are satisfied by the brand (share of customer requirements), although, due to lack of information, it is very often necessary to resort to proxy variables such as, for instance, the duration of the relationship with the brand. The choice of the proper variable will have to take in account the situation at hand, including the characteristics of the buying process and of the competition environment.

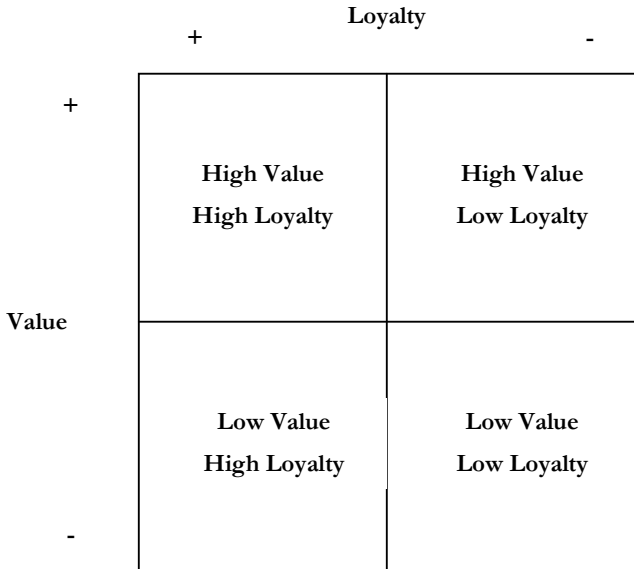
The Value Spectrum model (Figure 2.1) uses these two dimensions of value to analyze the customer portfolio of a company or brand<sup>13</sup>. The vertical axe orders customers according to their potential value to the organization, regardless of its capacity to appropriate it at the moment, with the low value customers placed close to the bottom and the high value ones close to the top. On the other hand, the horizontal axis differentiates

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<sup>13</sup> The Value Spectrum was invented in the 80s by Rodney Wright, at the time a Director of Ogilvy & Mather Direct. To the best of our knowledge, this model was never presented to the public either in article or book form. However, it has circulated widely under several guises in marketing circles. Two slightly modified versions of this model, the *Customer Loyalty Cube* and the *Profit/ Potential Grid*, are presented by Hougaard and Bjerre (2002).

customers according to their loyalty, that is, according to the degree of their attachment to the company, moving from extremely loyal at left to absolutely disloyal at right. In this manner, the model suggests an intuitive way to segment the base of existing and prospective customers in four large groups. It is however possible to zoom in, going down to as many levels of disaggregation of the data as necessary, leading to the identification of smaller and smaller segments or niches according to our wishes.

**Figure 2.1**  
**The Value Spectrum Model**



Source: Ogilvy & Mather Dataconsult (1993).

Customers of high value and high loyalty, located in the northwest quadrant of the matrix, are clearly the most valuable to a company, given that they combine a high potential value with a high attachment to it. They are the Most Valuable Customers that must be retained at all costs through strategies conceived to increase their satisfaction levels and reward their loyalty, thus immunizing them against the competitive attempts to persuade them to switch. Besides their immediate value, Most Valuable Customers can also, by generating positive word-of-mouth, help attract new and profitable customers. When we consider the customer-base as the key asset of a company, the investment in its most valuable customers should provide the main thrust to the marketing strategy.

High value and low loyalty customers, in the northeast quadrant, present a different

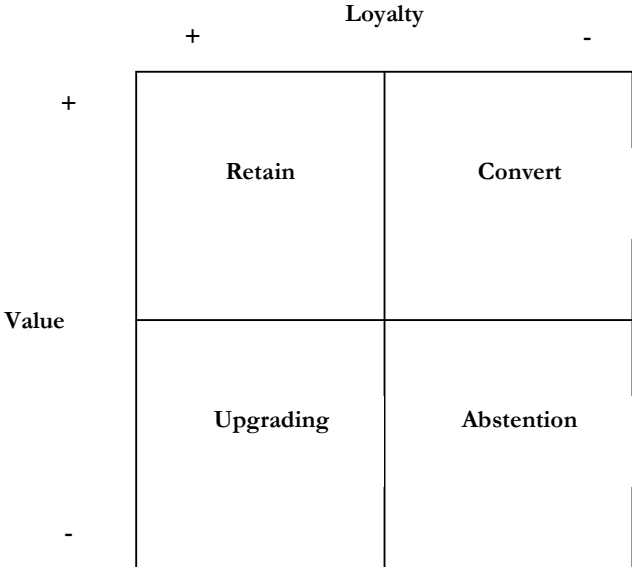
problem. On one hand, they are potentially interesting; on the other hand, however, the effort of stealing customers from the competition is not only expensive but also sometimes ineffective. Whenever these customers are satisfied and very well disposed toward some competitor, their conversion will probably demand very expensive promotional offers, therefore increasing the costs of acquisition on such a scale that they will probably never become profitable customers, even if we consider a very large time horizon. Moreover, some of these customers can also be intrinsically unstable, switching continually between suppliers, which means that they are not attractive prospects either. This reasoning suggests that the attempts at conversion (brand-switching) must be carefully oriented to customers whose profile likens them to our existing best customers.

We face a different dilemma in the case of the low value but high loyalty customers located in the southwest quadrant. They are already our customers, and should for this simple reason receive some attention; but their value is apparently too low to justify significant investments in their conservation and development. Once again, it is recommendable to identify those whose potential value might grow in consequence, for example, of foreseeable changes of their economic or social situation. This might come about as a consequence of the implementation of cross-selling (sale of other products or services) or up-selling (sale of higher value products or services) initiatives. The customers that fit this description are called Most Growable Customers.

Finally the low value and low loyalty customers create no doubt as to what should be done with them. Except in the extreme case of loss-making customers (so-called Below-zeros) the company wants them to go on buying its products, but has no incentive to invest in them. It is better to avoid spending money to retain them, saving it for more productive initiatives aimed at its most valuable customers. In a general way, these customers are not targets for relationship building or enhancement marketing activities.

The following diagram summarizes the strategic recommendations for each quadrant of the *Value Spectrum*:

**Figure 2.2**  
**Value Spectrum: Strategic Recommendations**



Source: Ogilvy & Mather Dataconsult (1993).

**2.4.6 - Moments of truth**

The concept of moment of truth, originally coined in 1987 by Jan Carlzon, at the time President of *SAS – Scandinavian Air System*, became a key idea of services marketing (Norman, 1992) and, through the influence of Grönroos (1990, 2000), of relationship marketing itself. According to Carlzon (1987), a moment of truth occurs whenever a customer, by entering in contact with some aspect of the supplier company, uses that opportunity to make a judgment on the quality of the service offer. Literally, it is “the time and place when and where the service provider has the chance to demonstrate to the customer the quality of its services” (Grönroos, 2000, pp. 72). In consequence, a moment of truth, sometimes also called “service encounter” (Shostack, 1985, 1987), is the instant when the company is confronted with the needs and expectations of its customers.

Explaining his ideas, Carlzon wrote: “Last year, each of our 10 million customers came in contact with approximately five SAS employees, and this contact lasted an average of 15 seconds each time”. Thus, SAS is “created 50 million times a year, 15 seconds at a



time”. These 50 million “moments of truth are the moments that ultimately determine whether SAS will succeed or fail as a company. They are the moments when we must prove to our customers that SAS is their best alternative.” (Carlzon, 1987) Naturally, moments of truth are not restricted to contacts with the company’s employees. They can also be the result of encounters with equipments and resources (examples: machinery, documentation, facilities and waiting rooms), with systems (examples: queuing systems, planning of operations, current procedures and claim handling) or even with other customers (Eiglier and Langeard, 1987) On the other hand, it can also be the result of explicit attempts to communicate with the customer, including communication in service (guiding signs, instructions, advice) and traditional communication (Eiglier and Langeard, 1987; Grönroos, 1990a; Grönroos, 2000).

Moments of truth are unavoidable encounters of the company with its customers, therefore appearing as unique opportunities to create, develop or save relationships. This demands the previous identification of existing moments of truth or the creation of new ones, in order to understand what happens or can happen during them and consider the ways in which they can be positively influenced (Grönroos, 1990a; 2000).

#### **2.4.7 – The Customer Relationship Cycle**

A relationship is the totality of transactions and encounters between suppliers and customers that occur in a given length of time. It is made up of episodes (of which the most important are moments of truth) that come together as sequences of service delivery (Shapiro, Rangan and Sviokla, 1992). It can be said that the brand concept is already an attempt to go beyond transaction marketing in its most extreme form, given that, through the brand, the customer is related to the supplier in a lasting, meaningful and closer way. Unlike a simple product, which lacks identity as well as personality and values, a brand is something that customers can connect and bond with (Kapferer, 1997; Fournier, 1998). Relationship marketing takes this intuition somewhat further, including in the brand experience the totality of the encounters or service episodes.

The relationship cycle comprises an articulated sequence giving form to a complete chain of moments of truth. This process is circular in nature, with some moments of truth being repeated over and over. We should not expect, however, a mere repetition, because the relationship is transformed and deepened as the customer experience grows and the

interactions between him and the brand become more complex through the adding of new layers. A relationship involves several types of cycles. The most important of them is the customer relationship life-cycle (Grönroos, 1990a; Grönroos, 2000; Blattberg, Getz and Thomas, 2001; Hougaard and Bjerre, 2002), which intends to trace the path followed by each and every customer in his involvement with the brand as it progresses along time, and to evaluate the solidity and stability of such relationship. Accordingly, the relationship of customers with a brand or organization typically goes through a certain number of steps, each of them comprising a certain number of characteristic moments of truth<sup>14</sup>. According to Ogilvy & Mather Direct (1992) the four main stages are:

- a) **Acquisition.** It refers to the stage immediately preceding the beginning of a true relationship. The prospective customer feels more or less attracted by the brand. On his side, the supplier tries to take advantage of this potential of attraction to convince him to make a first buy. We call suspects those individuals who, although probably motivated to buy have not manifested in any way the wish to do so. We call prospects those individuals who already made some kind of step toward the brand, such as asking for information, visiting the store or asking for a cost estimate. Finally, a hot prospect is someone who declared an intention to buy.
- b) **Retention.** In relationship marketing, this is the crucial stage where the main efforts are concentrated, in the belief that this is where the return on the marketing investment will be higher. Instead of leaving the customer to himself as soon as the sale is closed, the marketing manager initiates a process that has in view knowing more about his needs, wishes and preferences in order to respond more adequately to his expectations in the future. Customer retention is not some type of cosmetic operation: what really is at stake is the possibility of increasing satisfaction levels through the improvement of the value offer. Customized communication is just a part – although an important part – of a more general process of really getting closer to the customer.

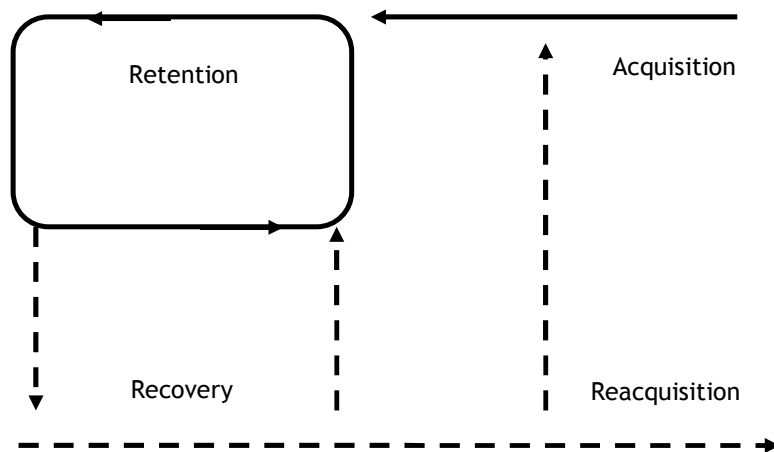
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<sup>14</sup> The Customer Relationship Life-cycle model was inspired by psychological research (see, for instance: Levinger, 1983).

- c) **Recovery.** Before being undone because of a negative experience, a relationship usually goes through a phase of deterioration. If it is possible to identify the symptoms associated to this deterioration, its detection through predictive systems should trigger initiatives directed to the recovery of the relationship. Relationship marketing practitioners are convinced that the highest levels of satisfaction occur precisely in the aftermath of moments of crisis that companies manage to handle properly, not among customers that never had reasons to feel dissatisfied. This explains the importance usually attributed to systems that deal adequately with customers' complaints.
- d) **Reacquisition.** Against the common practice, it has been found that, even after a customer abandons a brand with serious reasons of complaint, it is still comparatively more profitable to invest in his reacquisition than to acquire an absolutely new customer to the organization. This demands the understanding of the causes that created the situation in the first place, in order to prevent its repetition, and the providing of an appropriate compensation to the defaulting customer.

The following diagram illustrates in a simplified form the customer relationship life-cycle.

**Figure 2.3**  
**Customer Relationship Life-Cycle**



Source: Ogilvy & Mather Direct (1992).

## 2.4.8 - The strategic process of relationship marketing

The implementation of a relationship marketing strategy follows a logical process along five different steps (Ogilvy & Mather Direct, 1992)<sup>15</sup>. None of them can be started before the previous one is completed:

1. **Segmentation of the customer base according to value.** The first step consists in the analysis of the customer portfolio using the Value Spectrum or any other equivalent methodology. The concept of customer lifetime value provides us the starting point to the classification of customers in groups of different value. Both the content of the relationship and the amount to be invested in each group will depend on the value of the customers, which explains the importance of this operation of segmentation. The choice of the customer lifetime value as a basic criterium of segmentation is a distinctive feature of relationship marketing in comparison with more traditional marketing approaches where social and demographic criteria tend to guide the segmentation process. Before starting to segment the customer-base it is necessary to define exactly what is meant by a customer. Are we dealing with an individual or with a family aggregate? In a business market, is the customer a production unit of a company, a company or a group of companies, and which individuals represent them?
2. **Identification of the customers of each value segment.** The classification of customers leads us to the identification of the most valuable customers to the company – usually a small percentage of their total – , which is the basis of all subsequent activities. It is not an easy task to decide what is meant precisely by a high value customer. Do we mean the largest customers in terms of sales measured in a quantitative or in a monetary scale? Or those that generate the largest absolute or relative margins? And what weight should we attribute to the actual versus the more decisive but uncertain future long term value, given that we know for how long a customer has been with us but ignore how long he will remain loyal in the

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<sup>15</sup> Several strategic sequences have been suggested by other authors, similar to this one in its general features but differing in detail. See, for instance, Peppers and Rogers (1993, 2004), who prefer a four stage sequence called IDIC, including Identification, Differentiation, Interaction, and Customization.

future? Sometimes it is more advisable to use a combination of factors, resorting to a multi-dimensional definition of each customer's value. If and when it proves necessary to summarize all this information in one single indicator, each factor will be given a specific weight. This is the process known as customer scoring, which can be made more complex by including factors such as the instability of certain customers regarding their propensity to be lured by competitive offers, thus opening the way to predictive models designed to identify those customers that might defect.

3. **Profiling each value segment.** It is very useful to know what special characteristics, either demographic, life-style or personality, are shared by high value customers, as they not only help us to understand what type of relationship should be created, but also allow us to predict the value of prospective clients on the basis of certain easily observable traits. When we understand which factors single out the best customers, we can go after new ones with similar profiles. The first level of segmentation, based on customer value, is thus complemented by a second one, more common in mainstream marketing. This is specially important because, as a rule, companies do not have the information necessary to classify directly the large majority of its customers according to their value, which means that they will usually have to look for indicative methods to solve this problem by choosing proxy variables. If, for instance, a producer of certain fast-moving consumer goods is not capable of knowing directly how much his customers spend in each of the product categories in which he competes, he might still infer their value by knowing how many children are there in the family if he finds out through research that this is the crucial factor to explain value.
4. **Development of relationships with the several types of customers.** Once the first three stages are completed, we are finally ready to launch the foundations of a relationship marketing strategy comprising three key dimensions: value added to the brand; objectives for each customer segment; and investment in each considered segment. The strategy to add value to the brand must be based on the understanding of how a personalized relationship can bring the customers closer to the brand. The Value Spectrum model suggests that different relations should be created according to the kinds of objectives appropriate to each segment: retain,

convert or stimulate the increase of value. Finally, the level of investment in each customer will depend on his contribution to the profitability of the brand.

5. **Enhancement of the relationship with high value customers.** The first level of any personal relationship is the result of establishing contact with someone on an individual basis. It is simply called recognition, which means giving someone enough importance to acknowledge that the person exists and has a name, to begin with, and then go on to communicate with that person with some frequency, both regularly and occasionally, thus maintaining an open channel of communication. Although elementary, this is an indispensable foundation of any relationship, corresponding to what Jakobson (1993) called *factic communication*. Among the main tactics most commonly used to enhance a relationship we should mention: frequent surveys to determine satisfaction levels; offer of additional and complementary services relevant to the target group; provision of useful information to users; addition of an emotional element to the relationship; reward of loyalty and deterrence of defection; and, finally, addition of an entertainment dimension to the relationship.

## **2.5 – APPLICATIONS OF RELATIONSHIP MARKETING**

### **2.5.1 – Relationship Marketing programs in practice**

The first large scale relationship marketing program in modern times<sup>16</sup> seems to have been launched by American Airlines in 1981 (Kumar and Reinartz, 2005). AAdvantage – such was the name of this program aimed at frequent flyers – attributed to the airline’s passengers points in proportion to miles traveled that could later be exchanged for free flights. American Airlines captured and stored information on individual customers in marketing databases, a pioneering initiative in the application of modern technology to marketing. Frequent flyers were given free miles, discounts and gifts that rewarded their loyalty. This model was promptly imitated not only by airlines such as Lufthansa, British Airways and Air France – probably there is not nowadays a single one that does not offer

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<sup>16</sup> Some authors mention the S&H Green Stamp initiative in 19<sup>th</sup> century America as a distant forerunner of contemporary incentives programs.

some kind of miles program – but also by other companies operating in undifferentiated and highly competitive markets in which systematic excess capacity occurring in certain days of the week or months of the year, something very common in service industries, allow the offering of rewards that cost next to nothing to the supplier. Such is the case, among others, of hotel chains and rent-a-car companies, which explains why Holiday Inn (Priority Club program), Marriott (Honored Guest program) and Hertz soon adopted the same model of rewarding heavy users (Wansink and Seed, 2001). This type of program arrived to Portugal in the mid-1990s through the initiative of BP (Premierplus program) and Shell (Smart program), soon to be copied by Galp with its FastGalp program. The popularity of this kind of programs is understandable: they are well accepted by customers, because they are easy to understand and easy to use; they are easily embraced by companies, because they do not require innovative marketing skills or know-how, being a mere extension of the very familiar continuity promotional techniques. However, they are demanding regarding the underlying support infrastructure, including database management, information systems, channel integration, logistics and coordination, favoring large companies (especially multinationals that can import know-how and resources already developed in other countries) at the expense of smaller local players.

Already in 1988, air travelers carried an average of 2.3 loyalty cards, a figure that increased to 3.1 five years later (Dowling and Uncles, 1997). This piece of information is somewhat disturbing, since the ownership of several cards at the same time suggests that maybe the loyalty purpose is not being attained after all. Even so, a second wave of relationship programs mobilized large retailers, namely those operating in fast-moving consumer goods, among which the pioneers were Tesco's Club Card, Sainsbury's Reward Card, and Safeway's ABC Card, all of them in the UK. Soon followed Quelle in Germany and Leclerc, Super U and Auchan in France, among others. Sometimes, the launch of a loyalty card was the starting point to more sophisticated strategies, often in cooperation with a network of partner companies, made possible by the creation for the first time of gigantic marketing databases organized around individual customers. The automatic registration of each customer's buying behavior through the reading of bar codes by POS scanners brought an important bargaining advantage to retailers in their eternal confrontation with producers (Wileman and Jary, 1997). In the last few years, with Tesco at their head, retailers started experimenting with online direct sales, taking advantage of their

detailed knowledge of consumers and of their newly acquired competences in the area of information and communication technologies.

Threatened by this accelerated trend toward a growing control of the marketing process by large retailers, multinational corporations such as Procter & Gamble, Danone, Nestlé, Coca-Cola, PepsiCo or Unilever decided it was high time for them to experiment also with relationship strategies directed to individual consumers. In the second half of the 90s, all of them had already started more or less ambitious projects, supported by mega marketing databases, in all their main American and European markets.

Besides these high visibility initiatives, the acceptance of relationship marketing concepts in the day-to-day practice of marketing departments is notoriously progressing in other trivial but nevertheless important aspects, such as a new eagerness to consider the possibility of building direct relationships with consumers and to capture individual information on them. The trend is obvious when we consider how common consumer communication centers have become in the last few years in consumer markets, including computer-assisted call-centers, email communications, SMS messaging and all kinds of interactive communications through the internet.

### **2.5.2 - Relationship marketing in consumer markets**

As previously stated, although relationship marketing started in services and business-to-business markets, it is now hailed as a strategy generally applicable to all kinds of markets and goods. There is, however, some dispute about the suitability of relationship marketing to consumer markets, as a part of a more general debate on its scope and future development (Payne, 1997). Only recently have the benefits of relationship marketing for consumer markets been explicitly considered (Sheth and Parvatiyar, 1995), reflecting the fact that the companies operating in them were late adopters of the concept. Although admitting a lack of studies on relationship marketing in consumer markets, Sheth and Parvatiyar professed to be optimistic regarding its possibilities, based on both the superior economics of consumer retention (Reichheld and Sasser, 1990) and the competitive advantage that relationship marketing brings to the adopting firms (Vavra, 1992):

“Recently in consumer marketing, the focus has shifted from creating brand and store loyalties through mass advertising and sales promotion programs toward developing direct one-to-one relationships. These relationship marketing programs include frequent-user incentives, customer



referral benefits, preferred customer programs, aftermarket support, use of relationship databases, mass customization, and customer involvement in company decisions. In most cases, consumers are also willing to accept such relationships with marketers. Evidence for this is found in the growth of membership in airline and hotel frequent-user programs, the use of store membership cards, direct inquiries, and registration with customer service hotlines established by manufacturers.” (Sheth and Parvatiyar, 1995)

At the same time, they concede that the advantages of relationship marketing only benefit the firm “if, and only if, consumers are willing and able to engage in relationship patronage” (Sheth and Parvatiyar, 1995). The focus of relationship marketing in consumer markets should be on establishing and enhancing a long-term, mutually beneficial relationship between the consumer and the marketer, which assumes that the latter is oriented toward customer retention and the development of a unique relationship with each individual customer. Benefiting from the advantages of customer retention and cooperative and efficient customer response, marketing efficiency might in fact improve significantly. However, all these positive effects depend on the premise that consumers are motivated to reduce their choice set, that is, that they can be induced to become loyal (Sheth and Parvatiyar, 1995).

It seems clear that long-term relationships are not always interesting to customers (Blois, 1996; Barnes, 1994, 1995, 1997; Benapudi and Berry, 1997; Fournier, Dobscha and Mick, 1998), and that the efforts of marketers can even irritate them:

“Ironically, the very things that marketers are doing to build relationships with customers are often the things that are destroying those relationships. (...) Perhaps we do not understand what creating a relationship really means; that is, how customers’ trust and intimacy factor into the connections we are trying to forge. Relationship marketing is powerful in theory but troubled in practice.”(Fournier, Dobscha and Mick, 1998)

There are many reasons for customers’ dissatisfaction. Many marketing initiatives seem trivial and useless instead of unique and valuable. Companies ask for customers’ loyalty but do not pay them back in kind. The priority given to so-called best customers creates conflicts with other customers that do not fulfill the same requirements. As a consequence, relationship marketing as it is practiced very often increases the distance between marketers and customers instead of bringing them closer (Fournier, Dobscha and Mick, 1998). Grönroos (1997) distinguishes three categories of consumers according to

their willingness to get involved: those that actively engage in a relationship, those that only do it passively, and those that reject any type of relationship whatsoever.

It is not easy to understand how some central ideas of relationship marketing formerly developed in service industries – namely, the service encounters or moments of truth – might be usefully transferred to many consumer goods markets, since they seem to presuppose a high involvement of the customer with both the product category and the brand, which precisely is by definition absent from fast-moving consumer goods (Iacobucci and Ostrom, 1996).

Fournier (1998) went on to explore the idea that brands are in themselves relationships of a special kind, thus extending the understanding of brand dynamics beyond existing concepts of brand attitude, satisfaction, loyalty, and brand personality. This suggestion was taken up and developed by Dall’Olmo, Riley and de Chernatony (2000). Meanwhile, Fournier (1998) put forward a typology of sixteen consumer-brand relationships: “arranged marriages”, “marriages of convenience”, “best friendships”, “casual friends/buddies”, “committed partnerships”, “kinships”, “compartmentalized friendships”, “childhood friendships”, “courtships”, “rebounds/avoidance-driven relationships”, “secret affairs”, “dependencies”, “flings”, “enslavements”, “enmities” and “love-hate relationships”<sup>17</sup>. They are characterized by differences regarding seven relationship dimensions, each one of them defined by a pair of opposed concepts: (1) voluntary vs. involuntary; (2) positive vs. negative; (3) intense vs. superficial; (4) enduring (long-term) vs. short-term; (5) public vs. private; (6) formal (role- or task-oriented) vs. personal; and (7) symmetric vs. asymmetrical. All brand relationships are subject to change because of personal, environmental, and managerial factors. They proceed through cycles of initiation, growth, maintenance, and deterioration, similar to those described in the general customer relationship cycle. This should create some scope for relationship-oriented one-to-one marketing strategies, combining a functional and utilitarian dimension with a psychosocial and emotional one.

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<sup>17</sup> Fournier (1998) recognizes that these sixteen types of relationships can be classified into four main macro-types: friendships, marriage, “dark-side” relationships and temporarily oriented relationships.

It is fitting to remind that marketers have long recognized that exchanges can involve social and psychological resources as well as economic ones (Bagozzi, 1979). These extra-economic resources include status, esteem, understanding, affect, information and time (Foa and Foa, 1976). This line of thought looks promising for marketers trying to build relationships in fast-moving consumer markets (Bagozzi, 1995). Bhattacharya and Bolton (2000) predict that, according to standard buyer behavior theory, consumer's propensity to engage in relational behaviors will be higher in categories characterized by higher perceived switching costs, higher levels of perceived risk, and greater heterogeneity among alternatives. This seems to imply that packaged goods categories do not seem primary candidates for the relational approach.

### 2.5.3 - Typology of relationship marketing programs

Relationship marketing allows a large variety of program types. We will next mention some of the most common, keeping in mind that they can be combined to create new alternatives.

- a) **Incentives.** To many people, relationship marketing is synonymous to point collection programs. The most obvious examples include frequent flyer airlines' programs and petrol companies' programs. They are more common in those situations where products are not differentiated and brands can be easily substituted. They are more effective when the perceived value of the incentives is higher, something easy for airlines that always have vacant seats to offer in certain days of the week and in certain months of the year. Incentive programs that reward the consumption of high quantities of the product are easy to understand for consumers. They are also self-selective, since heavy users have a built-in incentive to participate.
- b) **Clubs.** Customer clubs – of which Harley Davidson's Harley Owners Group (HOG) is a prime example – can be successful whenever natural psychological links tend to bring customers together owing to some affinity factors that result from the need satisfied by the product or by a common lifestyle. These community feelings can be reinforced by exclusive offers to members, such as the admission to restricted events, the acquisition of products of reserved access, or the provision of useful information or advice.

- c) **Preferred customers.** Certain programs are designed to reward and retain the best customers, offering them some kind of advantage. The programs created in Portugal by both Unilever and Nestlé in recent years fit into this category. Their purpose is to cater to special needs or expectations of the Most Valuable or Most Growable Customers. Whenever the core product or service is not very differentiated, the relationship component becomes indispensable to improve the value offer, thereby inducing the provision of recognition and useful additional services.
- d) **Continuity.** Book clubs and record clubs were pioneer examples of the evolution from occasional sales to ongoing transactions, transforming the product into a service of advice and home distribution for clients willing to commit themselves to certain minimum levels of buying. Subscriptions in general, whether of newspaper and magazines, or of cultural and sports events, are also continuity programs. So-called subscription goods include, for instance, telecoms, insurance products and credit cards. Nestlé recently turned coffee into a subscription good by creating Nespresso. Of course, for this relationship model to be viable, there must be an inherent regularity in the consumption of the product or service.
- e) **Package of benefits.** The offering of additional benefits can be used to stimulate the rebuy in order to induce the creation of a habit. An example of this technique can be found in the Mil Folhas books collection of Público, sold at a low price for those who also buy the newspaper. These offerings can be alluring if they increase the utility of the basic product and if they facilitate the access to products that otherwise would probably not be bought.
- f) **Discount card.** The discount card is often used as a loyalty device by all kinds of retailers, who offer it to customers that fulfill certain conditions, usually related to the amount bought or to the buying frequency. They are sometimes also used as credit cards or as way to entitle their owners to special advantages, such as access to special sales or free parking. The customer (or membership) card intends to make him less price-sensitive in all those market situations in which low differentiation and strong competition are prevalent. Delta successfully

applied this technique to improve its relationships with owners of coffee shops, restaurants and hotels.

- g) **Informal communities.** The coming of age of the Internet and SMS messaging helped promote the new phenomenon of tribal marketing. Unlike the clubs previously mentioned, a formal affiliation is not required in this case. Customers organize themselves in groups in order to have access to certain advantages or to participate in competitions organized by the brands during more or less long periods. Informal affiliation is especially attractive for consumers in low involvement categories. Among the brands that have resorted successfully to these techniques are Nokia, Coca-Cola and Sagres.

## **2.6 - CRITICISM OF RELATIONSHIP MARKETING**

During the last few years, relationship marketing programs have been criticized on various accounts, following allegedly disappointing experiences by some companies. According to some sources, at least half of the running programs have been complete failures, generating understandable doubts regarding the soundness of the marketing ideas that encouraged them (*The Economist*, 2001). Of course, the failure of certain programs, regardless of their number, cannot be taken as proof that relationship marketing is a bad idea, because the problem might have its roots in poor implementation. In this respect, the detailed discussion of selected case studies can contribute significantly to improve our understanding of the sound principles of relationship marketing and to identify the mistakes that are most likely to jeopardize them.

### **2.6.1 – Dubious benefits of relationship programs**

As previously indicated, Reichheld (1996) helped promote the idea that loyalty reduces the cost of serving customers, makes them less price sensitive, increases the average customer revenue and induces brand recommendation to other customers. Dowling and Uncles (1997), however, question these allegations: “The contention that loyal customers are always more profitable is a gross oversimplification. Each company needs to use its customer data to determine the truth of these assumptions.”

Reinartz and Kumar (2000, 2002) undertook a large scale investigation in order to verify the claims of Reichheld linking customer retention to profitability. Their verdict was

that the correlation is usually weak or non-existent, as they discovered little or no evidence that customers who purchase steadily from a company over time are necessarily cheaper to serve, less price sensitive, or particularly effective at bringing new customers.

### **2.6.2 – Customers’ unwillingness to get involved**

Are customers willing to enter into a closer relationship with companies or brands? Customers apparently have more important things to do than losing their precious time with matters of small relevance to their lives. The growing lack of discretionary time that everybody complains about has in fact been attracting people toward so-called convenience goods, that is, toward products and services more convenient to buy and to use.

According to some authors, it is absolutely clear that consumers are not motivated to develop relationships with the vast majority of the products that they purchase, either for lack of time, interest or emotional energy (Dowling, 2002). A relationship demands mutual trust, commitment, sharing of information, dialogue and partnership, all of them things that we reserve for the more important areas of our personal lives, not for repeat-purchase of trivial goods. Taking into consideration all these arguments, Dowling and Uncles (1997) sustain as appropriate a basic distinction between high- and low-involvement situations:

“We suggest that loyalty programs will be more effective for high- than low-involvement products and services, primarily because low-involvement products are often bought by consumers out of habit, while, for high-involvement products, consumers might form a relationship with the supplier (the difference between the habitual purchase of Nescafé, say, and joining ClubMed).”

Dowling (2002) further developed this idea:

“In markets where psychological and social value dominate function (such as luxury goods, cosmetics, and lifestyle brands), there may be a significant ‘brand component’ that drives choice and commitment. Some consumers may attribute a personality to the brand and want a relationship with it. For example, if you are Harley-Davidson selling big motor cruisers and the feeling of being free and somewhat rebellious, the forming a relationship with your customers makes sense. Here, much of what is being bought is social and psychological in nature. The motorbike is really a ‘ticket to entry’ to one of the various Harley-Davidson subcultures. The company creates much of the ‘product’ by fostering the core values of personal freedom, machismo, patriotism and American heritage.”

### 2.6.3 – Role and cost of rewards

An often hotly debated point of loyalty programs is the effectiveness and efficiency of the rewards offered by relationship schemes in order to induce repeat-purchase. A good deal of these programs offer rewards whose connection to the value-offer of the brand is tenuous or non-existent. In these circumstances, it seems reasonable to state that, when some kind of loyalty is created, it will be directed to the program, not the brand; as a consequence, that so-called “loyalty” will evaporate as soon as the program ends. Another problem emerges in connection with the value of the rewards, which has to be sufficiently high to motivate the customers, but low enough to guarantee that the program’s costs do not escalate. This is a difficult and often not very well solved problem. The recommended rewards, both for economical and brand consistence reasons, are those that reinforce the long-term value proposition of the product itself and its basic positioning (Dowling and Uncles, 1997, p. 76).

O’Brien e Jones (1995) believe that the value of a program is not restricted to the money value of its rewards. They therefore suggest five different elements that combine to determine a program’s value:

- a) The cash value of the redemption rewards (e.g., the ratio of the cost of an airline ticket to the dollar purchases necessary to accumulate frequent-flyer points)
- b) The range of choice of these rewards (e.g., choice of flight destinations)
- c) The aspirational value of the rewards (e.g., exotic free travel is more desirable than a cash-back offer)
- d) The perceived likelihood of achieving the rewards (e.g., how many points are required to qualify for a flight)
- e) The scheme’s ease of use

To this, still according to Dowling and Uncles, should be added the psychological benefits of belonging to the program and accumulating points, specially the benefit of recognition whenever a customer has to fulfill certain conditions in order to join the program.

#### **2.6.4 – Unrealistic assumptions**

But not all of those criticisms concentrate in matters of detail. Some of them go much deeper, questioning the very foundations of relationship marketing. Some authors state unambiguously: “most [loyalty] schemes do not fundamentally alter market structure” (Dowling & Uncles 1997). Therefore, while admitting that “they might help to protect incumbents and might be regarded as a legitimate part of the marketer’s armory” (Ibid.), they hasten to add that this only happens “at the cost of increasing marketing expenditures” (Ibid.). In these conditions, it is sensible to ask if it would not be possible to reach the same results by other means: “does a customer loyalty program offer a better return than an alternative such as a price cut, increased advertising, or increasing distribution coverage?” (Ibid.)

#### **2.7 - CONCLUSION**

Relationship marketing is viewed by its proponents as a new marketing paradigm designed to supersede a purely transactional approach. Marketing practices evolved continuously during the 20<sup>th</sup> century in the direction of increasingly segmented and targeted strategies. Mass marketing was abandoned because the new economic and social conditions determined that it was no longer an appropriate way to meet in an economic way the needs and wishes of the consumers. Modern societies became increasingly wealthy and complex, but also more fragmented. Marketers reacted to the segmentation of markets by offering customers a wider range of products and services, but the costs of traditional mass marketing techniques escalated as an increasing number of brands and products competed for a decreasing number of customers in each given segment. This created a renewed interest in targeted marketing approaches, especially as the digital technological revolution promised to make them much more cost-effective than in the past.

The literature provides us with a variety of definitions of relationship marketing. The most enlightening ones focus on interactions with customers as the distinguishing feature around which this new way of doing marketing revolves. According to this very broad definition, expressions like relationship marketing, CRM, one-to-one marketing, database marketing or direct marketing refer to the same basic reality viewed from different angles. Be that as it may, the main motivation that led many companies to adhere to the relationship marketing paradigm was the belief that customer retention was not being given



sufficient attention, specially considering its contribution to overall profitability. Hence the new emphasis on loyalty efforts intends to make marketing more efficient.

At the core of relationship marketing management are concepts like customer lifetime value, differentiation of the customer base and the customer relationship cycle. The combination of these tools leads to an altogether different way of managing the marketing function, whose center moves from the management of product portfolios to the management of customer portfolios. Since applications of relationship marketing have grown continuously during the last twenty-five years, we now benefit from a large number of business cases that can be analyzed and investigated, and from which much can be learned. In consumer markets however, and specially in fast-moving consumer goods, the available experience is still scarce. A number of authors have even questioned the adequacy of relationship concepts in the case of low involvement goods, since most consumers might not want to waste time with what they perceive as trifle matters. On the other hand, some of the basic ideas behind relationship marketing have been criticized for a number of reasons, which include skepticism regarding its alleged benefits, unwillingness of customers to get involved with relationship programs, the high cost of rewarding loyalty and the unrealism of some basic assumptions. This last criticism is specially disturbing, because it questions the very possibility of significantly and economically improving customer loyalty. This leads us to conclude that in order to decide whether relationship marketing programs really work (and how they do) we should begin by understanding what the theory of buyer behavior has to teach us on this account.



# Chapter 3

## Two Conflicting Marketing Theories

### 3.1 – INTRODUCTION

The previous chapter introduced us to the main issues of relationship marketing. In its conclusion, some questions were raised regarding the feasibility of loyalty programs, since some buyer behavior theories predict that loyalty cannot be manipulated at will by marketing managers.

In the present chapter, we will compare two competing market theories derived from different and incompatible models of buyer behavior: the Howard-Sheth model and the NBD-Dirichlet model. We will start by describing the evolution of modern marketing practices since the Industrial Revolution in order to identify its main distinctive features. Next, we will see how the need for a comprehensive marketing theory gradually emerged, and how the model of buyer behavior presented by Howard and Sheth provided the basic foundation of that theory. The cognitive theory developed by these authors is presented in detail and its implications for practitioners are outlined. Special attention is given to the empirical problems of the theory.

An alternative theory of repeat-buyer, developed by Ehrenberg, is then introduced. Unlike the previous one, its focus is strictly empirical. Stochastic models are applied to consumer panel data to identify universal buying patterns and predict behavior. The rich body of empirical findings generated by this approach is presented in a systematic way, and, to conclude the chapter, its methodology, predictions and recommendations are confronted with the ones of the more traditional Howard-Sheth model.

## **3.2 – MARKETING AS PRACTICE**

### **3.2.1 – The origins**

The word “marketing” is used indistinctly to designate both a practice and a theory. Very broadly understood, marketing as a practice has been around for a long time; as a theory, however, it is barely six decades old. Of course, commercial or marketing practices exist since markets started emerging thousands of years ago. But it is undeniable that those practices have evolved considerably as history progressed, in line with the transformations that took place not only in the techniques of production, but also in the forms of social and economical organization, following the gradual expansion of the market activities until they reached the present state where they include the near totality of economic life in contemporary societies (Polanyi, 1944; Polanyi and Arensberg, 1957; Braudel, 1979).

To make things clearer, we will use the expression “modern marketing” when referring to the commercialization system that, starting with the British Industrial Revolution of the 18<sup>th</sup> century, reached its full maturity in the second half of the 19<sup>th</sup> century in the US and thereafter was imitated all over the world. In brief, the mechanization that was a central feature of the Industrial Revolution stimulated mass production and the exploration of scale economies that it made possible. The production methods typical of the Industrial Revolution were then applied to a growing number of industries, starting in the textile industry and moving on to iron, cutlery, ceramics and chemicals (Landes, 1969).

### **3.2.2 – The massification of distribution**

Before the Industrial Revolution, markets were as a rule geographically confined to a small region around the production center, and products were transacted according to the local conditions of offer and demand<sup>18</sup>. As mass production became the rule, however, local markets were gradually diluted and integrated in larger national markets, and these, in turn, in even larger international markets. The extension of the geographic scope of the market system originated a growing estrangement between producers and consumers.

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<sup>18</sup> There were of course important exceptions to this general rule, since long distance commerce is one of the oldest forms of market exchange (Polanyi and Arensberg, 1957).

Soon, the individual consumer became an entirely anonymous entity, a mere abstraction lost in the middle of another abstraction of colossal dimensions – the market. Slowly but surely, the paradigm of the large-scale mass industry came also to dominate the large-scale distribution, as a consequence of the new possibilities opened by the development of modern transportation (railways, sea and river navigation, and roads) and financial systems.

“Around 1840”, Alfred Chandler writes, “the traditional commercial firm, following century old practices, was still trading and distributing goods in the United States. In the space of a generation it was substituted by modern forms of commercial companies in the selling of agricultural products and consumer goods. (...) The full line and full service wholesaler gradually took in his hands the sale of the majority of standardized consumer goods. Thereafter, during the 1870s and 1880s, the mass retail distributor – the large warehouse, the retail chain or the mail order company – started substituting the wholesaler.” (Chandler, 1988, p. 233)

Chandler stressed that this transformation brought with it an extraordinary opportunity for the manufacturers:

“The integration of mass production with mass distribution gave the industrialists the possibility of reducing their costs and increasing their productivity thanks to a more effective management of production and distribution, made possible by the coordination of the flows of products between these two stages of their activity.” (Chandler, 1988, p. 233)

### **3.2.3 – The diffusion of the new commercial practices**

At the same time, however, a completely new problem for the manufacturers emerged: how would they guarantee the preference and loyalty of their customers, now that they had lost any kind of direct contact with them? And, as a corollary of this problem, a second one that came with it: how could they avoid the transfer of customer loyalty from the manufacturers to the distributors, and especially to the retailers, if they were the ones who in fact knew their tastes and preferences?

Chandler (1988, pp. 323-5) showed how the tobacco industry played a pioneering role in the adoption of commercial practices suited to this new situation. Thus, James Buchanan Duke installed in 1884 two Bonsack machines, each one of them with the capacity to produce 120,000 cigarettes a day, more than enough to saturate the American market. In order to drain their whole production, they promptly intensified their national advertising effort, while at the same time their sales force distributed large quantities of prospects exalting the products. They created a national network of sales offices under the

direction of company executives in all the largest American cities. These persons had full responsibility to supervise the commercialization and distribution of the product and the control of local advertising. Their sale representatives visited regularly the middlemen serving the tobacconists, the grocers and the drugstores, as well as the largest retailers, to get their orders. Later, in 1890, Duke merged with four competitors to create the American Tobacco Company.

These innovations came to the attention of other large industrial companies confronting similar problems. The factory of oatmeal built in 1882 by Henry P. Crowell was the first to join under the same roof the operations of selection, cleaning, peeling, grinding, packaging and expedition to all markets in the United States. Unlike his competitor Schumacher, who insisted on selling the product in bulk to wholesalers, Crowell decided to package it and advertise his Quaker Oats brand nationally, positioning it as a breakfast cereal (Chandler, 1988, pp. 326-7). H. J. Heinz and Campbell Soup Company also adopted the new mass production techniques of the automatic tin packaging line, set up national sales organizations and started advertising to promote their brands (Chandler, 1988, p. 328).

#### **3.2.4 - The Procter & Gamble story**

Another company, Procter & Gamble, later to epitomize marketing itself, embraced the new commercialization techniques at approximately the same time in response to similar challenges. Because of its central role in the evolution of marketing for a period of more than a century, their case will be described in more detail<sup>19</sup>. The company was founded in August 1837, when William Procter, manufacturer of candles, and James Gamble, manufacturer of soap, decided to associate themselves to benefit from economies of scale in the acquisition of animal fat, the main raw material in both industries. Until the mid-19<sup>th</sup> century, the production of soap was a mere sub product of the meat industry, and the companies that transformed animal fat confined themselves to their local markets. Procter & Gamble, however, soon began its expansion to other cities, advertising occasionally in local newspapers their candles and soaps under the trademark of Procter, Gamble & Company, and offered its consumers “Palm Soap, n° 1”, “Resin Soap, n° 2” and

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<sup>19</sup> The source of this section is Advertising Age (1988).

“Pure Tallow Candles”. Around 1850, the packages of Star candles were already “branded” with an “X”, later changed into a star.

In 1878, Procter & Gamble managed to produce for the first time a white soap with a satisfactory degree of purity. An occasional mistake during the production process originated a variety of soap that in fact floated when plunged into water, a feature much appreciated by consumers who reacted promptly and enthusiastically to it. In the beginning the product was plainly called “White Soap P&G”, but Harley Thomas Procter, inspired by a reading of the 45<sup>th</sup> Psalm of the Bible, decided to rename it “Ivory”. Thus was born the first true manufacturer’s brand – and also the most enduring one, as it survived to our days.

Thanks to the modern equipment used by the company, soon 200,000 soaps were being produced per day. In order to drain such a large volume of production, the company started advertising nationally in 1882, and created a network of sales offices all over the country. Ivory’s first advertisement was published in *The Independent*, a religious weekly paper, and said: “The Ivory is a Laundry Soap, with all the fine qualities of a choice Toilet Soap, and it is 99 44/100 per cent pure.” The white color, the definition of a quantitative standard of purity and the allegation that Ivory floated were the three pillars of the brand’s positioning, jointly concurring to its success among the consumers. As soon as the first national magazines appeared – *Good Housekeeping*, *Harper’s Monthly e Ladies’ Home Journal* – Procter & Gamble immediately chose them as a major vehicle to communicate directly with housewives.

Many years later, Procter & Gamble established one of the first departments of market research in business firms under the direction of Paul Smelser, PhD in Economics at the Johns Hopkins University. Although Smelser had been hired with the intention of merely studying the fluctuations of prices in the markets, he soon launched the basis for the analysis of consumer’s buying behavior and transformed the department into one of the key elements of the successful marketing methods that made Procter & Gamble famous. Up to this day, the company is known for the emphasis it puts on the thorough and quantitative investigation of the factors that can facilitate or inhibit the success of its brands in the marketplace.

In 1931, another decisive date in the history of Procter & Gamble, Neil McElroy proposed in a celebrated memorandum the adoption of a new form of organization

revolving around the product manager, someone whose responsibility consisted in the coordination of all the tasks pertaining to the marketing of a given brand. This idea was so successful that it was rapidly embraced by every manufacturer of fast-moving consumer goods, and was also later adopted by companies operating in business-to-business and service markets.

### **3.2.5 – Distinctive features of modern marketing**

The Procter & Gamble case-study illustrates vividly how modern marketing came into existence, what it is and how it works. Three main elements characterize this commercialization system when compared with the ones that it superseded:

1. **The idea of branding products**, thus identifying the origin of the product and signaling value to the consumers. Before the invention of brands, consumers had no way of knowing who had produced the goods they bought, something that inhibited the manifestation of a preference through repeated buying. All goods were in practice undifferentiated commodities, hindering the production of quality goods. The responsibility for the selection of the merchandise on sale was entirely in the hands of the retailer, which meant that the consumer chose between retailers, not between producers, thereby inducing loyalty toward the former, not toward the latter. The producers would have to brand their goods with some identifying sign if they wished to change this situation; but, since many of those goods did not lend themselves easily to carry physical marks (e.g., oat meals or beer), the support of this identification would have to be the individual package. The packaging techniques, whether of wood, paper, glass or metal materials, underwent a period of fast evolution during the second half of the 19<sup>th</sup> century; as a result of this transformation, the environment at the point of sale was completely changed, with packaged goods becoming the rule rather than the exception. These packages could now be taken directly by the consumers from the shelves, with no need for help from employees previously occupied with weighing, cutting or measuring the quantities demanded by the customers. The way was open to the emergence of the first supermarkets, a system invented in the 1930s in the US that inaugurated a direct relation between the buyer and the brand.



2. **Analysis and evaluation of markets** using the principles of statistic inference to select representative samples to survey the total universe of consumers. The application of these techniques was justified by the practical impossibility of contacting individually all the customers in mass markets, not only because they lived in very far away places, but also because they were anonymous citizens that had no need whatsoever of connecting directly with the manufacturer of the goods they bought regularly. In the prevailing conditions of those times, mass marketing made manufacturers less aware of the changes taking place in the market, a dangerous phenomenon given that wholesalers and retailers tended to monopolize the knowledge of consumers' needs and wishes. In the beginning of the 20<sup>th</sup> century, Karl Pearson (1857-1936) and Ronald Fisher (1890-1962) established the foundations of statistical inference, thus making possible the collection of important information on the behavior and preferences of a large number of individuals by inquiring a small sample of them. These new techniques were soon adopted by companies and advertising agencies, in the US and in Europe, starting from the 1920s. A satisfactory solution had been found to the problem of the study of markets and consumers in the era of mass marketing. Market research has been since those times one the basic pillars of modern marketing.
  
3. **Direct communication with customers** overlapping the distribution channel with the purpose of promoting the brand among them. This maneuver is the very essence of modern advertising. For millenniums, marketing communication had been basically personal. Now, with the break of the direct relation between producers and consumers, this too was changed. Advertising, an impersonal form of communication that uses mass media to convey a message to consumers, grew with the expansion of printed media starting with the invention of Gutenberg, but only in the US, at the turn of the century, did it become a vital phenomenon to large-scale commercialization in connection with the explosion of the circulation of newspapers.

To conclude, the system of modern marketing was solidly implanted in the US by the turn of the 20<sup>th</sup> century, and some of its elements were being transferred more or less faster to Europe. Mass marketing offered a solution to the demands of mass production, a

system based on the exploration of economies of scale, that is, on the reduction of unit costs as a by-product of the expansion of production, so that more and more products were at the reach of more and more people. Provided that the articulation of the sphere of production with the sphere of distribution was properly managed, the system would allow enormous productivity gains and, as a consequence, a very significant improvement of the life conditions of the population. This system compressed the margins of production and commercialization, but a proper return of the invested capital was guaranteed by the accelerated rotation of the goods at all stages of the economic process.

However, as previously stated, this commercial revolution left the producers at the mercy of the distributors, inasmuch as they lost contact with the markets and the consumers. Modern marketing developed as a reaction to both the opportunities and the challenges of this new situation. One after the other, the main producers of fast-moving consumer goods adopted the new system, branding their packaged goods, researching their markets with the help of sample surveys, advertising heavily their main brands and establishing marketing organizations trained in the new and more sophisticated commercial techniques.

### **3.3 – MARKETING AS THEORY**

#### **3.3.1 – Marketing as a specialized discipline**

Although marketing progressed very fast as a business practice, the theorization of its foundations was much slower. Starting with David Ricardo (1772-1823), economics grew increasingly abstract, disregarding the analysis of empirical situations of the type we can find in Adam Smith (1723-1790) with his famous illustration of the division of work based on the example of pin manufacturing. Alfred Marshall (1842-1924) was perhaps the last of the great classical economists who took an interest in the specific workings of industries and markets.

It is therefore not surprising that commercial innovations were initially neglected by economic teaching, if not in its consequences regarding macroeconomic efficiency, at least regarding its implications at the level of business organization and management. More specifically, it was not deemed necessary to develop a specialized body of knowledge in this area, an attitude that goes a long way to explain why no marketing theory emerged in the immediate aftermath of the major changes taking place in the commercial sphere (Jones

and Shaw, 2002).

In contrast with the Anglo-American tradition, however, the German institutionalists of the Historic School usually paid attention to the concrete forms and processes of economic organization, and their pedagogical methods (including the analysis and discussion of case studies) strongly influenced the first attempts to teach marketing in the USA (Jones and Monieson, 1990). In Wisconsin University and in Harvard, under the orientation of economists of the American institutionalist school, students used historical studies, statistics and descriptions of marketing problems, with a special emphasis on the efficiency of marketing processes and on the understanding of the basic marketing functions. These pioneering initiatives led to the accumulation of a remarkable body of information on marketing facts and experiences, but not to the building of a comprehensive theory based on them.

According to Bartels (1988), the word “marketing” was used for the first time around 1910 to designate a discipline with a distinctive object of study.<sup>20</sup> He also indicates the *Report of the Industrial Commission on the Distribution of Farm Products* of 1901 as the first book published on general marketing problems<sup>21</sup>. Until 1916, the marketing course of the Ohio State University had several designations, among them “Mercantile Institutions”. Given the lack of study materials, teaching was often based on information collected by students themselves from local businessmen. Only much later were the first textbooks published : *The Elements of Marketing*, by Paul Cherington, in 1920; *Marketing: Methods and Policies*, by Paul Converse, in 1921; and *Principles of Marketing*, by Fred Clark, in 1922, with four editions, the last one in 1962. All of them adopted a markedly descriptive perspective, centered on the functioning of the institutions participating in the distribution process and in the development of the relevant marketing functions (buying and selling, transportation, warehousing, advertising, research, credit, product standardization). The *American Journal of*

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<sup>20</sup> However, some recent investigations suggest that the teaching of marketing might have started in Germany at a previous date (Fullerton, 1988; Jones and Monieson, 1990).

<sup>21</sup> It should be noted, however, that at this time there was already an abundant literature on advertising: 10 titles were published previously to 1895, 4 more between 1895 and 1900, and an astonishing number of 75 volumes between 1900 and 1910 (Jones and Shaw, 2002).

*Marketing* (the direct predecessor of the *Journal of Marketing*) started publication in 1934<sup>22</sup>. All this confirms the progressive coming of age of marketing as an academic discipline<sup>23</sup>.

During the first half of the 20<sup>th</sup> century, the teaching of marketing was influenced by the new ideas developed in the context of the emergence of management itself as a field of academic study, with the corresponding emphasis on the integrated planning and control of the firm as a whole, to which marketing was required to give its specific contribution. Although ignored for a long time, it is now clear that advertising agencies played a central role not only in the diffusion but also in the conceptualization of the ideas of the new marketing in the first decades of the century (Schultze, 1982).

Lasker (1990), a pioneer of the advertising industry, offers a first-hand account of the creation of the full-service advertising agency in the first years of the 20<sup>th</sup> century and shows that, at the time, “full-service” really meant handling all the aspects of the marketing function, including market research, distribution, advertising, sales promotion, and sometimes even product development, on the behalf of the advertiser. Similarly, Hopkins (1990), a partner of Lasker, arguably outlined for the first time a synthetic and coherent view of the marketing concept in his two ground-breaking books published in the 1920s that inspired generations of advertising professionals (Ogilvy, 1982).

### **3.3.2 – The contribution of Wroe Alderson**

The main turning point towards a more consistent conceptualization of marketing only took place, however, in 1950, with the publication, under the orientation of Wroe Alderson, of a volume significantly titled *Theory in Marketing*, a collection of essays discussing modern commercial practices from a variety of perspectives, including, among

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<sup>22</sup> Between 1936 and 1952, approximately half of the published articles were written by marketing executives, that is, by marketing practitioners, not by teachers or researchers. The dominant theme was marketing research, followed by the organization of wholesale trade (Jones and Shaw, 2002).

<sup>23</sup> The *National Association of Teachers of Advertising*, founded in 1915, changed its name in 1926 to *National Association of Teachers of Marketing and Advertising*, and, even later, in 1935, to *National Association of Teachers of Marketing* (Jones and Shaw, 2002). This seems to confirm: a) the premature coming of age of advertising as a profession and a discipline when compared with marketing in general; b) the relatively late identification of advertising as one of the marketing functions.

others, the economic, psychological, demographic and organizational ones. This new line of thought was combined by Alderson himself in his next work of 1957, *Marketing Behavior and Executive Action*, with the previously mentioned marketing management orientation in order to produce the first and clearly articulated attempt to create a modern marketing theory.

### ***A new research program***

In a classical article published in that very same year, Alderson (1958) summarized his research program. Although starting with the admission of the relevance of economics to marketing studies, he immediately introduced an essential distinction between both areas: economics assumes the homogeneity of consumers, whereas “the aim of marketing is to cope with the heterogeneity of both needs and resources” (Alderson, 1958, p. 23), and this is the basic fact from which follows the need of a marketing theory distinct from economics. Marketing regards the consumer as an active subject who enters the market as a problem-solver who, consequently, makes a choice between alternative offers (Alderson, 1958, p. 24). Alderson establishes a parallel between this situation and the one analyzed by economists such as Schumpeter, Chamberlain and J. M Clark, who emphasized innovative competition, product differentiation and differential advantage. And he goes on to state:

“The basic assumption is that every firm occupies a position which is in some respects unique, being differentiated from all others by characteristics of its products, its services, its geographic location or its specific combination of these features. The survival of a firm requires that for some group of buyers it should enjoy a differential advantage over all other suppliers. The sales of any active marketing organization come from a core market made up of buyers with a preference for this source and a fringe market which finds the source acceptable, at least for occasional purchases.” (Alderson, 1958, p. 24)

### ***Marketing and monopolistic competition***

To Alderson, the relevant competitive paradigm for a theory of marketing was not perfect competition but monopolistic competition, as can be deduced not only from the economists he invokes, but also from the competitive factors he deems more important: innovation, differentiation and positioning. This admission must of course have profound consequences on the way companies manage their marketing activities:

“Competition for differential advantage implies goals of survival and growth for the marketing

organization. The firm is perennially seeking a favorable place to stand and not merely immediate profits from its operations. Differential advantage is subject to change and neutralization by competitors. In dynamic markets differential advantage can only be preserved through continuous innovation. (...) The existence of the core position helps to explain the paradox of survival in the face of the destructive onslaughts of innovative competition.” (Alderson, 1958, p. 25)

Furthermore, Alderson recognizes that the working of markets brings with it considerable transaction costs as a consequence of the efforts undertaken by both producers and consumers in order to discover the most beneficial solutions (Alderson, 1958, p. 25). Under these circumstances, the reduction of transaction costs in itself can become an objective of marketing, since it is a valid way of making the value proposition more attractive to customers. Alderson makes a distinction between strategic and routine transactions, according to the level of negotiation involved; but he promptly adds that the fully negotiated or strategic transaction is the prototype of all exchange transactions, of which the routine transaction must be considered a special case. The rationale for this option is as follows: when a transaction seems to be routine, this only happens because the rules that apply to it have already been previously established in detail; as a consequence, routine is really an illusion, since it necessarily follows the strategic phase. As he also writes: “Negotiation is implicit in all routine transactions” (Alderson, 1958, p. 25).

Among all the factors involved in the negotiated exchange, price plays a central role, not because it is the most important one, but because it is “the final balancing and integrating factor which permits the deal to be made” (Alderson, 1958, p. 25). In the heterogeneous markets that matter to the marketing manager, “price plays an important role in matching a segment of supply with the appropriate segment of demand” (Alderson, 1958, p. 26). All these observations are readily framed into economics. At most, they recommend that mainstream microeconomics should pay more attention to some features that it tends to underestimate or ignore.

### ***The role of sociology and psychology***

Alderson believed however that a proper theory of marketing should go further, if necessary overcoming the barriers that economics traditionally imposed itself and treading fearlessly into the domains of sociology and psychology. Even if they frequently mention the consumers’ “tastes and preferences”, economists are not curious to understand: a) how

they are formed and evolve; b) how their change can alter the pattern of demand in a given market.

Besides, Alderson writes, diverging clearly from mainstream microeconomics:

“Market behavior is primarily group behavior. Individual action in the market is most characteristically action on behalf of some group in which the individual holds membership.”  
(Alderson, 1958, p. 26)

Hence the need to resort to sociology to understand group behavior and particularly the behavior of organized systems, among which the family deserves a special attention (Alderson, 1958, pp. 30-31). To conclude, Alderson discusses the functional and non-functional dimensions of family buying and suggests that the thorough study of consumer behavior is an essential condition for more effective marketing decisions (Alderson, 1958, p. 31).

### **3.3.3 – The marketing concept and marketing management**

The thesis of Wroe Anderson already contained, in a more or less explicit way, all the core concepts of the marketing canon. At the same time, the word “marketing” is given two very different senses: on one side, marketing as a management function of the firm; on the other side, marketing as a management philosophy.

#### ***Marketing as a business function***

The first one – marketing as a distinct function of the firm – relates to tactical or operational management, and its first manifestation was the marketing-mix model (later popularized as the 4 Ps model) taught by Neil Borden starting from the late 40s (Borden, 1964). Marketing management is understood as an optimization problem whose dependent variable (sales, market share, gross margin or ROI) is a function of product, pricing, promotion (advertising, sales effort, sales promotions, etc.) and distribution (Webster, 2002). It is assumed that the form of this function is an elongated S, where a first phase of growing returns is followed by another one of decreasing returns as the effort allocated to each individual variable of the marketing-mix is gradually increased. In theory, the general microeconomic principle applies according to which the optimal mix occurs when, for all factors considered, marginal cost equals marginal revenue.

### *Marketing as management philosophy*

Turning to the second meaning – marketing as a management philosophy – its aims are necessarily more ambitious. The marketing concept seems to have been advanced clearly for the first time by Peter Drucker:

“Because it is its purpose to create a customer, any business has two – and only these two – basic functions: marketing and innovation. They are the entrepreneurial functions.” (Drucker, 1955, p. 53)

And also:

“Actually marketing is so basic that it is not just enough to have a strong sales department and to entrust marketing to it. Marketing is not only much broader than selling, it is not a specialized activity at all. It encompasses the entire business. It is the whole business seen from the point of view of its final result, that is, from the customer’s point of view. Concern and responsibility for marketing must therefore permeate all areas of the enterprise.” (Drucker, 1955, p. 54)

Drucker humbly denied the paternity of the idea, attributing it instead to General Electric, whose Yearly Report of 1952 proposed a very similar formulation. Robert Keith, then vice-president of Pillsbury Company, found this marketing concept idea so appealing that, based on the experience of his own company, he suggested a chronology according to which the production orientation era, lasting until the 1930s, was then superseded by the sales era, only to be overcome by the marketing oriented era in the beginning of the 1960s (Keith, 1960). The explanation of this major revolution should be found in the transition from a historical period when, due to the scarcity of resources and the poverty of the population, everything that could be produced would necessarily find a customer, to a new one whose distinctive characteristic was the excessive capacity of production. In these new prevailing conditions, firms would have to dedicate ever-larger efforts to stimulate the demand directed to its own products. This naive version of the history of marketing is totally unfounded, both because this golden age of commercial prosperity never existed and because, the commercial practices typical of modern marketing had emerged much earlier than Keith imagined (Hollander, 1986; Chandler, 1988; Fullerton, 1988).



### *The acceptance of the marketing concept*

The fact remains however that the marketing concept proposed by Drucker (1955), Alderson (1958), McKitterick (1957) and Levitt (1962) was extremely well accepted in the business world. It would seem logical to ask: how do we know that it works? At the time very little was in fact known about its true virtues, leaving aside some circumstantial and anecdotal evidence. Today, we benefit from a substantial body of research tending to confirm that firms focused on their environment (as opposed to firms focused on their inner workings and procedures) tend to perform better (Webster, 2002). But it should be noted that the orientation toward the external environment demands not only attention to its market, but also to its competitors, and concern over the profitability of its decisions.

## **3.4 – THE COGNITIVE THEORY OF BUYER BEHAVIOR**

### **3.4.1 – The first models of buyer behavior**

The success of the marketing concept prompted an awareness of its strategic relevance and also a growing interest in themes such as the segmentation of the markets and the positioning of the offer<sup>24</sup>. In spite of all the advances registered in these areas, the lack was still felt for a crucial element to complete a marketing theory really worthy of this name: a theory of the buying behavior of customers and businesses. The fact is that the marketing concept is in itself an incomplete idea (Webster, 2002): It does not specify in which customers should a company concentrate its efforts, and therefore requires a theory of segmentation. It does not tell us how should a company satisfy the needs of its customers, and therefore demands a theory of offer positioning. Finally, it does not say how customers are expected to react to the marketing stimulus addressed to them, and therefore lacks a theory of buyer behavior. This was a serious problem, since marketing managers and researchers cannot help making assumptions about how consumers make their choices and about how these choices can be influenced by marketing strategies and tactics.

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<sup>24</sup> Although the word “positioning” was only coined much later by Ries and Trout (1972), as we have seen Alderson already had a very clear notion of the relevance of the concept for strategic marketing.

When a marketer changes the price of his product, increases his advertising budget or decides to undertake a brand extension, he does so because he believes that the consumers will respond favorably to these marketing stimuli, because the success of such initiatives depends on the extra sales generated by them. This question can be answered by conducting experiments that help us identify simultaneously relations of cause and effect and the degree of these effects, that is, the effectiveness and the efficiency of each individual option. However, since marketing practitioners cannot be expected to conduct experiments all the time, they must rely on some previous body of commonly accepted marketing principles to guide their actions.

The overcoming of this problem started only in the mid 60s. After reviewing the findings and theories relevant to the interpretation of consumer behavior, Nicosia (1966) decided to change the focus of study from the act of buying itself to the decision processes that take place both before and after this act. According to him, “the act of purchasing is only one component of a complex, ongoing process of decision making – a process of many interactions among many variables over time” (Nicosia, 1966). As we will see, this insistence on the importance of the decision process turned out to be one of the defining characteristics of the mainstream marketing theory. Two major consequences flowed from here (Lunn, 1974):

1. A clear tendency to view buying as rational behavior oriented to some well-determined purpose, whose outcome is an optimal or nearly optimal choice;
2. The notion that the general process of decision can be represented as a sequential reduction of the options at the disposal of the consumer, starting with very vague propensities and ending, by a process of search and evaluation, with the choice of a specific brand.

Later contributions, namely by Howard and Sheth (1967, 1969), Engel, Kollat and Blackwell (1968), and Webster and Wind (1972a, 1972b), gave the theory of buyer behavior its final form, similar to the one we still find today in most marketing textbooks.

### 3.4.2 – The emphasis on the decision process in the Howard-Sheth model

Two different types of factors condition the buyer decision process located at the very center of the Howard-Sheth theory:

- a) External factors, including different environmental influences that condition the customer's behavior, such as economic, social, cultural, familiar or personal factors studied by economics, sociology and anthropology;
- b) Internal factors, related to the consumer himself, such as his personality and self-image, attitudes, motivations and involvement, learning and memory and, finally, his ability and disposition to process information, areas studied by psychology and psychiatry.

#### *Three different buying situations*

It is within this pre-defined frame that the consumer is targeted by certain marketing stimuli originated in competing companies that try to obtain his preference. These stimuli include, for instance, advertising promises, promotional offers, payment conditions, post-sale service, product options, availability in certain retail channels, etc. As to the desired responses, they comprise, obviously, the sale of the brand, but also less ambitious intermediate objectives such as a visit to the store, the trial of a free sample, a favorable disposition toward the brand or the request of additional information.

It should be noted that the authors of the standard buyer behavior model were from the beginning perfectly conscious that it is unrealistic to expect consumers to go through an exhaustive and rational process of brand selection in trivial buying situations. Howard and Sheth therefore distinguished among three different types of situations:

- (a) extensive problem solving;
- (b) limited problem solving;
- (c) routine problem solving.

In situations of extensive problem solving, the consumer is confronted with an unknown brand in a product category he is not completely familiar with. He ignores what

benefits and attributes are more relevant in the given situation; therefore he is not sure either which choice criteria should be used or what weight should be given to each one of them. Under these circumstances, he looks actively for information to support his decision, being specially interested in information that comes from impartial and trustworthy sources.

In limited problem solving, on the other hand, the buyer does not know the brand, but the product category has no secrets for him. He is aware of the relevant criteria that should guide his decision, but ignores how well each brand satisfies them, and is therefore ready to invest some time and effort in the collection of information, specially whenever he is not very satisfied with the brands he currently uses.

Finally, in routine problem solving the consumer chooses between familiar brands in a familiar product category setting. Under these conditions, he does not actively search new information. Instead, he tends to develop behavioral routines that possibly will favour loyalty to a given brand.

Obviously, the two first situations fit in the perspective of a reasonably rational and structured choice. The same cannot be said of the last one, that is, of routine buying. Notwithstanding, in spite of admitting this anomaly, the dominant marketing theory insists on keeping the decision process at the center of the explanation of buying behavior. The well informed and pondered decision is presented as the typical situation and its absence is seen as a deviation from the norm or as a special case that in no way disqualifies the general model that interprets buying as a problem solving process. The presupposition seems to be that, if we understand the most complex case – extensive problem solving – we will be able to deal also with the most elementary one – routine buying –, since the latter it is no more than a special instance of the former.

### ***The dominant cognitive paradigm***

That is why, in spite of all qualifications, warnings and precautions, the hard core of the so-called Howard-Sheth model has essentially dominated the teaching and professional training of generations of marketing managers in the last four decades. Among the best known marketing management and strategy textbooks that place choice and problem-solving at the center of the understanding of consumer behavior we should mention Kotler

(2003), Urban and Star (1991) and Lambin (1993). And the same can be said of textbooks specifically designed to teach buyer behavior, such as those by Loudon and Della Bitta (1988), Wilkie (1994), Howard (1994), Evans, Moutinho and van Raaij (1996), and Schiffman and Lanuk (2003). All these authors recognize the need to separate situations of complex buying from situations of routine buying and low involvement<sup>25</sup>, but few of them dedicate at least a few pages to the analysis of routine behavior. Assael (1992), East (1997), and Foxall, Goldsmith and Brown (1998) are the main exceptions to this pattern. In the case of Assael, after deploring the excessive importance given by teachers and marketing managers alike to the study of the complex buying situation, he dedicates a full chapter of his book to low involvement buying. As to East, he offers a balanced view of consumer behavior theories, giving due emphasis to behavioral evidence, measures, instances of absence of choice, non-voluntary actions, learned behavior and the role of habit in purchasing.

We are therefore in a position to state that the cognitive paradigm has dominated marketing theory in the last four decades. According to it, decision making is the central phenomenon of buyer behavior. This decision making is the result of a process of rational calculation which consists in the exhaustive comparison of the existing alternatives among them and comes after the collection and processing of all the available information in order to secure the best possible outcome. As a consequence, the theory urges marketing managers to communicate useful information about their products and to persuade consumers of the excellence of their brands by way of structured arguments.

### **3.4.3 – Attitude and behavior**

Attitudes are “what we feel about a concept which may be a brand, a category, a person, an ideology or any other entity about which we can think and to which we can attach feeling” (East, 1997) Thus, an attitude toward a brand is the buyer’s overall evaluation of the brand’s potential to satisfy his needs and wishes, and includes the

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<sup>25</sup> Involvement is a key concept of consumer behavior theory popularized by Krugman (1965) in order to explain different levels of cognitive activity created by advertising and purchase situations. It is commonly treated as a matter of degree, but some authors dispute this idea arguing that it either exists or does not exist (East, 1997, p. 19).

confidence with which that evaluation is held (Ibid.). Attitudes structure the way a person relates to the goods and services on offer. They can be measured on a scale ranging from “I like this brand very much” on one side, to “I hate this brand” on the other. Being a predisposition, attitude leads directly to the intention to buy and, indirectly, due to the possible interference of some kind of inhibitor, to the observed behavior (Fishbein, 1967). Attitude research has had the most profound impact on the modeling and understanding of consumer behavior. This approach provides the theoretical basis of the Howard-Sheth model thinking, which tends to view product attributes as the drivers of the consumer decision process and underlies a large part of common market research.

Attitudes originate in a variety of factors: (a) direct experience, resulting from previous situations of acquisition, consumption and use of the brand; (b) experience of others, either family, friends or members of some other reference group that the consumers value; and (c) commercial information prepared and distributed by the suppliers themselves to influence the consumers. As to the content of these influences, it can be based either on factual and objective arguments or on predominantly symbolic or emotional messages.

Marketing managers generally expect to change the buyer behavior of consumers by acting on their attitudes through communication efforts. However, the hypothetical causal relation leading from attitude to behavior has been often challenged (LaPiere, 1934; Skinner, 1953; Vroom, 1964; Wicker, 1969), given that research on this topic seems at best inconclusive, especially in low involvement decisions (Bird and Ehrenberg, 1966; Beatty and Kahle, 1988). Fishbein himself admits that causality might run in the opposite direction, that is, from behavior to attitude:

“What little evidence there is to support any relationship between attitudes and behavior comes from studies showing that a person tends to bring his attitude into line with his behavior than from studies demonstrating that behavior is a function of attitude.” (Fishbein, 1973)

#### **3.4.4 – The formation of attitudes**

Attitude models specify how individuals form judgments and preferences about products based on their perceptions of how those products perform on several key attributes (Edwards, 1954; Fishbein, 1963; Fishbein, 1967; Lancaster, 1966). These subjective expected utility decision models presume that the consumer evaluation processes

are cognitively oriented, that is, they see the consumer as forming product opinions largely on a conscious and rational basis. The most currently used models sustain that attitudes are determined by the combination of two types of judgments on each of the relevant attributes of the product under consideration: (a) classification of the relative importance of each attribute for the consumer; and (b) evaluation of the performance of each brand regarding each specific attribute. The set of beliefs that a consumer holds about a particular brand is its brand image and the synthetic attitude of the consumer toward the brand results from aggregating the evaluations of all the attributes through some kind of weighting system that reflects the importance of each attribute to him.

***General formulation of the problem***

The general formulation of the problem of attitude formation admits several different solutions. One of the best known and most commonly used was pioneered by Rosenberg (1956) and tested by Fishbein (1963) using the beliefs and attitudes of fifty subjects. It is represented by the following formula:

$$A_o = \sum_i b_i a_i \tag{3.1}$$

where

$A_o$  = attitude toward a brand

$b_i$  = belief (subjective likelihood) that the brand possesses attribute  $i$

$a_i$  = evaluation (goodness or badness) of attribute  $i$

In this multi-attribute model, the overall attitude toward the brand is viewed as the product of the beliefs about the brand along a particular attribute and the value of the attribute, summed up over all attributes. It is believed that people consider more attributes into consideration when important decisions are taken, especially when circumstances extend the decision-making period. This model is compensatory in the sense that the poor performance of the brand on one of the attributes can be compensated by exceptional performance on others. Nakanishi and Bettman (1974) suggested that such an evaluation process can be too complex for many consumer goods, and that therefore it would be more realistic to hypothesize that consumers may evaluate brands on two or three key

attributes and simply eliminate brands that are not adequate on any one of them, thus applying a non-compensatory decision rule. This raises the question of deciding which attributes should be chosen, given that all consumers may not agree on that topic. The choice of attributes is usually established through elicitation: the beliefs that come easily to mind are recorded and those that occur frequently in a group (called modal salient beliefs) are then used in a questionnaire.

An alternative way of looking at attitudes is to consider that, instead of resulting from a rational process of looking carefully at each attribute in turn, they are rather a summary of past reinforcement effects. From this standpoint, attitudes can have predictive value even when individual consumers do not bring specific attributes to mind when making a choice.

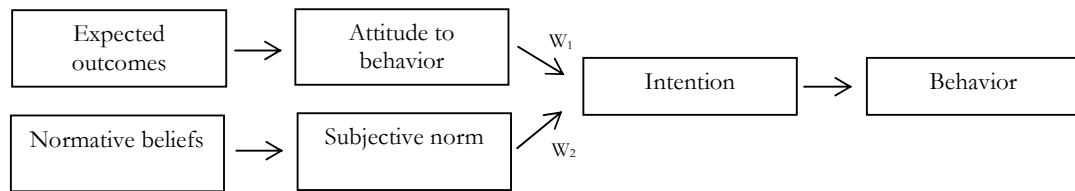
### ***The Theory of Reasoned Action***

Marketing managers care about consumer attitudes because they are supposed to influence their behavior. The presumed “attitude-leads-to-behavior” relationship recommends the use of attitude measurements as predictors of behavior toward the brand. If this causation relationship does not hold as expected, the current importance attributed to the measurement of attitudes should instead be considered as a source of confusion and misguided marketing efforts. Therefore, the failure to establish a clear relationship between attitude and behavior led Fishbein in a new direction in his investigations. According to his Theory of Reasoned Action (Fishbein and Ajzen, 1975), the prediction of the purchase of a specific brand demands the measurement of the person’s attitude toward performing that purchase, not just the overall attitude toward the brand. This is equivalent to saying that the measurement of buying intentions (or attitude toward a purchasing action) should in fact substitute the measurement of attitudes toward the brands.

The Theory of Reasoned Action may be understood as a diluted form of the cognitive paradigm. First, a “reasoned action consumer” has limited knowledge of the outcomes of his actions and takes account of only those outcomes that can be easily brought to mind; second, actions are done partly in response to the normative influence of other people and groups; third, people have limited power to realize their preferences, which explains why it is their intentions rather than their actions that are predicted in the model (East, 1997).



**Figure 3.1**  
**The Theory of Reasoned Action**



Source: Adapted by the author from East (1997).

As can be seen in the diagram, the attitude toward a certain behavior is derived in part from its expected outcomes. However, another variable – subjective norm, which measures the overall propensity to act as other persons (who are important to the consumer) think the consumer should act – now determines intention jointly with attitude toward behavior. The relative strength of attitude and subjectively valued social norms in determining a given action is measured by the weights  $w_1$  and  $w_2$ , which will vary from case to case, and must be established empirically.

According to the theory of reasoned action, evaluation is carried on beliefs (either related to expected outcomes or normative ones) and therefore all change in attitude and behavior must be caused by the acquisition of new beliefs or the modification of existing beliefs (East, 1997). Belief changes are thus a sufficient cause for downstream changes in attitude, subjective norm, intention and behavior. However, this principle – termed by Ajzen and Fishbein (1980) as the ‘sufficiency principle’ – cannot accommodate the well known fact that past experience has a direct effect on intention and sometimes on behavior (Bagozzi and Kimmel, 1995).

### 3.4.5 – Segmentation and positioning

The multi-attribute attitude model has brought new credentials to segmentation<sup>26</sup> and positioning<sup>27</sup>, two hot topics of marketing strategy that have been widely accepted as sound business practice in the last forty years.

#### *The multi-attribute model and benefit segmentation*

It is commonly acknowledged that different consumers place different emphasis on different benefits or product attributes (the  $a_i$  variable in Fishbein's model). Within the context of attitude theory it is straightforward to identify benefit segments in terms of different patterns of evaluation attached to attribute dimensions. As a consequence, a market can be partitioned into smaller segments according to the distinctive preferences of different groups of consumers, each one of them being relatively homogeneous (Haley, 1968). Segmentation properly conducted should allow marketing managers to identify consumer groups that: (a) share the same preferences; (b) have different preferences from those of the consumers in other groups; (c) behave in a markedly different way.

The fact that it is possible to identify segments in a generic market doesn't necessarily mean, however, that it is advisable to choose a segmented marketing strategy. Everything depends on the degree of preference fragmentation. If preferences are not very differentiated, or if the consumers with special preferences are too few, the market is basically homogeneous, and segmentation is not the best choice. On the other extreme, preferences can be so diffuse that either specificities are disregarded and the market is treated as homogeneous, or else a one-to-one approach is chosen. Finally, if preferences are polarized around a few central points distant from one another, we face clustered

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<sup>26</sup> The original formulation of the segmentation strategy belongs to Smith (1956). According to him, "segmentation is based on developments on the demand side of the market and represents a rational and more precise adjustment of product and marketing effort to consumer or user requirements". Years later, Haley (1968) gave the theory of segmentation a much more solid base.

<sup>27</sup> We owe the notion of positioning to Ries and Trout (1972), who later developed their ideas in more detail (Ries and Trout, 1982). The concept was adopted by many authors, although it is not always clear if they use it in the same sense as Ries and Trout. Among the most significant efforts of theorization must be included Johnson (1971) and Green and Wind (1975).

preferences and segmentation is clearly the best strategy.

### ***Positioning through key attributes***

When a market is properly segmented, the manager can select a particular target group on which to focus so as to maximize his chances of success by concentrating on those consumers that value more highly the brand's offer. Besides being more effective, segmentation is also supposed to be more efficient because the allocation of resources to relatively smaller groups of consumers reduces waste. Segmentation theory thus prescribes that each company or brand should select that segment where it is stronger and concentrate its efforts on it, instead of trying to please everybody. It follows logically from this that the brand should also be positioned according to the benefits or attributes most valued by the members of the segment. In terms of the Fishbein multi-attribute model, the brand should own the key attribute of the segment where it chooses to compete, meaning that consumers must above all believe that it really possesses that attribute. Therefore, a brand will have a strong strategic positioning if: (a) it chooses a significantly large and preferably growing segment of the market; (b) the consumers in that segment believe that the brand in fact possesses the attribute that they most value; (c) the brand is, as a consequence, the preferred brand for those consumers.

Some varieties of the segmentation theory (Johnson, 1971) try to identify the ideal point where a brand should be positioned in order to dominate the category. The ideal point can be interpreted as an indication of what the ideal product should be like in order to meet the preferences of the average consumer, that is, a product whose combination of attributes comes closer to the relative importance that the consumers in fact attach to them. In a market of homogeneous preferences, the ideal point represents the ideal positioning that all brands strive to occupy; in a market of clustered preferences, however, there will be as many ideal points (or ideal positionings) as segments of consumers.

It is by now clear that these segmentation and positioning theories are intimately related to other ideas on which they depend, namely: (a) the idea that a product is a bundle of attributes (Lancaster, 1966); (b) the idea that consumers actually make choices when they buy products (Howard and Sheth, 1967; 1969); (c) the idea that this choice follows the reasoned action model of Fishbein and Ajzen (1975). The original formulation of the theory postulated that segmentation should be based on benefits. Later developments,

however, allowed the consideration of other kinds of attributes, namely those created by marketing communication itself like, for instance, emotional attributes or brand image.

### ***Behavioral predictions***

According to this interpretation each consumer has a favorite brand in each product category, and this brand should be the one whose attributes nearly fit his preferences. Furthermore, different customers buy different brands for different reasons, otherwise they would all buy the same brand all the time. The only reason for the survival of more than one brand in each product category is that each one of the competing brands somehow manages to cater to the specific needs of a segment of consumers with a clearly differentiated profile. We would therefore expect consumers to stick to their favorite brands, that is, to be loyal to them, as long as nothing happened that might trigger their dissatisfaction or change their situation, whether in socio-demographic or psychographic terms. Such is the rational foundation of brand loyalty strategies.

### **3.4.6 – The Lavidge-Steiner hierarchy**

When they proposed their buyer behavior model, Howard and Sheth integrated in their theory the work previously done by Lavidge and Steiner (1961) on how advertising acts on consumers. Apparently, advertising theory had got there first.

As already stated, the Howard-Sheth model predicts several types of responses conducive to a favorable decision to the brand as a reaction to the marketing stimulus aimed at them. Specifically, it concentrates on a sequence of response variables – attention, comprehension, attitude toward a brand, intention to buy and purchase behavior – very similar to the one postulated by the Lavidge-Steiner model. What we obviously have here is a crucial link between the more general consumer behavior theory and the explanation of how advertising influences that very same behavior.

### ***The origins of hierarchical models***

Since the 1920s, the prevailing opinion had been that advertising should best be understood, in the expression coined by John E. Kennedy, as “salesmanship in print”, (Lasker, 1990), meaning that its effects are similar to the ones commonly attributed to personal sales efforts. This conviction led to the adoption of the AIDA model to direct

the choice of marketing communication tasks. According to it, any sales presentation should include four steps: (1) **Attention**, in order to be heard by the receiver of the message; (2) **Interest**, so that the receiver is involved; (3) **Desire**, to motivate him to really want the product; and (4) **Action**, triggering some kind of commitment to buy.

While recognizing the general validity of the AIDA model, Lavidge and Steiner tried to outline a sequence of effects more appropriate to the specific definition of advertising tasks, in line with the pioneering contribution of Colley (1961), whose foremost merit consisted in the clear-cut distinction between marketing objectives and communication objectives, noting that, unlike the former, the latter are the direct and natural outcome of the satisfactory fulfillment of a communication task. As such, they can at least in principle be rigorously controlled, no matter how difficult it might be to do it in practice, and can therefore be regarded as operational objectives.

### *The seven stages of the decision process*

Admitting that at least part of the advertising effects are long-term, but refusing an attitude of “wait and see”, Lavidge and Steiner broke down into seven logically articulated steps the process that eventually leads to the desired sales results, starting with unawareness of the mere existence of the brand and going on to its final acquisition. In their own words: “if something is to happen in the long run, something must be happening in the short run” (Lavidge and Steiner, 1961). Each of the steps in the following hierarchy of effects summarizes the psychological situation of the consumer at a given moment, the task of advertising being to attract the consumer to the brand through efforts suited to the stage where he is located at any given moment: (1) **Unawareness**: prospective clients ignore everything about the brand, including its mere existence; (2) **Awareness**: prospects know that the brand exists, but nothing else; (3) **Knowledge**: Prospects know what the product has to offer; (4) **Liking**: Prospects have favorable attitudes toward the brand; (5) **Preference**: Prospects prefer the brand to any other alternative; (6) **Conviction**: Prospects intend to buy the brand; and, finally, (7) **Purchase**: The sale is concluded.

Stages (2) and (3) try to generate a cognitive response, first through simple awareness that the brand exists and fits into a given family of products (the product category), then by conveying information on its benefits and attributes. Stages (4) and (5) belong already in the affective or emotional realm, and aim to create favorable attitudes – beginning with

mere sympathy and then moving to preference – toward the brand. Finally, stage (6) links favorable attitudes and propensities to the final purchase that should take place in step (7).

### ***The functions of advertising***

Advertising therefore accomplishes three main functions. The first one, related to the transmission of information and ideas, is predominantly cognitive or rational. Examples of this type of advertising are to be found in the launch of new products or in classified ads; as to the relevant techniques, we should mention slogans and jingles. The second one relates to the creation or consolidation of attitudes and feelings of sympathy and preference, and deal primarily with the affective dimension. It is the domain of persuasive advertising and image advertising, but also of comparative advertising. The third and last one aims to induce action – actual purchase of the product – and is therefore behavioral in kind. It often takes place at or near the point of sale and resorts to promotional offers or testimonials to induce the consumer to make an immediate decision.

The authors of the model were perfectly aware of its very generic nature, and, as such, found it unsuited for some situations, namely when psychological involvement is very low. Even so, they didn't think these particular circumstances invalidated the proposed hierarchy of effects. In their own words:

“The various steps are not necessarily equidistant. In some instances the «distance» from awareness to preference may be very slight, while the distance to purchase is extremely large. In other cases, the reverse may be true. Furthermore, a potential purchaser sometimes may move up several steps simultaneously.” (Lavidge and Steiner, 1961)

However, it would remain true that, whatever the situation: (a) the seven stages would remain valid, provided we allowed for the fact that the relative importance of each one of them would change; (b) the sequence of stages would always be the same, although some stages might be “shortened”. The general relevance of the model can be upheld provided low involvement situations are seen as a simplified version of the general case. The ideas of Lavidge and Steiner were understandably integrated into the Howard-Sheth model given that they likewise presuppose the existence of a reasonably complex decision process, or at least assume that such is the general case.

### **3.4.7 – Criticism of the Lavidge-Steiner model and alternatives to it**

The limitations of the Lavidge-Steiner model were clear from the outset to their own authors, as they themselves agreed that many situations did not fit easily into it. Even so, the importance of these anomalies was underestimated because they believed they could be dealt with as extreme situations reducible to the general scheme, situations, that is, where the simplification of the purchase process would make the hierarchy of effects less conscious and its sequence faster, but not less real.

#### ***Which is the right sequence of effects?***

The practice of advertising suggests that, whenever low involvement prevails, high levels of awareness can be enough to induce trial. Even so, it is not clear how things really work. Is it that awareness somehow improves immediately attitudes toward the brand before the trial purchase, something that, indicating a mere compression of the duration of some stages in the sequence of effects, would in fact confirm the validity of Lavidge-Steiner model and protect the prevailing marketing paradigm? Or is it possible that the purchase takes place in the absence of any change of attitudes, an alternative that would threaten the very foundations of the theory?

As soon as the late 1960s some researchers claimed that in some markets the change of attitudes followed instead of preceding the purchase experience (Joyce, 1998). According to this point of view, consumers appear to develop favorable or unfavorable attitudes toward brands after testing them personally and not as a result of advertising efforts. There simply was no theory capable of accounting for these facts, which explains why researchers that were confronted with them tended to consider such situations as anomalies.

#### ***The FCB Planning Grid***

The first attempt to make sense of these phenomena is due to Vaughn (1980, 1986). Being a researcher at the FCB agency at the time he developed his model, it became known as the FCB Planning Grid. Vaughn assumed that the sequence of communication effects depends on the specific situation, which in turn is determined not only by the level of involvement, but also by the type of reaction of consumers to advertising itself. The combination of both criteria allowed him to identify four different types of situations, and therefore four fundamental communication strategies, each of them corresponding to a

given sequence of effects:

1. **High Involvement – Think.** Examples: purchase of a car, a house, furniture or life insurance. The relevant sequence is “learn-feel-do”. Consumers actively search information, compare features and prices, ponder strengths and weaknesses and finally make a conscious decision. Recommendation: informative strategy, that is communication of facts and data that might influence the final decision.
2. **High involvement – Feel.** Examples: purchase of jewels, cosmetics, fashion clothes or motorcycles. The relevant sequence is “feel-learn-do”. Consumers feel irresistibly attracted by the product, they gather information on it, and, finally, make a decision. Recommendation: affective strategy, that is lure the consumers by bringing to his mind relevant emotions that might attract him irresistibly to the brand.
3. **Low Involvement – Think.** Examples: purchase of food and more common household products. The consumer is not very interested in the product, he tries it to see if he likes it, then evaluates its performance and can eventually develop some emotional bond with it. The relevant sequence is “do-learn-feel”. Recommendation: strategy of habit creation, that is induce routines that lead to habitual behavior.
4. **Low Involvement – Feel.** Examples: Purchase of cigarettes, chocolate bars, beer or soft drinks. Consumers try the product through impulse and only become involved with it afterwards, first emotionally, then rationally. Sometimes social pressure can also be the key factor that triggers the purchase. The relevant sequence is “do-feel-learn”. Recommendation: hedonistic strategy, aimed at promoting self-indulging and self-gratifying attitudes.



The typification of these fundamental four situations resulting from the joint consideration of those two variables – level of involvement and type of intended reaction – then leads to the so-called FCB Grid:

**Figure 3.2**  
**The FCB Grid**

	<b>Think</b>	<b>Feel</b>
<b>High Involvement</b>	Learn Feel Do	Feel Learn Do
<b>Low Involvement</b>	Do Learn Feel	Do Feel Learn

Source: Vaughn (1980).

Instead of a single sequence of effects we now have four, each of them being relevant to a different kind of situation. The inference is that the Lavidge-Steiner model only applies in situations of high involvement when a rational response is looked for, which means that in the other three cases other sequences of effects should be considered.

### ***The Rossiter-Percy Planning Grid***

Rossiter, Percy and Donovan (1991) later proposed an improvement to the FCB Grid, consisting in the substitution of the dichotomy between informational motivations on one side, and transformational motivations on the other, for the opposition between thinking and feeling. According to Wells (1984), informational motivations are those that aim to solve a problem or remove factors of discomfort, while transformational motivations drive the individual to a more pleasant stage, even if the starting point is not altogether disagreeable. This welcome modification clarifies the four basic situations, since instead of consumer responses we now consider the motivations that originate those different responses.

The abandonment of the alleged universality of the Lavidge-Steiner model seriously challenges many ideas and practices prevalent in mainstream marketing. Even so, it has not yet lead to a comprehensive reevaluation of the associated concepts and models; more specifically, it did not foster a revision of the current interpretation of purchase behavior.

In fact, both the FCB Grid and the Rossiter-Percy Grid can be interpreted as ad-hoc solutions to a deeper and more serious problem pertaining to the unrealism and inadequacy of the generally accepted theories on how marketing works.

### **3.4.8 – The cognitive theory in a nutshell**

We are now in a position to summarize the main theses of mainstream modern marketing as they have been taught and practiced around the world since the 1960s<sup>28</sup>. According to this doctrine, the brand is the central element of the marketing process. Companies make and commercialize products or services, that is, things with certain physical and chemical properties, in the case of products, or activities with desired functional properties, in the case of services, but consumers buy brands, that is, bundles of benefits or utilities. Consumers look for two different kinds of benefits: functional benefits that can be rationally apprehended; and symbolic benefits, emotionally apprehended.

Brands have a life of their own, determined both by their intrinsic features and the associations of ideas and feelings that come with them. As a consequence, it makes sense to talk of brand personality and brand values as deeper and inner foundations of its identity. In each given market, consumers compare the functional and symbolic benefits of the competing brands and choose those they feel more identified with. Different consumers will prefer different brands according to the benefits and attributes they most value, making it possible to identify distinct segments within the same market. So, to deserve the preference of a given group of consumers, companies should design their products in line with the tastes and preferences of well defined segments, taking in consideration all the elements of the marketing-mix that can influence the final decision, including the core product, the enlarged product, distribution, price, and so on. This operation is called marketing strategy.

The main purpose of marketing communications is to create brand preference. Resorting to persuasive arguments, it aims to convince the public that the advertised brand suits best the situation of a certain target group, possibly a segment of a larger market. In

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<sup>28</sup> One of the clearest and better articulated presentations of the key ideas that nowadays dominate the theory and the practice of marketing is to be found in Corstjens and Corstjens (1995), specially in Part I.

some cases, it uses mainly rational arguments, in others emotional ones are more appropriated. In both cases, the brand should project a consistent, positive, and, above all, appealing image as far as its core target is concerned. In some limit situations, when the competing brands are very similar, brand image can in fact become the sole choice factor.

It is believed that in general advertising works by changing the public's attitude toward the promoted brand. This change in turn leads, by a gradual but steady process, to the transformation of the structure of brand preferences and to the modification of purchase behavior. In short, advertising causes new attitudes and these in turn induce new behaviors.

As the process of persuasion tends to be somewhat slow, sales promotions – and, among them, price promotions – are used to speed up the process of customer conversion (that is, the brand-switching process), by offering consumers extra incentives to change their brand allegiance. This explanation of how advertising works is known as the Awareness – Attitude – Behavior (AAB) model according to the particular sequence of effects that is believed to be appropriate. Marketing communications are committed to fulfill four general communication tasks described by the inter-brand migration model: (a) attraction of new users to the category, (b) brand-switching, (c) increased use, and (d) increased loyalty to the brand.

It follows that strategic marketing management should focus on:

- a) Creating customer preference
- b) Increasing brand loyalty among acquired customers

This way of understanding the aims of marketing management – nowadays so pervasive that it became almost indisputable – faces a number of problems, as already mentioned in the course of this exposition. Under its most extreme form, it is no longer accepted by many marketing researchers and practitioners, although it still dominates teaching and influences the most common public perceptions regarding what marketing is and how it works. Little by little, however, a still insufficiently articulated alternative approach has been gaining ground. In fact, the fragments of the new marketing theory have yet to be integrated into a comprehensive and coherent body of doctrine that might

rival the one that the successive editions of Kotler's textbook have made so immensely popular.

### **3.5 – THE NBD–DIRICHLET THEORY OF REPEAT-BUYING BEHAVIOR**

#### **3.5.1 – Taking a closer look at the facts**

Following the neo-classical microeconomic theory, traditional buyer behavior models start from the premise that customers do make choices and that these choices are based on conscient decision processes. As a consequence, they aim to explain these choices and decisions, without questioning for a single moment their very existence.

At the same time when Nicosia (1966), Howard and Sheth (1967, 1969), Engel, Kollat and Blackwell (1968), and many others were busy developing models of buyer behavior based on the analysis of choice and decision-making, Ehrenberg, a British statistician, chose a diametrically opposed research program: first of all, he started observing what consumers really do, collecting a large amount of data and looking for stable patterns of behavior (Ehrenberg, 1959; 1969). The explanation of this behavior should only be attempted later in the process<sup>29</sup>:

“The repeat-buying theory developed here is *descriptive*. It describes *how* (rather than perhaps *why*) consumers behave as they do, and on what factors this does (or does not) depend. Before one can explain the individual consumer's decision-process and behavior, one needs to know and understand the overt behavior that has to be explained – what generalisable regularities there are and what apparent inconsistencies. And knowing the factors from which one can successfully predict consumer behavior (and especially also the factors which do *not* matter in this respect) does in fact already provide major insights into its nature.” (Ehrenberg, 1988, viii)

During a time span of several decades he patiently accumulated a considerable amount of information on the purchase and consumption of various products in various countries, allowing him to detect and study the occurrence of certain patterns of buyer behavior. Ehrenberg's attention was focused on the regularities of the so-called repeat-buying behavior, a situation typical not only of fast-moving consumer goods such as food,

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<sup>29</sup> Detailed presentations of the research undertaken and of the empirical conclusions reached are to be found in Ehrenberg (1972, 1988), Ehrenberg, Goodhart and Barwise (1990) and Ehrenberg (1991). The ideas of Ehrenberg are also summarized and discussed by Jones (1986), McDonald (1992) and East (1997).

beverages, house cleaning or personal hygiene, but also of certain industrial goods markets where routine buying prevails, such as fuel, packaging or office products. This analysis excluded durable consumer products infrequently purchased (cars, appliances, furniture or books, for instance), as well as industrial equipment and machinery<sup>30</sup>.

Consumer markets where repeat-buying is to be found share a certain number of features. In most of them, demand is stable or grows moderately. In these typically mature categories the benefits offered by the products are very well known by the consumers, who therefore have no need for additional information on them. The competition is usually oligopolistic because the market is disputed by a relatively small number of established and familiar brands. The degree of functional differentiation between the competing brands is never very large. The products are mainly sold in large retail shops, such as supermarkets and hypermarkets. But, above everything else, the frequency of purchase is very high: in some exceptional cases it can be daily (bread, cigarettes, newspapers), more often it will be weekly or bi-monthly (milk, margarine, edible oil), in even more cases it will be monthly or quarterly (detergents, shampoos, soluble coffee). Finally, a low involvement relationship commonly prevails for all these categories and brands, meaning that they are not related to serious choices for the life of the consumers that require their conscious attention or their effort.

Repeat-buy markets lend themselves better to the detection of purchasing regularities because it is possible to observe a single person buying more than once the same product during a short period of time – whether that period is a week, a month, a quarter, or even a year. Inasmuch as the consumer deals with low involvement products of a low unit price he tends to exhibit in repeat-buying a tendency to develop buying habits that crystallize into routines.

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<sup>30</sup> The full list presented by Ehrenberg of markets where the empirical patterns and theories were found to hold include: aviation fuel, biscuits, breakfast cereals, butter, canned vegetables, cat and dog foods, cocoa, coffee, confectionery, convenience foods, cooking fats, cosmetics, detergents, disinfectants, flour, food drinks, gasoline, household soaps, household cleaners, instant potatoes, jams and jellies, margarine, motor oil, polishes, processed cheese, refrigerated dough, sausages, shampoos, soft drinks, soup, take-home beer, toilet paper, toilet soap, TV programs (Ehrenberg, 1988).

The key feature of these markets is stationarity, which means that they do not change much, either in total sales volume or in their structure. Of course, some changes take place, such as global decline of the category, launch of new brands or changes in market share, but they are usually slow and take years to unfold. Markets may also show sudden changes because of promotional activity, but the subsequent gains and losses do not last for long. Such brief convulsions have no impact in the medium to long term, typically from three months to a year. This can be interpreted as meaning that exogenous variables such as marketing stimulus only play a secondary role in consumer behavior, thus justifying the choice of stochastic models to analyze buying behavior.

In repeat-buying stable markets we therefore expect people to form stable propensities or habits of purchase that they change only under exceptional circumstances. One of the shortcomings of the models we will be reviewing is that they leave aside the problem of what these special circumstances might be.

### 3.5.2 – The key variables

The total sales of a brand are a consequence of the value taken by a number of variables, as shown in the following formula known as the sales equation<sup>31</sup>:

$$\begin{aligned} \text{Sales of the brand during a given time period} = & \text{Total number of households in the} \\ & \text{country (A)} \\ & \times \text{Absolute penetration rate (B)} \\ & \times \text{Average purchase frequency (C)} \\ & \times \text{Average number of packs bought by} \\ & \text{purchase occasion (D)} \\ & \times \text{Average dimension per pack (E)} \end{aligned}$$

The basic building block of the analysis is the purchase occasion, which takes place anytime a consumer buys one or more packs of any brand. In most situations consumers buy one pack at each purchase occasion, but of course it does not have to be that way. Since the number of households is a given, total sales of a brand during a certain period of time are the result of absolute brand penetration (proportion of households that bought the brand at least once during the period), average purchase frequency (average number of

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<sup>31</sup> This equation was inspired by the decomposition of the determining elements of market share as put forward by Parfitt and Collins (1968).

purchase occasions of the brand during the period) and average purchase (which is in turn determined by two other factors: average number of packs purchased on each occasion and average dimension per pack).

By definition, the total number of households (A) is the same for every brand competing in a given product category. As to the number of packs bought in each occasion (D) and the average dimension of the pack purchased (E), Ehrenberg reports that they do not change significantly from one brand to another, given that, on average, people tend to buy the same quantity on every purchase occasion, regardless of the chosen brand. Setting aside, as irrelevant for our purpose, variables (A), (D) e (E), we therefore conclude that the sales of any single brand are primarily determined by two factors:

- a) Its penetration rate, that is, the proportion of households that purchase the brand at least once during a certain period of time;
- b) Its purchase frequency, that is, the average number of times that the brand is bought during this same period by each consuming household.

Ehrenberg therefore focused his attention on these two dimensions of buyer behavior. On the other hand, instead of asking people what brands they bought, he decided instead to observe their actual behavior, analyzing data from consumer panels, that is, from samples of housewives that agreed to register in writing their purchases during relatively long periods of time. Thus was created an extensive database covering decades of information of dozens of diversified markets in the United States, in Europe, and in Japan.

### 3.5.3 – Buyer behavior patterns

The main conclusions of Ehrenberg will be briefly summarized in the following sections<sup>32</sup>:

#### *Universality of purchase patterns*

The purchase processes of coffee and prescription drugs differ substantially in their motivations, involvement, buying influences, circumstances and point of sale, not to mention the diversity of marketing strategies and tactics used in those markets. Among these differences, the most significant one is that coffee purchase is a free decision of the consumer, while in the case of the prescribed drug purchase the decision about the opportunity of the purchase and the brand choice are entirely in the hands of the doctor, given his special professional qualifications. Even so, it has been found that the purchase patterns of both situations are remarkably similar (Stern and Ehrenberg, 1995).

The repeat-buying behavior of consumers follows a pattern that remains unchanged from one category to another, that is, it is not dependent on the type of good under consideration, on the brand itself or on other external factors such as advertising, pricing or distribution<sup>33</sup>. Likewise, it doesn't change from one country to another – it seems to be reasonably unaffected by habits, cultures or diversified commercial practices – or by the passing of time. The same pattern is found whenever a “stationary” situation prevails in the market, with flat sales showing no definite tendency to increase or decrease, a very common situation in most fast-moving consumer markets.

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<sup>32</sup> These results are described and explained by East (1997), specially in Chapter 3: “Stationary markets”. For a synthetic presentation by Ehrenberg himself see Ehrenberg (1991).

<sup>33</sup> It has been found that similar patterns also apply to supermarket visits (Keng and Ehrenberg, 1984; Wrigley and Dunn, 1984) and television viewing (Goodhart, Ehrenberg and Collins, 1987).



### *Patterns of repeat-buying*

Whenever two adjacent sales periods are compared, we find that a number of the buyers of the brand who purchased it in the first period do not return in the second period. These 'lapsed' buyers are usually replaced by a similar number of so-called 'new' buyers, both being mostly light buyers who do not purchase the product very often. In the third period again approximately the same proportion of buyers drop out and are replaced by others. This intermittent pattern of purchase is not caused by a real loss of customers. It only means that a very large proportion of customers buy a brand so infrequently that they sometimes or very often do not do it in any given time period. This explains, by the way, why repeat-purchase rates are determined mainly by purchase frequency and only secondarily by penetration.

Consumers tend to create certain purchase routines, such as shopping once every week or once every month and doing it preferably at a given day of the week or even at a given time of the day. We might call this kind of behavior loyalty to a particular day or a particular time of the day. Yet, despite the routine timing of visits to the supermarket, brands are usually bought at basically irregular intervals. For this reason, the specific purchase of a specific brand appears quite random, following approximately a random Poisson statistical distribution, especially whenever the length of the analyzed period is equal or larger than the average category inter-purchase interval.

On the other hand, buyers differ markedly regarding the quantities of a given product that they acquire during a year, which is approximated by their purchase frequencies. The frequency distribution of the amount of product purchased by a sample of consumers has a Gamma distribution where the large majority of them are located close to the low purchase frequency range. Very few people in each market can be classified as heavy consumers, although these usually account for a relatively higher proportion of total purchases: as a rule of thumb, the light consumers buying 50% are responsible for about 20% of all purchases while the heavy consumers buying 50% account for the other 80%. This breakdown suggests that heavy buyers are a particularly attractive target for marketing initiatives.

***Single brand purchase and the NBD theory***

The shapes of the Poisson and Gamma distributions of a given brand depend only on its penetration rate and purchase frequency. This means that two brands competing in two completely distinct product categories (coffee and prescription drugs, for instance) will exhibit similar repeat-buying patterns provided their penetration rates and purchase frequencies are identical. However, it has been found that, in fact, the repeat-buying patterns depend mostly on purchase frequency and not much on penetration.

The Negative Binomial Distribution<sup>34</sup> (NBD) is a mathematical model that allows us to predict the purchase repetition of a brand and other measures based on the knowledge of penetration, purchase frequency and the time period. The so-called NBD theory put forward by Ehrenberg (1959, 1969, 1972, 1988) and others (Morrison and Schmittlein, 1981; 1988) is based on the presuppositions that the total sales of a brand are stable, that the individual purchases follow a Poisson distribution, and that the long term average buying rates of the individuals follow a Gamma distribution (see Table 3.1 bellow). The NBD model is adequate to analyze the behavior of a single brand, but we must resort to the Dirichlet model, which will be covered later, when a group of brands is at stake.

**Table 3.1  
A Stochastic Model Over Time Yielding the NBD in Any Given Period**

Consumer	Successive Time-Periods						Long-run Averages	Horizontal distributions
	1	2	3	4	5	.		
<b>A</b>	x	X	X	x	x	x	$\mu$	Poisson
<b>B</b>	x	x	X	x	x	x	$\mu$	Poisson
<b>C</b>	x	x	X	x	x	x	$\mu$	Poisson
<b>D</b>	x	x	X	x	x	x	$\mu$	Poisson
<b>D</b>	x	x	X	x	x	x	$\mu$	Poisson
<b>E</b>	x	x	X	x	x	x	$\mu$	Poisson
.	x	x	X	x	x	x	$\mu$	Poisson
<b>Mean</b>	m	m	M	m	m	m	M	
<b>Vertical distributions</b>	NBD	NBD	NBD	NBD	NBD	NBD	Gamma	

Source: Ehrenberg (1988).

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<sup>34</sup> The Negative Binomial Distribution is covered in standard introductory and intermediate level statistics textbooks, such as Hoel (1971), Mood, Graybill and Boes (1974) or Pestana and Velosa (2002).

The knowledge of a brand's penetration rate and purchase frequency allow very precise estimates of the remaining variables that characterize the behavior of its customers, not only in the observed period but also in the following one. The possibility of predicting the purchase repetition rate is probably one of the most interesting features of the NBD model. If, for instance, 10% of consumers buy on average 1.5 times brand X during a given time period, then 45% of these people will buy it again an average of 1.8 times during the next time period; as to the other 55%, they will not be lost forever, because they are mostly regular but infrequent customers. Among the dependent variables predicted by penetration and frequency are also the number of customers that buy the brand one, two or more times during one time period, the proportion of customers who also buy other brands and the proportion of customers that, having abstained from purchasing the brand at a given time period, will do so again in the next period. These figures are estimated with the help of the NBD model.

The repeat buying patterns are not specific to the individual brand or even to the product category. Any two products with similar average purchase frequency will exhibit the same repeat buying patterns; as a consequence, as all brands in the same market display very similar purchase frequencies, their repeat buying patterns will also be approximately the same. The NBD model confirms that, as a rule, repeat buying patterns show no tendency to erode as time passes: the fact that a certain proportion of customers who bought brand A in period 1 do not buy it in period 2 does not mean that they switched permanently to competing brands, only that they do not purchase the item frequently enough to buy the brand in all periods; under normal conditions, they will very likely buy it again in periods 3 or 4. There is therefore no need to panic, as very often happens when wrongly interpreted data is taken as proof that the brand is losing customers to the competition as a result of poor loyalty. Likewise, nearly all of the so-called "new customers" are just infrequent customers who, for this very reason, did not show up at the supermarket during the previous time period. The essential stability of markets reveals itself very clearly when longer periods are analyzed, thus proving that the "leaking bucket" theory, according to which brands should continually strive to conquer new customers in order to make up for the lost ones, is basically flawed. The detection of really anomalous situations of conquest or loss of customers can only be confirmed by comparing the

number of clients apparently “won” or “lost” with the theoretical values predicted by the relevant statistical distribution.

### ***Brand loyalty***

Research on brand loyalty began with work by Copeland (1923) on sole brand loyalty, an extreme situation where 100% of preferences go to a single brand. Only much later could consumer panels replace questionnaires, a notoriously unreliable method, as the prime source of information on loyalty behavior. Brown (1952, 1953) found four different patterns of purchase behavior:

1. Single (sole) brand loyalty
2. Divided (multiple) brand loyalty
3. Unstable loyalty (continuous switching from brand to brand)
4. No brand loyalty

After analyzing sequences of brand purchases, Brown concluded that the majority of consumers showed single or divided loyalty. Cunningham (1956) confirmed the existence of multi-brand loyalty and defined first-brand loyalty as the proportion of purchase directed to the household’s most popular brand.

Ehrenberg (1988) insists that brand loyalty must be considered an absolutely exceptional phenomenon, if we understand by loyalty the exclusive purchase of a single brand during a long period of time (that is, single brand loyalty). There are very few exceptions to this rule. For most grocery items, between 80 and 90 % of the consumers of a given brand do not buy another brand in any given week; but, if we observe a period of half a year, that proportion decreases to 30 %; and, if we further increase it to a full year, it decreases even further to something like 10 %. Sole brand loyalty therefore decreases as the number of purchases of the category increases. These figures reflect the fact that the large majority of sole brand buyers are, in fact, light users whose consumption rates are so low that they only buy the product once in a full year. Thus, this so-called loyalty is not a consequence of brand allegiance but of a total lack of opportunities to be disloyal. For any brand, both the number of exclusive buyers and the number of buyers that it shares with

other brands only depend on the penetration rate of that brand.

Therefore, it only makes sense to talk about the brand loyalty of a certain consumer as a propensity to buy it more often than its rivals during a certain time span. Brand loyalty can at most be viewed as a relative and probabilistic phenomenon, not as an absolute and exclusive relationship of the consumer with a preferred brand.

East and Hammond (1996) designed an experience to measure allegiance (i.e. the tendency to stay with the same brand for a long period of time) in fast-moving consumers goods. They report that, when sales are stationary, a typical brand is losing and simultaneously gaining 15% of its buyers each year and that brand leaders showed lower brand erosion than other brands. In other words, 85% of customers are still loyal at the end of a year and the erosion in loyalty falls off after the first year. According to these findings, although customer erosion is relatively weak, marketing managers must conduct double-edged strategies aimed at retaining existing customers while at the same time recruiting new ones.

Share of category requirements is a useful measure of the bonding between customers and the brands they usually buy<sup>35</sup>. Hammond and East (1997) found that market share, share of category requirements, repeat purchase and first-brand loyalty are correlated, which means that the leading brand tends to perform better on all those scores. As will be confirmed when we will mention the phenomenon of “double jeopardy”, the bigger the brand the more loyal are the customers according to those measures. This normal pattern precludes the observation of strong niche effects in mature markets, in other words, it is not common for brands with modest market shares to show exceptionally high loyalty levels.

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<sup>35</sup> The share of category requirements (SCR) should not be confused with the previously mentioned first-brand loyalty (1BL), because SCR includes all buyers of the brand whereas the 1BL is calculated only for those buyers who place the brand first.

### ***The brand repertory***

Consumers tend to stay with a repertory of brands (two, three, or more) that they deem satisfactory in each product category, and thereafter to choose in each purchase occasion among this pre-established set in a reasonably random fashion. Besides, heavy consumers tend to exhibit, given equal time periods, larger brand repertories than light users. As a consequence, the concept of brand preference must also be relativized – it would be more appropriate to speak of preference for a set of brands as compared to the remaining ones competing in the category. The selected brand repertory shows a highly stable pattern, very likely because of a tendency to stick to established habits. As to the ongoing alternated purchase of several brands, it might be motivated either by the recognition of different functional features that recommend them to different use situations, or by the pure and simple wish for variety in order to counter boredom provoked by habitual behavior.

In any case, there are no signs that brand-switching might be a common and relevant phenomenon. In a market where three brands compete (say A, B e C), if brand-switching took place we would expect the sequence of choices in successive purchase occasions to follow a pattern such as, for instance: A-A-A-A-B-B-C-B-B-B-B, reflecting the fact that a regular buyer of brand A would at a certain point in time change his preference to brand B, in spite of having also occasionally bought brand C, which clearly did not please him. In the real world, however, the purchase sequence is more likely to resemble this one: A-A-B-C-A-C-C-C-B-A-B-A-C (Ehrenberg, 1988).

### ***The importance of the penetration rate***

The main factor separating the performance of one brand from another is the penetration rate, since, unlike purchase frequency, it varies widely from brand to brand. It is very common for the top selling brand to have a penetration rate six, seven or even eight times larger than the weakest brand in the market; but it is very rare for a brand to manage a purchase frequency twice as large as the next one. It follows from this that loyalty is not usually a major factor in the performance of a brand.

It is interesting to note that the levels of purchase frequency settle very fast after the launch of a new product to a level common to other brands in the category. Ehrenberg

calls this “near-instant loyalty”, thus stressing that empirical observations also dispel allegations that brands slowly develop a closer and stronger bond with consumers as time goes by (Ehrenberg and Goodhart, 2000). In this case, what might be the role for loyalty programs if consumers spontaneously tend to reach the loyalty patterns that can be possibly attained in the specific conditions of each market?

The similarity of purchase frequencies among brands is in itself a surprising fact, dismissing as irrelevant common marketing practices aimed at inducing increases in purchasing frequencies of brands, and, as a consequence, increases in consumer loyalty, which apparently produce no results whatsoever. The very idea of niche markets – very small groups of consumers whose high consumption rate allow their survival in spite of a minimal penetration rate – is challenged as the conditions of its viability apparently seldom occur.

The market share of a brand therefore depends mainly on its penetration rate in households that are part of the target market. The main difference between the leading brand and the lesser brand in a market is that many households buy the first one, while fewer households buy the second one.

### ***Double jeopardy***

Another interesting phenomenon: although, as previously mentioned, the frequency of purchase varies very little from a brand to another, whatever difference there is seems to favor the leading brands, since brands with higher market shares, and particularly the top brand, also show a frequency of purchase clearly superior to the average of the remaining brands<sup>36</sup>. This additional advantage benefiting high penetration brands was variously named “double jeopardy” (McPhee, 1963) or “penetration supercharge” (Jones, 1986). The sociologist William McPhee is credited with being the first one to note this phenomenon in 1963 in very diverse contexts, namely readers of comic strips and listeners of radio shows (East, 1997). Compared to the most popular comic strip, those followed by fewer readers were also less appreciated by the few people that used to read

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<sup>36</sup> All these results were confirmed by more recent research. See namely McQueen, Sylvester and Moore (1998), reporting a study of 1,251 brands during two years using data from a pannel of 82,000 homes.

them. McPhee thereafter named this effect “double jeopardy”: less popular brands are not only bought by fewer people (lower penetration) but are also bought less often (lower frequency) by those who do buy them. In other words, they enjoy both fewer customers and less loyal ones.

### ***Heavy consumers***

All brands competing in the same market tend to show the same proportion of heavy consumers. Furthermore, the proportion of sales accounted for by heavy consumers is also similar across brands. For instance, if approximately 20% of the consumers of brand A are heavy, and if these consumers account for say 50% of that brand’s sales, we can be reasonably sure that the other brands will match very closely these proportions. Therefore, it is not obvious what brands will gain from segmenting their markets according to how heavy consumers are. Finally, as previously stated, for purely arithmetical reasons, the heavier a consumer is the larger the probability that, in a given period of time, he will have purchased a larger repertory of brands.

### ***The duplication of purchase law***

The number of brands integrating the consumer repertory is a function of the wish for variety. In the American market of instant coffee, for instance, the average share of category requirements was found to be about 30% for each competing brand; in the British market for gasoline, this figure came down to 20%; in the markets of breakfast cereals in both countries, where variety is specially valued, it was even lower. Commenting these figures, Ehrenberg remarked: “your buyers are the buyers of other brands who occasionally buy from you” (Ehrenberg, 1988).

What does this tells us about how people move from one brand to another? Looking at data on cross-purchasing of brands, it is possible to see in what proportion buyers of brand A also buy the remaining brands B, C, D, and so on. The evidence shows that the frequency of purchase of other brands is directly proportional to the penetration of those other brands. Ehrenberg calls this the “duplication of purchase law” (Ehrenberg, 1988). A logical implication of this law is that there is no segmentation in such markets, given that, if such segmentation existed, people would tend to consider some brands as closer substitutes than others as a consequence of perceived similarities among them.



Ehrenberg sustains that traces of segmentation can only be detected when there are real and clear differences of product formulation (powder versus liquid detergents, or leaded versus unleaded gasoline, for instance) or pricing; but he strongly denies any relevance to intangible factors such as brand image.

Ehrenberg's duplication of purchase law also implies that brand-switching does not play an important role in consumer purchase behavior. If consumers did in fact compare brands and, in this process, developed and consolidated brand preferences, a tendency should be evident for some brands to substitute for others. Stochastic models of brand choice were precisely adopted by marketing academics and practitioners to describe these brand-switching processes.

Markov models of the first order assume that the last brand chosen affects the current purchase. Probability transition matrixes can therefore be used to forecast future market shares on the basis of the present ones. Several critical assumptions are present in Markov models, including purchase timing (one purchase per time period), homogeneity, and stationarity (Lilien, Kotler and Moorthy, 1992). Panel data is currently used to estimate transition matrixes on an aggregated level.

Learning models, on the other hand, are based on the idea that present brand purchases depend not only on the last one, but on the whole story of past choices. At the individual level, each brand purchase increases the chance of future purchases (Lilien, Kotler and Moorthy, 1992). This reinforcement model was originally developed when Kuehn (1962) applied a learning model to a consumer choice problem.

The last class of stochastic models (called zero-order) assumes, on the contrary, that no purchase-event feedback exists, which means that the probability that a certain brand is chosen at each given moment is constant and does not depend on previous purchases (Ehrenberg, 1972). Ehrenberg's duplication of purchase law clearly favors zero-order over Markov or learning models (Kalwani and Morrison, 1977; Bass et al., 1984).

### ***Multi-brand purchase and the Dirichlet model***

The NBD model is adequate to analyze the behavior of a single brand, but we must resort to the Dirichlet model (based on the Dirichlet or multivariate Beta distribution<sup>37</sup>) when a group of brands is at stake. To the assumptions of the NBD model a new one must be added: that no partition exists in the market, or, in more common language, that there are no clear-cut market segments. The Dirichlet model, a stochastic formulation of buyer behavior at the individual consumer level, was anticipated by Chatfield and Goodhart (1975) and later developed by Bass, Jeuland and Wright (1976). It received its final form in Goodhart, Ehrenberg and Chatfield (1984).

The inputs to a Dirichlet analysis are:

- a) The penetration of the product category
- b) The purchase frequency for the category as a whole
- c) The number of competing brands and the market shares of the individual brands

The output of the model includes predictions of penetration, purchase frequency, sole buyers, sole buyer purchase frequency, proportions of buyers at different frequencies and sales distributions for single brands or for the whole category. These figures give us the theoretical market position of a brand in relation to other brands and is therefore very useful to evaluate the brand performance. In most studied cases the observed values come very close to the ones predicted by the Dirichlet model, except if one or more of its presuppositions are violated - for instance, if the conditions of market stability or non-partition are absent (Ehrenberg, Goodhart and Barwise, 1990). When discrepancies show up they can usually be explained by certain special and temporary circumstances.

We would expect marketing strategies and tactics to create significant deviations from the theoretical values predicted by the Dirichlet, as a result, for example, of loyalty

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<sup>37</sup> Regarding the Dirichlet distribution, the multivariate extension of the beta distribution, see Balakrishnan and Nevzorov (2003).

programs, but the fact is that such deviations seldom or never happen. Excess behavioral loyalty is really very difficult to find (Fader and Schmittlein, 1993), a result that raises serious doubts regarding marketing strategies designed to attain that result.

### **3.5.4 – Attitudes revisited**

#### ***The role of attitudes***

If brands do not differ much from one another from the point of view of the purchasing behavior associated to them, except that some have more customers than others, then no large differences regarding motivations, perceptions and attitudes toward them should be expected. That is precisely what seems to happen.

Attitudes vary considerably when we compare users with non-users of a brand, being consistently more positive among the former – which means very simply that, as should be expected, consumers like best the brands they use. It is interesting to note, however, that attitudes hardly change from brand to brand when we only question each brand's users. The following example is mentioned by Ehrenberg (1974): “67% of users of Brand A say that it has the “right taste”, with only 6% of nonusers of A saying so about it, and 69% of users of Brand B say that B has the “right taste” with only 5% of nonusers of B saying so, and so on”. In other words, giving an evaluative response about a brand largely depends on whether or not a consumer is using it. Given that, in the previous example, the penetration of Brand A is much larger than the penetration of Brand B, a general survey of the market will necessarily conclude that brand A is favored by consumers over B – a flawed interpretation as a consequence of looking at the data from an exclusively aggregated perspective. Usually, it will be found that stating that a brand is the preferred one is identical to stating that it is the best-selling one (Bird, Channon and Ehrenberg, 1969; Bird and Ehrenberg, 1966; Bird and Ehrenberg, 1970 ).

Do people buy a brand because they prefer it, or do they instead prefer it because they use it? The traditional view favors the former alternative, but there seems to be good grounds to choose the latter one (Ehrenberg, 1974).

### ***Attitude transformation***

In clear contrast to the prevailing marketing theory, Bird and Ehrenberg (1966) did not confirm that people must change their attitudes previously to the purchase of a brand. Thus, no attitude change takes place before a brand is bought for the first time; attitudes only change later, specially after the customer starts using it regularly. Moreover, there is a causal process from usage to stated intention of purchase, but not reverse causality that leads from intention to purchase.

Barnard, Barwise and Ehrenberg (1986) found that the percentage of people stating that a brand had an attribute was constant, but that only half of the people who credited a brand with an attribute maintained that opinion on the next occasion. This stochastic pattern mimics the irregularity of purchase. Delving further into the matter, Barnard (1987) reported that people were more likely to associate positive attitudes with brands they were currently using, and that a large part of the variation in brand attributions is associated with usage.

The examples usually cited to support the opposite claim, according to which advertising would have the power to affect powerfully the predispositions of consumers toward brands, reveal themselves, after careful scrutiny, not entirely convincing. The celebrated Marlboro campaign, for instance, is frequently cited as a highly commendable example of how the transformation of attitudes through advertising can produce spectacular commercial successes. This is how Assael explains the phenomenon:

“In the mid-1950s, Philip Morris, the brand’s producer, decided to reposition Marlboro from an elite cigarette aimed at women smokers to a new filtered cigarette aimed at men who were heavy smokers. The company needed a symbol to attract the blue collar male segment that was the heaviest-smoking group. In a stroke of genius, the company decided on the cowboy, a figure that male smokers associated with dominance and masculinity. As the advertising campaign ran, smokers began to *learn* to associate Marlboro with the cowboy. Many of them tried the brand. The association of the product with the cowboy established a positive attitude toward the Marlboro and led these consumers to try it again. Repetitive advertising reinforced use of the brand. As a result, many consumers became brand loyal.” (Assael, 1992, p. 66)

As it happens, however, this report ignores some key aspects of the facts. The success of the Marlboro brand began with the modification of three different features of the product: (a) a new type of filter that helped preserve the original flavor of the cigarette;

(b) a new type of flip-flop crush-proof box; and (c) a new and distinctive package design. On the other hand, the re-launch of Marlboro benefited enormously from the expansion of the overall filter cigarettes market, fueled by emerging concerns over the health problems derived from tobacco. As a consequence, the filter segment grew from 1% of the general cigarette market in 1950 to 60% in the mid-1960s (Ehrenberg, 1974).

Therefore, this much vaunted case of success of the power of advertising to induce major changes in attitudes seems instead to confirm that the use experience, stepped on real and preferably differentiating product features, is really the key to transform the attitudes of consumers toward brands.

### ***Promotions***

Price promotions are commonly justified by their ability to attract new customers. It is expected that these, after trying the brand, change their attitudes and, as a consequence, become regular users. Promotions would therefore also have a long term effect, different from and much more valuable than their short term impact.

However, the available empirical evidence refutes these allegations (Ehrenberg and Hammond, 2001), first and foremost because promotions launched by established brands fail to attract new customers. In the case of a promotion launched by a brand of detergent in the United Kingdom, 96% of the buyers had already bought it at some point of time during the previous five years. In another instance (Ehrenberg, Hammond and Goodhart, 1994) 93% of those responding to price-cutting promotions for major brands had bought the brand in the previous 2½ years. As very few genuine triers are attracted by these special offers, it is not surprising that no long term enduring positive effect is detected either. To conclude, price promotions can benefit smaller, latecomer and thus relatively unknown brands that strive to increase their penetration, but are almost always negative for established and powerful brands.

### 3.5.5 – The role of advertising

The discoveries of Ehrenberg and his followers also bear on the role played by advertising in the transformation or reinforcement of purchase behavior. We will next review some of their most relevant findings.

The crucial fact to note is the remarkable short-term stability of consumers' attitudes toward brands, suggesting that they remain strangely indifferent to the intense and almost frantic marketing activity of the several competing brands, a typical phenomenon in repeat-buying markets. At least in the short term, the continuous advertising and promotional campaigns and counter-campaigns appear to be rather ineffective regarding their stated purpose of influencing brand preference.

#### *Advertising and attitudes*

As previously stated, the attitudes of consumers toward brands seem to be mainly determined by their direct use experience, not by what advertising says about them. How can we then harmonize this with the importance usually attributed to the sequence

Awareness  $\Rightarrow$  Attitude  $\Rightarrow$  Behavior

to explain the influence of advertising on purchase behavior? In Ehrenberg's view, there is no alternative but to substitute another model for this one. The new model states that advertising works in a very different way from what is commonly accepted. Therefore, an alternative sequence of effects is in order (Ehrenberg, 1974):

Awareness  $\Rightarrow$  Trial  $\Rightarrow$  Reinforcement

According to this conjecture, in the markets where low involvement prevails the mere awareness that a brand exists may be sufficient to stimulate trial, given that, on one side, curiosity stimulates the consumer to try something new, and that, on the other side, no relevant inhibitions exist that might dissuade him from doing so, as the risks involved (whether economical, technical, psychological or social) are truly insignificant.

If the product is good, trial will stand a good chance of satisfying the consumer and stimulating him to repeat the experience, so that it will be thereafter included in the brand repertory. Advertising will from then on accomplish the modest but valuable task of

reinforcing the use experience, namely by adding emotional values to the brand. This conjecture is consistent with the well known fact that consumers pay more attention to the advertising of the brands they use than to the advertising of those they don't (Engel, 1963). On the other hand, it is only too natural that people tend to be skeptical of the alleged superiority boasted by brands before having had a chance to try them. On the contrary, they commonly change their minds afterwards in order to reduce the discrepancy between what they do and what they think. This phenomenon is known as "cognitive dissonance" (Festinger, 1957; 1964).

### ***A weak and defensive force***

As can be seen, advertising clearly plays in this theory a secondary role when compared with the merits of the product itself. For Ehrenberg (1974) advertising has two main features:

1. It is a weak force. This in turn means two things: on one hand, it is powerless if the product itself is no good; on the other hand, it is much more powerful when it strives to reinforce behavior than when it aims to transform it.
2. It plays a predominantly defensive role. Instead of persuading people to trade one brand for another based on alleged superior features, its true vocation is to stimulate them to go on purchasing a brand they already use and enjoy.

These hypotheses are affiliated to a school of opinion according to which rationality (although of a special kind) really drives the behavior of consumers, who should not be considered ignorant fools. In the case of frequently purchased goods, consumers know intimately the products they currently use; besides, they hear their family and friends comment favorably or unfavorably on the competing brands. Ehrenberg vehemently summarized this point of view: "The average housewife is far more experienced in buying her normal products than the industrial purchaser buying an atomic power station. She is also far less likely to make a mistake" (Ehrenberg, 1974).

Consumers do not ignore that, sometimes, the differences among competing brands are really small. In this kind of situation the rational attitude consists in choosing a small number of brands that in the past proved satisfactory and then in purchasing them

alternatively in order to satisfy their wish for variety, that is, in order to avoid boredom. This desire for variety also stimulates them to try a new brand from time to time, even if this random deviation from routine seldom sticks and becomes a new habit.

### ***Awareness – Trial - Reinforcement***

The repeat-buying phenomenon and the way consumers usually behave can be described by a simple sequence of three events: (a) acknowledgement that a brand exists; (b) first trial; (c) reinforcement of the initial trial that thereafter becomes a habit.

Some kind of brand awareness must always come first, even if only when the consumer becomes acquainted with it either on the supermarket shelves or at some family or neighbor's home. Awareness can be created in many ways, advertising being only one of them. In turn, the recognition that a certain brand exists can induce someone to look for it in the supermarket, to search for information about it or to ask someone else for his opinion on it.

The next step, trial purchase, does not imply a previous intention to buy, much less the conviction that the proposed brand is excellent or better than its competitors. It should not be forgotten that we are dealing with low involvement products, therefore the risk of buying something that does not prove to be entirely satisfactory is insignificant. The trial purchase can occur for a number of reasons: stock depletion of the usually purchased brands, launch promotion of a new brand, wish to break the routine, and so on.

People however tend to go back to their habitual brands as if nothing had happened after having tried a new brand, specially if they were moved by a mere opportunistic motivation of taking advantage from an alluring price promotion. This return to the norm is common even when the level of satisfaction generated by the trial purchase was reasonable but not exceptional. The second purchase is therefore the crucial moment that decides the future growth outlook of a brand and, in consequence, its long term success. As it happens, the possibility of creating a purchase habit is decisively influenced by the capacity the brand shows to reinforce and enhance that experience.

Obviously, advertising can play a role in any of the before mentioned three steps of the sequence Awareness – Trial – Reinforcement. First, it can create, awaken or reinforce



awareness. Second, it can stimulate trial concurrently with a simultaneous improvement of the product or of its packaging, with a price reduction or with some special and temporary promotional offer. Finally, it can help turn trialists into regular customers, and it can also induce existing customers to stay loyal to the brand. It is in this last capacity that advertising truly plays a unique role.

Repetitive advertising thus plays a predominantly defensive role in the promotion of established brands. Its main purpose is to reinforce consumption habits and attitudes that were formed through the repeated use of the brand. In stabilized repeat-buying markets advertising is definitely not effective when it comes to change attitudes, and for this reason its main role should be to reinforce the existing perceptions and attitudes. The available research does not confirm that regular buyers of Brand A value it more than the regular buyers of Brand B value the brand they usually purchase. Consumers are perfectly happy to know that a brand they buy has all the qualities that a good product is expected to have. As a consequence, it is useless to try to differentiate brands artificially from one another.

### **3.6 – CONFRONTATION OF THE THEORIES**

#### **3.6.1 – Criticism of the cognitive paradigm**

As stated in the previous chapter, the cognitive paradigm, according to which a purchase is the result of a decision process, although sometimes admittedly a very simplified one, has dominated contemporary marketing. The consumers are supposed to develop well-structured opinions on brands, collect information, evaluate the outcomes, compare them and sometimes change their preferences according to a rational and to a large extent conscious process. Foxall summarizes in a few words the cognitive paradigm implicit in the Howard-Sheth model:

“Consumer behavior is widely understood as a problem solving and decision-making sequence, the outcome of which is determined by the buyer’s goal directed processing of information. The ‘cognitive’ consumer is credited with the capacity to receive and handle considerable quantities of information, to engage actively in the comparative evaluation of alternative products and brands, and to select rationally among them. Belief in the cognitive consumer underpins not only marketing but a good deal of economic analysis. It is also central to the analysis of managerial strategy.”

(Foxall, 1992)

The truth, however, is that the empirical evidence collected by Ehrenberg and other researchers does not corroborate this interpretation of purchase behavior, not even in a softer version obtained by classifying a good number of buying situations as “limited problem solution”. On one hand, labeling repeat-buying as “problem solving” seems in itself excessive; on the other hand, the recognition that habitual behavior is after all so prevalent calls for an explanation, absent from this theory, of how this habit is created and sustained.

Olshavsky and Grabois (1979) hinted that, in fact, “for many purchases a decision process never occurs, not even on the first purchase”, and they mentioned a number of examples to illustrate their point of view:

“Purchases can occur out of necessity; they can be derived from culturally mandated lifestyles or from interlocked purchases; they can reflect preferences acquired in early childhood; they can result from simple conformity to group norms or from imitation of others; purchases can be made exclusively on recommendations from personal or nonpersonal sources; they can be made on the basis of surrogates of various types; or they can even occur on a random or superficial basis.”

Furthermore,

“Even when purchase behavior is preceded by a choice process, it is likely to be very limited. It typically involves the evaluation of few alternatives, little external search, few evaluative criteria, and simple evaluation process models.”

What is suggested here is not only that routine buying should be considered the normal situation, but also that “extensive problem solving” is probably no more than a myth of scarce relevance outside marketing textbooks. Authors commonly agree that some consumer behavior is controlled by factors in the consumer’s situation and environment while in other cases their behavior is deliberate and purposeful, but there is disagreement about the relative relevance of each type of explanation.

It has been noted that even in purchases implying reasonable levels of involvement such as durable consumer goods consumers hardly spend any time or dedicate any effort to the evaluation of alternatives. Beatty and Smith (1987) found little search before the purchase of consumer durables. According to Lapersonne, Laurent and Le Goff (1994), even when the purchase of a car is at stake as many as 17% of buyers limit their consideration set to the marque last bought. Wilkie and Dickson (1985) discovered that

two-thirds of the purchasers of white-goods appliances had bought the brand before. If this situation were found to be common, this would hint that real decisions are after all confined to relatively rare first purchases, given that most durable consumer goods are bought to substitute other previously acquired items.

No matter how rare, there is no reason to doubt that first time buyers do exist. But, even in this case, the cognitive consumer model might not be very useful. Herbert Simon, a harsh critic of some of the basic axioms of neo-classical economics, sustained that consumers do not in fact try to maximize utility, given that they have neither the facts, nor the consistent value structure, nor the reasoning power needed to apply the principles of expected subjective utility, not even in relatively simple situations (Simon, 1956; 1959; 1969; 1983). If they tried to do it, they would end up paralyzed. Therefore they opt instead for pragmatic strategies characterized by bounded rationality, which do not strive to attain the best possible result in theory, but only a 'satisficing' (i.e., good enough) outcome on the given conditions. This means that, when the consumer finds a brand that suits him, he will not want to waste more time looking for more advantageous alternatives; furthermore, it should be expected that in the future he will persist in the same behavior. If this hypothesis is confirmed, the moment when a consumer first meets the available brands might be a decisive factor, since he will tend to stop his search immediately after he finds the first brand or brands that satisfy him. In other words, the order in which brands are evaluated might be of the utmost importance. Unfortunately, Simon's ideas have not been systematically tested in their possible applications to marketing management.

### **3.6.2 - Summing up the NBD-Dirichlet Theory**

Let us now summarize the alternative view put forward by the NBD-Dirichlet theory of how repeat-buying works and how advertising can influence it.

The first important thing to note is that, as our own experience as consumers tends to confirm, excepting some special situations, consumers do not prefer a brand, but a set of brands that they use regularly. Thus, they choose brand repertoires instead of individual brands, benefiting from the combined advantages of habit and variety. A brand does not have to be considered the best in order to be included in the repertoire. All that is needed is that: (a) the customer is looking for more variety than he presently enjoys and is therefore eager to integrate a new brand into his current repertoire; (b) the aspiring brand is seen as

acceptable by the consumer. This is not of course a utility maximization behavior, as predicted by neoclassical economics, but a satisfying behavior, more in line with the previously mentioned ideas of Herbert Simon.

On the other hand, once consumers get used to a certain behavior it proves very difficult to change it, as this behavior tends to remain stable for a long time. The force of habit seems therefore to be a very powerful factor when we try to explain consumers' purchasing behavior. The rule is, if a rule works, do not change it (Hoch, 1984). We will return to this topic in the next section in order to examine the rationality of this type of behavior.

A brand's market share is determined by four variables: penetration rate, purchase frequency, number of units bought by purchase occasion, and average quantity bought per pack. Behavior research shows that the three last variables are extremely similar across brands (with one single exception we will mention in the next paragraph). Penetration rate is therefore the main factor that explains the apparent differences among the performances of competing brands.

As a rule, the best-selling brand (and, sometimes, also the second brand) shows a purchase frequency clearly higher than the remaining brands. This does not seem to be caused by specific marketing environments or particular marketing strategies – it just happens independently of marketing managers' will and should as a consequence be considered a general law of repeat-buying. It is probably the result of the higher salience that a brand enjoys by the simple fact of displaying the highest penetration rate. Ehrenberg (1988) called this phenomenon “double jeopardy” – a hint to the disadvantage of not being the leading brand – while Jones (1998) preferred to call it “penetration supercharge” – a hint to the advantage of being the market leader.

At the same time, there appear to be no large differences among the profiles of consumers who purchase brands aimed at different market segments. The segmentation efforts based on differing consumer's characteristics seem misguided. These observations apparently challenge two of the basic principles of marketing strategy: differentiation and segmentation.

The first purchase of a brand is not generally preceded by a perceptible change of

attitude. People apparently adopt a brand first and only later change their attitude as a consequence of their personal experience, an observation that agrees with Feistinger's cognitive dissonance theory. Consumer's attitudes toward brands are therefore mainly determined by their direct use experience, not by what advertising says about them.

An alternative hypothesis on how advertising works, known as the Awareness – Trial – Reinforcement (ATR) model, emerged from the previously mentioned empirical evidence. According to it, the simple acknowledgment that a brand exists may in certain circumstances be enough to stimulate trial, given that curiosity induces the consumer to test something new whenever no relevant inhibitions refrain him from doing so. This will happen with the condition that the risks involved (whether economical, technical, psychological or social) are insignificant.

To summarize, we face two very different paradigms of marketing and marketing communications, leading to markedly divergent or even conflicting recommendations on how the marketing function should be managed regarding both its objectives and strategies.

### **3.6.3 – Reinforcement, habit and rationality**

The cognitive paradigm focuses on the modification of consumer behavior and thus tries to explain the changes that take place in purchasing. But, most of the time, consumers just do what they previously did during long periods of time, repeating over and over the same behavior. The facts revealed by the empirical investigations of Ehrenberg corroborate the enormous importance of habit in consumer buying behavior, which sometimes translates into very stable relations between consumers and brands in the long term. Habitual behavior makes life simpler to consumers, helping them saving time that otherwise would be spent dealing with matters of small importance in the general context of their lives. If consumers were forced to loose hours comparing products, prices and promotional offers anytime they visit the supermarket, not much time would be left for anything else. Thus, this kind of behavior should be considered absolutely rational, specially because it leaves people free to concentrate their attention on the really important

issues of their private lives, possibly including infrequent high involvement purchases<sup>38</sup>. Economists usually expect consumers to be rational in a different and peculiar sense, that is, in the sense that they are supposed to evaluate systematically the advantages and disadvantages of each possible alternative, presuming, among other things, full information and rational expectations. In the absence of these unrealistic presuppositions, a really rational strategy for consumers must instead be pragmatic, allowing them to obtain satisfactory results in a reasonably short time period.

However, habit can also play an important role in new purchase situations. For instance, a person who buys a car for the first time is usually somewhat familiar with cars, has visited dealerships or car exhibitions, has already purchased other high ticket items, has learned how to deal with salesmen, has some experience of negotiation, and so on. In other words, the experience acquired in one domain can be at least partially transferred to other domains. As a consequence, habitual buyer behavior is valid in an enormous variety of situations, although requiring some adjustments to account for the novelty of each specific case.

Habitual behavior excludes advanced planning or conscious problem solving. But it does not preclude some reasoning effort on the part of the consumer, namely after the purchase is concluded, when for some reason an unpleasant experience suggests that it might be a good idea to challenge some ingrained habit. The paradigm of habitual behavior thus predicts that people will go on buying the same brands that ensure certain satisfaction levels, and that it will be difficult to drive out these brands even if some objectively valuable new alternatives appear in the market. Therefore, habitual behavior inhibits change and makes consumers less eager to try new products and brands. It restricts experimentation.

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<sup>38</sup> However, although there can be few more important and high-involvement decisions in life than those concerning getting married and having children, Richards (1985) found out that the majority of the couples in a study sample had not considered the possibility of not aiming to marry and raise a family (though many did consider alternative times to having children).

### 3.6.4 – Consequences for the theory and practice of marketing

Whatever its limitations, the discoveries of Ehrenberg are of the utmost theoretical and practical importance. As he repeatedly reminds us, traditional buyer behavior theory takes small notice of observed phenomena; in some cases, its predictions squarely contradict the available statistical evidence. The Howard-Sheth model is specially criticized by Ehrenberg, who accuses it of ignoring the hard facts of buyer behavior.

“In general then, these theories of consumer behavior do not seem to predict any of the quantitative findings described in this book, or even their qualitative nature. They do not even state whether there should be a single, general pattern at all. Nor yet do they seem readily capable of suggesting new hypothesis to test, in areas which have not as yet been explored empirically.” (Ehrenberg, 1988, p. 213)

The multi-brand loyalty apparent in repertory brand buying should be considered a universal phenomenon. The traditional concept of loyalty as allegiance to a single brand should be abandoned as it contradicts all the available evidence. On the other hand, the usefulness of communication programs aimed at the change of preferences in order to induce brand-switching is at best highly questionable. A brand does not have to be the preferred one in order to be included in the brand repertory – it is sufficient for it to be considered equally acceptable. Thus, there is no need to try to prove that it is the best, all that is needed is to make the customers believe that it is ‘good enough’, or, in other words, that it meets the expectations that the customer has grown used to.

Another important conclusion has to do with the recommended basic orientation of the marketing effort. The data collected by Ehrenberg suggest that, in general, brands grow mainly through the increase of penetration. This is especially true in the case of the lesser brands in a given market. Now, the increase of the penetration of these brands depends crucially on the possibility of convincing a large number of homes to include them in the repertory of acceptable brands. All the priority should therefore be given to initiatives designed to reach broader levels of acceptance, including large-scale sampling.

Whenever the market share is very low, efforts to increase loyalty or use rate will be practically useless. Only leading brands in a given product category – or those brands that, in spite of not being leaders, boast a market share of at least 20% – can expect good results from a strategy oriented to increase purchase frequency by taken advantage of the

phenomenon known as penetration supercharge or double jeopardy.

On a more general level, Ehrenberg states

“...one of the main lines of traditional thinking in marketing has been that the different brands in a given product-field have to possess different properties or attributes in order to appeal to their consumers. These differentiating properties may either be real, or be more of the “brand-image” type (i.e. attributes with which a brand is invested by its advertising, and general promotion, including packaging).” (Ehrenberg, 1988, p. 250)

However,

“...all the evidence indicates that as far the consumer is concerned, different brands in general induce the same kind of buying behavior, both in terms of repeat-buying and in terms of brand-switching. Furthermore, the same kinds of *attitudinal* responses tend to occur. In general, the only substantive difference between one brand and another in terms of consumer response seems to be that one brand has more buyers than another (except where some *real* difference in product formulation exists). In addition, some earlier experimental results suggest that the common forms of brand-loyalty as described here may perhaps be generated without special marketing efforts such as advertising. There appears to be no evidence that one brand needs to differ from another in order to sell more.” (Ehrenberg, 1988, pp. 250-1)

And he concludes:

“As for the consumer, it is clear that his buying behavior generally follows simple and predictable patterns. It seems to be characterized by regular habits, rather than by constant search or by uncertainty. The implication is that the consumer is less affected by the content of advertising and marketing action as such than is often claimed, but responds in a “reasonable” way to any imbalance of marketing inputs. For example, when two brands are similar in all respects (and known to be so by consumers, many of whom will have tried both), the brand with the greater weight of advertising and greater retail availability will tend to be bought more. There is no evidence that repeat-buying behaviour and the general structure of brand-choice can be influenced by factors other than perhaps real differences in product-formulation, or price, or retail availability. This is not to say that advertising, promotion and selling have no effect, but only that they influence the level of brand-shares (mostly by keeping them where they are), rather than the general structure of buyer behavior or the “image” of the brand. In general, there is less segmentation of markets than seems often to be thought.” (Ehrenberg, 1988, p. 251)

On the same line of thinking, he stated: “Sustained growth, brand differentiation, and persuasive advertising are romantic fantasies” (Ehrenberg, 2002). In his opinion,



survival, and not growth should be the main purpose of brand management, as protecting its current market position is all that it can reasonably hope for. Anything more, like gaining share benefiting from competitor mistakes, should be considered an unpredictable bonus. Second, significant competitive advantage seldom exists in fast-moving consumer goods, and, if it does, it is rarely sustainable. The basic fact of competition is that it consists of not letting competitors be effectively different or better, thus preventing each other from staying for very long ahead of the pack. In these conditions, tossing a penny is a method as good as any other of picking a brand in each purchasing occasion. As Jeremy Bulmore, former Vice-President of J. Walter Thompson used to say: "I know all these brands are the same. I just have to decide which is best." (Bulmore, 1998) Finally, "there is no generalizable evidence on any lasting persuasive effects of advertising" (Ehrenberg, 2002), and it is also true that sales and images seldom change. Once again, advertising lacks consistently dynamic effects because of competition, as the efforts of the competitors tend to cancel each other. Advertising possibly works as paid-for creative publicity. Advertising can "create and refresh memory traces and associations", thus making the brand "salient, familiar, and reputable" (Ibid.). To conclude: "The more alike two brands are, the more effective creative publicity can be" (Ibid.).

To sum up, the NBD-Dirichlet theory developed by Ehrenberg introduces us to a picture of purchase behavior that stands in marked contrast to the more familiar Howard-Sheth model. To conclude this section, the following table summarizes the differences between both approaches regarding research methodologies, key concepts, predictions, and recommended strategies.

**Table 3.2**  
**The Howard-Sheth and NBD-Dirichlet Theories Compared**

	Howard-Sheth	NBD-Dirichlet
<b>Research methodology</b>	What people say they do	What people do
	Cognitive constructs	Behavioral constructs
	Consumer samples	Consumer panels
<b>Purchase patterns</b>	Leaking bucket	Limited brand erosion
	Buying patterns affected by marketing management	Stable long-run buying patterns
<b>Consumer behavior</b>	Problem-solving	Routine
	Choice	Reinforcement/ Habit
	Decision process	No decision process
	Information search before purchase	Post-purchase evaluation
	Pre-purchase evaluation	Cognitive dissonance
<b>Attitudes and behavior</b>	Product as attribute bundle	Product as indivisible entity
	Attitudes determine brand purchase	Brand usage determines attitudes
<b>Brand choice</b>	Brand preference	Brand repertory
	Brand switching	Brand rotation
	Independence between penetration and loyalty	Correlation between penetration and loyalty
<b>Brand strategy</b>	Customer segments	Benefit segments
	Differentiated positioning	Irrelevance of differentiation
	Possibility of growth through loyalty	Absence of excess loyalty or niches
<b>Advertising</b>	Persuasive advertising	Familiarity advertising
	Advertising changes attitudes	Advertising promotes salience
	Advertising changes brand preferences	Advertising reinforces habits
	Advertising promotes brand-switching	Advertising protects status quo
	Advertising is strong	Advertising is weak
	Awareness – Conviction – Purchase	Awareness – Trial – Reinforcement

Source: Author.

### 3.6.5 – Problems with repeat-buying theory

Neither the methodology nor the general results obtained by Ehrenberg have been seriously challenged to this day. However, his favorite interpretation of the reported findings is open to considerable controversy. We will now review some of the most important issues at stake.

#### *Validity conditions*

A frequent objection is leveled at the scope of validity of the results (East, 1997 pp. 79-80). In fact, it is not possible to ignore that the adequacy of the NBD and Dirichlet

models depends crucially on the joint verification of a number of circumstances: (a) repeat-buying; (b) low involvement; (c) market stationarity; (d) market maturity; and (e) absence of functional segmentation. What happens with new markets in a stage of impetuous growth? What happens with infrequently purchased goods or with goods implying a higher involvement level? What happens with subscription goods, such as financial or telecommunication services, that, by their very nature, tend to imply stronger bonds between suppliers and customers? What happens when product differentiation is at work?

These remarks cannot really be interpreted as criticisms since the models themselves point to these drawbacks, at the very least as preventions against any temptation to use them unwittingly out of the proper context. Any attempt to apply the NBD or Dirichlet models out of the conditions where their suitability has been clearly warranted should therefore be carried with the utmost caution.

Having said that, it must be added that several features of the models have in the last few years come to prove valid in rather unexpected circumstances. For instance, the analysis of the repeated but infrequent purchase of cars in the French market has revealed a pattern of double jeopardy (Colombo, Ehrenberg and Sabavala, 2000), meaning that small brands also benefit from lower loyalty. On the other hand, the Australian credit card market – a typical subscription market – has been shown to follow very closely the pattern of purchase behavior predicted by the Dirichlet model (Sharp and Wright, 2000).

### ***Deviations from the Dirichlet model***

Although not very often, some deviations of the observed behavior from the values predicted by the NBD and the Dirichlet models have now and then been reported. What significance should be attributed to these deviations? Do they prove the models wrong? Or should we instead interpret them as instances of particularly well-succeeded marketing strategies (Dyson, Farr and Hollis, 1997)?

If, for instance, a brand shows an average purchase frequency clearly above its competitors (a phenomenon known as “excess loyalty”), and thus also above the values predicted by the model, how can we account for this situation? Is this brand’s manager applying a particularly well-conceived loyalty strategy? As it happens, when significant deviations are found between observed and predicted values it is usually relatively

straightforward to identify the causes of these inconsistencies: existence of functional segmentation, product differentiation, absence of brand repertoires, more or less persistent distribution problems or restrictions to free competition, for instance (Sharp and Driesener, 2000).

### ***Description or explanation?***

One of the most serious problems raised in connection with these models relates to their explanatory power. Can the NBD-Dirichlet model be regarded as a real theory, as opposed to a mere description of the facts (Rossiter, 1994)? Some critics argue, namely, that it is not at all clear what the NBD-Dirichlet model has to offer to marketing managers in order to improve their daily performance. For instance, what should brands do to become bigger, or, to put it differently, to increase their penetration rate?

It should be acknowledged that, by refusing to go beyond the plain facts uncovered by research, Ehrenberg himself has contributed to restrain the scope and the applicability of his own discoveries. He often underlines the similitude between his own approach and Newton's scientific method – *hypothesis non fingo* ('I do not feign hypotheses') – to justify his refusal to propose bold generalizations (Ehrenberg and Sharp, 2000). In his opinion, theory should emerge naturally from the facts themselves, through an inductive process resulting from the accumulation of experimental evidence.

### **3.7 - CONCLUSION**

Managers educated in the Howard-Sheth tradition cannot help being surprised by the findings reported by Ehrenberg and his associates, since they question directly some of their most cherished beliefs. Traditional approaches described in this chapter are based on research that aims to find out what people say they do, rather than what they in fact do. As such, attention is directed to mental processes and cognitive constructs. Attitudes are believed to govern behavior and persuasive advertising is used to promote brand switching. Generating brand preference, and therefore loyalty, is the central goal of marketing management. Brand strategy revolves around the idea that a product is a bundle of attributes, and that different attributes appeal to different market segments. It is the marketing managers task to select target markets and to position his offer in a way that maximizes the brand's appeal to each segment. Loyalty programs appear as a natural thing

to do in this context, especially as the underlying buyer behavior theory makes no specific predictions regarding its alleged effectiveness.

On the contrary, the NBD-Dirichlet theory raises serious doubts regarding the relationship marketing paradigm in general and loyalty programs in particular. This approach favors observation of real behavior, and alleges that the known facts prove the existence of universal iron laws of purchase behavior that managers can only ignore at their peril. Contrary to the common view, this theory sustains that customer erosion is limited and that, therefore, tactics based on the so-called “leaking bucket” theory tend to over-react to random events. Buying patterns are found to be basically stable in the long run. For this reason, brand managers are advised to keep cool and aim mainly to survive instead of devising ambitious growth strategies that never materialize. Buyer behavior is a routine matter. There is no real choice most of the time, but only habit and reinforcement. Attitudes are determined by usage, and not the other way round. Consumers are loyal to repertoires of brands, not to single brands, among which they rotate as a matter of routine. Patterns of purchase behavior can be predicted by statistical distributions, which means that, as a rule, penetration is the only independent variable of the model. An especially disturbing phenomenon, known as “double jeopardy”, relates loyalty to penetration, suggesting that loyalty is not an independent variable of brand management, but a consequence of the penetration level reached by the brand.

The next chapter will be devoted to clarify the consequences of the NBD-Dirichlet theory to the alleged effectiveness of relationship marketing programs.



# Chapter 4

## The Expected Effects of Relationship Marketing Programs

### 4.1 - INTRODUCTION

The previous chapter confronted systematically two opposed marketing theories. The purpose of Chapter 4 is to present the research issues and to specify the hypotheses that will be subsequently tested. This will be done in three stages. First, we clarify the implications of the NBD-Dirichlet theory for relationship marketing and make a first attempt at understanding how relationship programs might improve the performance of a brand. In order to do that, we will formulate some general hypothesis on how they might contribute to increase market share. Second, we break down the general objective of gaining market share into more specific action objectives. The Parfitt-Collins formula has been used for decades for this purpose. We discuss its usefulness and compare it with the sales equation presented in the previous chapter. Finally, the chapter concludes with the statement of the research hypotheses that our investigation intends to elucidate.

### 4.2 – THE IMPLICATIONS OF THE NBD-DIRICHLET THEORY FOR RELATIONSHIP MARKETING

Each one of the two purchase behavior theories reviewed in the previous chapter implies logically certain recommendations on what will be the most advisable strategies and tactics in order to manage and retain a customer base, that is, on the way customer relationships should be managed. Specifically, the NBD-Dirichlet theory of repeat-buying behavior raises serious doubts about the usefulness of relationship marketing programs. Let us clarify why.

#### 4.2.1 – Is it possible to change repeat-buying patterns?

Dowling and Uncles (1997) state unambiguously that “most [loyalty] schemes do not fundamentally alter market structure”, by which they mean that such initiatives are unable to change the universal repeat-buying patterns identified by Ehrenberg. While

admitting that those programs “might help to protect incumbents and might be regarded as a legitimate part of the marketer’s armory” (ibid.), they haste to add that this only happens “at the cost of increasing marketing expenditures” (ibid.). In these conditions, it is sensible to ask if it wouldn’t be possible to reach the same results by other tested and possibly less expensive means: “Does a customer loyalty program offer a better return than an alternative such as a price cut, increased advertising, or increasing distribution coverage?” (ibid.)

The justification for this skepticism lies in the discoveries of Ehrenberg and his colleagues on purchase behavior described in the previous chapter, namely those related to the consumers’ reluctance to remain loyal to a single brand, to the fact that purchase patterns hardly change from brand to brand and to the phenomenon of double jeopardy. The scarce available evidence suggests that it is very difficult, if not impossible, for relationship programs to change the fundamental patterns of buyer behavior. For instance, a study published in 1993 indicated that at that date more than 80% of European business airline travelers were members of more than one airline loyalty club and that the average membership of airline loyalty clubs was 3.1 per traveler (cited by Dowling and Uncles, 1997). On the other hand, the launch of several national loyalty schemes in the British grocery market after 1995 seems to have left market shares reasonably steady (also cited by Dowling and Uncles, 1997). Apparently, consumers resist actively the efforts of marketing managers to reduce their usual levels of purchase variety, probably because they have good reasons for preferring divided loyalty, like for instance enjoying the benefits of different brands for different occasions or just enjoying variety for variety’s sake. To summarize their view, Dowling and Uncles write:

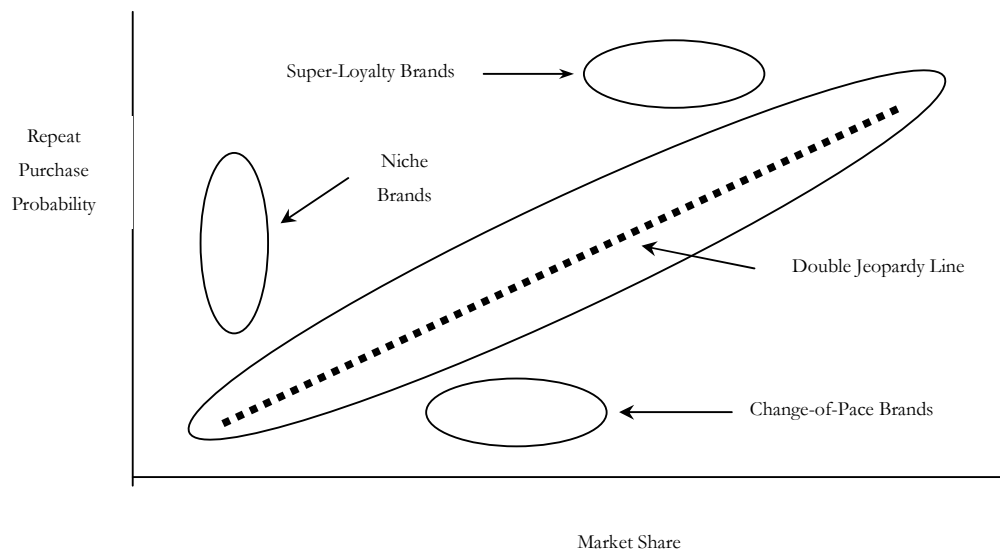
“Given the amount of investigation that supports these patterns of buyer behavior [divided loyalty], it seems unlikely that a loyalty program could *fundamentally* alter this behavior, especially in established, competitive markets (where copycat responses are most likely). Even a path-breaking scheme may alter only short-run probabilities. Once the market has settled down again, or a competitor has launched a similar scheme, patterns of divided loyalty reemerge. The issue is whether the longer-run propensities settle at old or new levels.” (Dowling and Uncles, 1997, p. 74)



#### 4.2.2 – Is it possible to violate double jeopardy?

One of the central implications of the double jeopardy phenomenon is that, while loyalty measured by purchase frequency does not change significantly from brand to brand, whatever variation there is is largely determined by market share (which in turn is explained by penetration), as shown in Figure 4.1. Brands become big by increasing their penetration rates, and tend thereafter to have more frequent buyers than their weaker competitors. The bigger the brand, the larger the number of loyal buyers it attracts. Conversely, the smaller the brand the less buyers will want to purchase the brand frequently. Consequently, it is not very realistic to expect that a brand might significantly increase its market share by promoting customer loyalty. This implication of the NBD-Dirichlet theory contradicts flatly the main promise of relationship programs aimed at improving customer retention.

**Figure 4.1**  
**Double-Jeopardy and Exceptions to the Rule**



Source: Dowling and Uncles (1997).

As shown in Figure 4.1 above, most brands lie along the double jeopardy line. Therefore, the outlier brands will necessarily exhibit very unusual features. Some large brands might display super-loyalty (also called excess-loyalty by comparison with the norm), meaning that they have more frequent buyers than double jeopardy would predict, something very common with own label brands. Fader and Schmittlein (1993) submit that excess-loyalty might be a consequence of category segmentation that further harms smaller

brands. At the other extreme, a niche brand, although small, may also benefit from excess-loyalty. Dowling and Uncles (1997) consider niche brands an ephemeral phenomenon: after a while they either grow through larger penetration and join the double jeopardy line, or stay small and die. On the other hand, Jarvis et al. (2003) found that niche strategies are more effective in categories where small brands form a substantial proportion of the total category. Finally, we should mention change-of-pace brands. Change-of-pace brands have a higher than expected market share but a less than expected proportion of loyal buyers. Low-alcohol beers fit rather well this description, because people tend to buy them only in special occasions (for instance, before driving). According to Dowling and Uncles (1997): “super-loyalty, niche, and change-of-pace brands are much less common than big or small double jeopardy brands”. Conventional marketing wisdom mistakenly assumes that niche brands and excess-loyalty brands are common phenomena in the real world, while the opposite is true. In a general way, marketing managers should be aware that such situations are really exceptional and therefore should not bet blindly on strategies exclusively aimed at building loyalty.

#### **4.2.3 – Is the increase of loyalty the best way to grow a brand?**

It should be remembered that, according to Ehrenberg (2002), the most efficient way of making a brand grow is to get more people to buy it instead of trying to persuade them to buy it more often, for the simple reason that the second option tries to force the consumers to do something they really do not wish to. Thus, Fader and Schmittlein (1993) found that one of the most effective tactics to get increased penetration and thus improve market share is simply to expand distribution to new outlets. To sum up, research on repeat-buying indicates that, in a good number of markets, the purchase of products and services follows very predictable patterns that should perhaps be accepted as universal and invariant laws of buyer-behavior. Relationship programs designed to increase loyalty somehow intend to violate these market norms by trying to increase purchase frequency beyond the theoretically predicted values. While this might sometimes be possible during short periods of time, it is highly doubtful that the results could endure and, more specifically, that a satisfactory cost-benefit balance might be reached.

## **4.3 - HYPOTHESES ON HOW RELATIONSHIP PROGRAMS WORK**

### **4.3.1 – The role of long-term retention**

According to the previously mentioned investigations of Reinartz and Kumar (2000, 2002), the customer long-term value depends less on the time that a customer remains loyal to the brand than on the monetary value that he spends on the acquisition of a company's products. Dowling (2002) deduces from this:

“Hence, marketing strategy should be focused on revenue generation (ARPU [Average Revenue Per User]) and transaction-cost management in preference to the creation of loyal customers. The tactics for this are quite different from those used to create loyal customers. For example, given a budget that would only support either a cross-selling or a customer-affinity program, the cross-selling approach would be preferred.” (ibid., p. 93)

And he goes on to suggest:

“One way to cross-check the findings of the Reinartz and Kumar study – and the recommendation that managers should focus on revenue enhancement as opposed to customer enhancement – is to look at the ability of customer loyalty programs to increase customer profitability. There is little argument that these programs keep their customers ‘on the books’ for an extensive period of time. However, the crucial question is ‘Are these customers more profitable?’” (ibid., p. 93)

### **4.3.2 – The role of the share of customer**

Dowling argues that, contrary to what is usually believed, CRM programs are unable to increase share of customer (also called share of wallet or share of requirements):

“If there are good reasons for customers to be loyal to multiple brands in a product category, then it will be a difficult and expensive process to try to convince them to behave otherwise. It will be even more difficult to achieve a return on this type of marketing investment when other major competitors are trying to do the same thing – such as the airline frequent-flyer programs. In many cases, seeking a high share-of-market is a more appropriate customer profitability strategy than seeking a high share-of-customer. In fact, the research on the polygamous loyalty of customers in stationary markets suggests that this is the best strategy to adopt. The support for this claim is based on one of the few empirical ‘laws’ in marketing, namely Double Jeopardy.” (Dowling, 2002; p. 98)

### **4.3.3 – An alternative approach**

Whenever relationship programs produce positive results, the explanation of this outcome should perhaps be looked for in the fact that the existence of the program in itself should be viewed as an additional attribute of the brand that might be attractive to a certain number of customers, thereby increasing its penetration rate. On the other hand, this might strengthen the brand profile in the market, at least while that program is not imitated by its competitors. The conjugation of those two effects enhances the salience of the brand, leading to an increase of the penetration rate and, as a consequence, of its market share. Dowling (2002) believes that, at bottom, relationship programs work exactly like traditional mass media advertising; hence, the option between one communication strategy or the other should be considered a simple matter of cost-benefit analysis.

“When a Double Jeopardy Law is recognized, advocates suggest that a penetration (share-of-market) strategy is appropriate. The objective here is to increase the number of buyers of the brand, but not how often or how much they buy. (...) Marketing programs that increase the salience of the brand, such as more advertising and wider distribution, should be cost effective. Sometimes the publicity surrounding a new customer loyalty program (...) will also provide a temporary increase in salience. Another tactic is to increase the inherent value delivered to the customer. A better consumer value proposition can be delivered by enhancing the product/service (more features, better quality) or by reducing the ‘price’ (the amount paid, making it easier to buy the brand, reducing the perceived risk of the brand (relative to competing brands). These are traditional ways to allocate a marketing budget.” (Dowling, 2002, p. 100)

## **4.4 – THE DETERMINANTS OF MARKET-SHARE AND THEIR RELATION TO LOYALTY**

### **4.4.1 – Market share as a relationship marketing objective**

What synthetic variable should be used to evaluate the effectiveness of a relationship marketing program? Profit is the most common goal of a business firm. The specific contribution of marketing to this goal comes from the sale of large quantities of goods at a profit. This is done through maximizing sales and prices and minimizing marketing costs. Marketing objectives therefore involve precise targets concerning those three variables.

Company or brand sales, measured in volume or in value, are the most direct measures of the market behavioral responses. In practice, however, market share plays a

dominant role in the determination of marketing objectives. There are two main reasons for this:

1. Sales must be evaluated against some pattern that puts it into perspective and clarifies its meaning. Increasing sales by 20% might not give a manager reasons to rejoice if the demand is growing at 40% a year. On the contrary, a sales decrease of 5% might not be of serious concern if the market fell by, say, 10%. Market share provides a simple way of comparing a brand's performance with its competitors in the same reference market, thereby discounting the effects on sales of environmental factors. For this reason, it is probably the most useful single marketing objective, providing marketing managers with a synthetic measurement of the overall situation of their brands.
2. A substantial body of research suggests, others things being equal, the existence of a strong correlation between market share and ROI, such that the larger the market share of a brand, the larger its profitability will be. This conclusion is mainly supported by the Profit Impact of Market Strategy (PIMS) database, covering 450 companies and 3,000 strategic business units, as well as a wide variety of industries, products/services and markets (Buzzell and Gale, 1987). In spite of some evidence pointing to important exceptions (most notably Porter, 1980), the existence of the correlation is usually taken for granted in business practice. The causal relation linking market share to profitability is believed to be a consequence of several factors, including scale economies in production and distribution and larger bargaining power regarding distributors and clients. Therefore, market share is often considered a proxy for brand profitability.

The calculation of the market share assumes that the reference market and the competing brands were previously identified. Once this has been done, market share is simply determined as follows:

$$\text{Market share} = \frac{\text{Brand A unit sales}}{\text{Total unit sales in the category}} \quad (4.1)$$

What we have here is unit market share, that is, company or brand sales in volume expressed as a proportion of total sales in the relevant market during a certain period of

time. Value market share is also very commonly used, being calculated on the basis of turnover rather than sales in physical units. Although useful it is also more difficult to interpret given that it is the product of two different factors: volume sales and relative price levels.

Although the information about a brand's own sales are readily available, it is sometimes not easy to know how much the competition is selling. In fast-moving consumer goods this is usually not a serious problem, because all the necessary information needed to compute market shares is available through syndicated consumer or retailer panels. Fortunately, these sources also provide more detailed information on what is happening under the surface of market shares, allowing a more refined analysis that can be used to understand the factors that drive gains or losses of competing brands.

#### **4.4.2 – Market share and action objectives**

The same target market share can be obtained in several different ways. It can be reached by acquiring new customers, whether they presently do not buy the product at all or only buy from the competition, or by developing existing ones, for instance; or by trying to gain exclusivity from its customers as an alternative to persuade them to increase the use-rate of the product; or by targeting heavy users instead of average buyers. In principle, at least, all these options are equally acceptable, if not equally effective. The brand migration model, popularized by Rossiter and Percy (1997), helps managers detail their marketing objectives, clarify their target audiences and, finally, outline their action objectives. In this model, sales are seen as dependent on (a) product category sales and (b) the brand's performance within that category. It shows that a brand can potentially be purchased by any of five buyer groups:

1. **New category users**, who enter the category by buying our brand
2. **Brand loyalists**, who regularly buy the brand
3. **Favorable brand switchers**, who occasionally buy our brand but also buy other brands
4. **Other-brand switchers**, who buy other brands but not ours
5. **Other-brand loyalists**, who regularly buy a brand other than ours

Brand loyalists represent the core of our sales, our most frequent buyers. Favorable brand switchers are the fringe of our sales: they include our brand in their brand-repertory, but they buy it less frequently than our frequent customers. Sales may also be gained by attracting new category users to our brand, by inducing other-brand switchers to include our brand in their repertory, or, even more difficult, by drawing loyal customers away from other brands. No specific recommendation can be derived from the Howard-Sheth buying behavior theory regarding which alternative is best. On the contrary, the NBD-Dirichlet theory considers with some skepticism the loyalty schemes implicit in this model.

#### 4.4.3 – The Parfitt-Collins formula

Parfitt and Collins (1968) created a formula that decomposes market share into a number of basic variables which help us explain what is causing changes in the market performance of each brand. On the other hand, it is also used to aggregate rough consumer panel data into meaningful variables.

To begin with, let  $x$  denote the brand and  $c$  the relevant product category to which  $x$  belongs. Let us also adopt the following notations:

$N_x$  = Number of buyers of  $x$

$N_c$  = Number of buyers of  $c$

$Q_{xx}$  = Quantity of  $x$  purchased by buyers of  $x$

$Q_{cc}$  = Quantity of  $c$  purchased by buyers of  $c$

We can now start by defining:

$$\text{Sales of brand } x = Q_{xx} = N_x \times Q_{xx} / N_x \quad (4.2)$$

and

$$\text{Total sales of category } c = Q_{cc} = N_c \times Q_{cc} / N_c \quad (4.3)$$

Both definitions explain sales as a function of two variables: total number of buyers during a given period and average sales per buyer. From this it immediately follows:

$$\text{Market Share} = \frac{N_x \times Q_{xx} / N_x}{N_c \times Q_{cc} / N_c} \quad (4.4)$$

This simple arithmetic manipulation shows that the market share depends on one hand on relative penetration of brand  $x$  ( $N_x / N_c$ ), and on the other hand on the comparison between the average sales of brand  $x$  per buyer ( $Q_{xx} / N_x$ ) and the average sales of the category per buyer ( $Q_{cc} / N_c$ ).

Let us now introduce a new variable:

$Q_{cx}$  = Quantity of  $c$  purchased by buyers of  $x$

$Q_{cx}$  refers to the total amount of product  $c$  bought by consumers of brand  $x$ . If we now multiply both the numerator and the denominator of the above fraction by  $Q_{cx} / N_x$ , that is, by the average quantity of  $c$  bought by buyers of  $x$ , we will get:

$$\text{Market Share} = \frac{Q_{xx}}{Q_{cc}} = \frac{N_x}{N_c} \times \frac{Q_{xx}/N_x}{Q_{cx}/N_x} \times \frac{Q_{cx}/N_x}{Q_{cc}/N_c} \quad (4.5)$$

This equation, currently known as the Parfit-Collins formula, can be interpreted as meaning:

$$\text{Market share} = \text{Penetration rate} \times \text{Exclusivity rate}^{39} \times \text{Intensity rate} \quad (4.6)$$

These three variables can be used to interpret brand share movements by locating its origin in one or several of them. In short, this is their meaning:

1. **Penetration rate** is the share of buyers, i.e. the percentage of buyers of brand  $x$  compared to the total number of buyers in the relevant product category (relative penetration) or to the total number of households in the country (absolute penetration). We have seen that, according to the NBD-Dirichlet theory, this is the main variable when it comes to explain the differences in performance between competing brands. For the Howard-Sheth theory, penetration is as useful as any other variable when we intend

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<sup>39</sup> Also known as share of requirements, share of wallet, feed-rate or take-rate.



to make a brand grow.

2. **Exclusivity rate** is defined as the share of total purchases in a product category reserved for brand  $x$ . This rate is a measure of the loyalty attached to brand  $x$ , given that buyers have the possibility of diversifying their purchases and acquiring different brands in the same product category. It is variously known as share of requirements, feed rate or share of wallet. The NBD-Dirichlet theory predicts that this measure will not vary significantly from brand to brand. However, because of double jeopardy, the bigger brands will show some advantage when compared with the smaller brands. The Howard-Sheth theory makes no specific predictions on the relative effectiveness of trying to increase the exclusivity rate. This is usually taken as an indication that this should be considered a perfectly sound strategy.
3. **Intensity rate** compares average quantities purchased per buyer of brand  $x$  with average quantities purchased per buyer of the product category  $c$ . Once again, the NBD-Dirichlet is skeptical on the effectiveness of trying to increase the intensity rate by attracting heavy-users, because panel data suggest that all brands have roughly the same proportions of heavy, medium and light users, except that, owing to double jeopardy, big brands fare a little better. On the contrary, the Howard-Sheth theory makes no specific predictions on this. Therefore, people that adopt this standing consider the increase of the intensity rate a legitimate strategy to grow a brand.

Finally, to express market share in value, a relative price index must be added: the ratio of the brand's average price to the average market price. Let us adopt the following notation for prices:

$$P_x = \text{Average price of brand } x$$

$$P_c = \text{Average market price of } c$$

We can now incorporate relative price into the Parfitt-Collins formula, obtaining this new equation:

$$\text{Value Market Share} = \frac{Q_{xx}}{Q_{cc}} = \frac{N_x}{N_c} \times \frac{Q_{xx}/N_x}{Q_{cx}/N_x} \times \frac{Q_{cx}/N_x}{Q_{cc}/N_c} \times \frac{P_x}{P_c} \quad (4.7)$$

This definition of market share can be generally applied to all kinds of markets and can be used to identify the possible causes of observed movements in market share. The following are possible explanations for an increase in market-share:

1. The brand is gaining new customers (higher penetration rate)
2. The buyers are devoting a larger share of their purchases of the product to this particular brand (higher exclusivity rate)
3. The buyers of the brand are purchasing larger quantities compared to the quantities bought on average by buyers of the product (higher intensity rate)
4. The brand is commanding a higher relative price compared to the average market price (higher relative price)

By tracking these market behavioral variables over time, it is possible to identify the underlying causes of market share changes and suggest corrective measures accordingly.

#### 4.4.4 – The sales equation revisited

There are, of course, many other ways of decomposing the sales of a brand, and thus of decomposing market share into more basic explaining factors. The choice of a specific formula will depend on the particular problem at hand.

We will now recall the sales equation introduced in the previous chapter in connection with the Ehrenberg analysis of panel data and the identification of universal invariants of repeat-purchase. On that occasion, we presented the following mathematical identity:

$$\text{Sales of Brand } x = \# \text{ Households} \times \text{Absolute Penetration Rate} \times \text{Average Purchase Frequency} \times \text{Average \# Packs per Purchase} \times \text{Average \# Units per Pack} \times \text{Price per Unit} \quad (4.8)$$

How does this formula differ from the Parfitt-Collins one? To begin with, it

includes the absolute penetration rate instead of the relative penetration rate. That is not however a significant difference, since it is possible to substitute one variable for the other without altering its basic meaning. In fact, both formulas attribute an overriding importance to the penetration rate.

The product of the remaining terms of the sales equation equals, of course, the average sale per buyer of brand  $x$  ( $Q_{xx} / N_x$  in the Parfitt-Collins equation). However, it decomposes it in an altogether different way. The sales equation used by Ehrenberg in the context of the NBD-Dirichlet theory ignores both the exclusivity rate (or share of requirements) and the intensity rate. On the other hand, the Parfitt-Collins formula ignores the average purchase frequency, the average number of packs per purchase occasion and the average number of units per pack.

The elementary event taken in account by the sales equation is the purchase occasion, something that is absent from the Parfitt-Collins formula. The sales equation focuses on how many times a purchase is repeated during a given period of time and how much is bought on each occasion. Lumping together the variables “average number of packs per purchase” and “average number units per pack” something that can be done by simply multiplying them, we will obtain the new variable “amount purchased by purchase occasion”. Let us now introduce these new variables:

$F_{xx}$  = Frequency with which buyers of  $x$  purchase  $x$

$F_{cc}$  = Frequency with which buyers of  $c$  purchase  $c$

$F_{cx}$  = frequency with which buyers of  $x$  purchase  $c$

$A_{xx}$  = Average amount of  $x$  purchased by buyers of  $x$  on each occasion

$A_{cc}$  = Average amount of  $c$  purchased by buyers of  $c$  on each occasion

$A_{cx}$  = Average amount of  $c$  purchased by buyers of  $x$  on each occasion

We are now in a position to incorporate the sales equation into the Parfitt-Collins formula and obtain:

$$\text{Market Share} = \frac{N_x}{N_c} \times \frac{F_{xx} \times A_{xx}}{F_{cx} \times A_{cx}} \times \frac{F_{cc} \times A_{cc}}{F_{cc} \times A_{cc}} \times \frac{P_x}{P_c} \quad (4.9)$$

#### 4.4.5 - How behavioral variables determine market-share

In the formula we arrived at in the previous section, market share is a function of ten different variables. This means that a change in market share can be the product of an isolated change in any one of those variables or, more likely, of a combination of simultaneous changes in several of them. Provided we have access to the relevant data, we will be able to trace the ultimate sources of observed variations of a brand's market share. This suits the purpose of our investigation, since we intend to elucidate not only if relationship marketing programs can benefit the relative overall performance of brands in fast-moving consumer goods, but also what specific variables are instrumental in bringing about those changes.

As previously pointed out, the Parfitt-Collins formula shows that volume market share depends on penetration rate, exclusivity rate, and intensity rate. Furthermore, value market-share also depends on relative price. Loyalty strategies are specifically aimed at increasing the exclusivity rate, and possibly also the relative price, since some authors sustain that loyal customers tend to be less price sensitive. We would therefore like to confirm whether relationship marketing programs in fact contribute to increase the exclusivity rate and the relative price index. Moreover, the formula urges us to go even further and to investigate what factors might drive up the exclusivity rate. We expect the exclusivity rate to increase when the buying rate of the brand under study ( $F_{xx} \times A_{xx}$ ) goes up relative to the buying rate of the competitive brands. But our brand's buying rate can go up either through the increase of its purchase frequency ( $F_{xx}$ ) or through the increase of the purchase per occasion ( $A_{xx}$ ).

To sum up, let us look once again at the formula, this time highlighting the variables that will be at the center of our investigation:

$$\text{Market Share} = \frac{N_x}{N_c} \times \frac{F_{xx} \times A_{xx}}{F_{cx} \times A_{cx}} \times \frac{F_{cx} \times A_{cx}}{F_{cc} \times A_{cc}} \times \frac{P_x}{P_c} \tag{4.10}$$

$N_x/N_c$  - Penetration rate

$F_{xx} \times A_{xx}$  - Buying rate

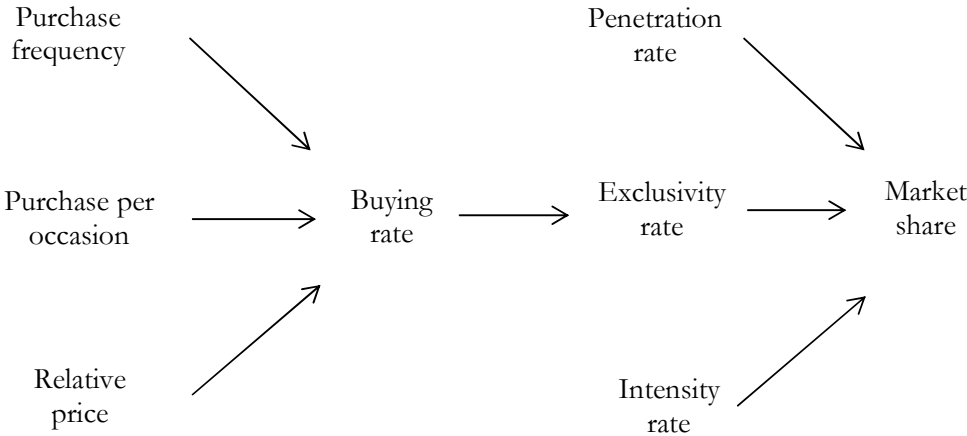
$F_{xx}$  - Purchase frequency

$A_{xx}$  - Purchase per occasion

$P_x/P_c$  - Relative price

It might also be useful to represent in a diagram the flow of causation connecting the different intervening variables to the final desired effect of increasing market share.

**Figure 4.2**  
**Flow of Causation between Behavioral Variables**



Source: Author.

#### 4.5 – DEFINING THE RESEARCH HYPOTHESES

The central purpose of our research is to clarify the ability of relationship marketing programs to alter the purchase behavior of consumers in a way that favors the brands that adopt them. We will now establish the specific hypotheses that will be later subjected to empirical test.

In a very crude way, the central motivation of a marketing manager to resort to a relationship marketing strategy lays in its presumed capacity to stimulate the brand's sales. However, if the overall market is declining, whether for structural reasons (v. g., declining stage of the product life-cycle) or for transitory ones (v. g., low phase of the economic cycle), it may be unrealistic to expect growing sales. Under those conditions, keeping sales at the current level might be a perfectly satisfactory objective. That is why market share is a more adequate measure of the effectiveness of relationship marketing programs than an absolute level of sales. Thus, the central hypothesis that we want to test is the ability of relationship marketing programs to consolidate and improve the relative performance of the involved brands as measured by their market shares.

One of the chief problems that both practitioners and researchers confront when trying to evaluate the effectiveness of a specific marketing initiative is the difficulty of isolating its impact from the effect of other external and internal variables that can interfere simultaneously with the consumer's buying behavior. In the context of this investigation, we want to know if an observed increase of the market share of a given brand can be reasonably attributed to the implementation of a relationship marketing program. More specifically, how can we be sure that this positive evolution was not caused instead by other circumstances, whether they pertain to the general marketing environment or to other initiatives of the brand itself? The solution of this problem is to be found in the simultaneous monitoring of the behavior of two separate groups of consumers:

- **Control group.** Includes consumers not involved in the relationship marketing program.
- **Test group.** Includes consumers whose characteristics match exactly those of the control group, except for the fact that, unlike the members of the control group, they participate in the relationship marketing program.

Thus, if the members of the test group are only distinguished from those of the control group by their enrollment in the program, in such a way that all the remaining factors that determine purchase behavior are common to both groups, we can be sure that eventual differences of behavior can only be caused by the program itself. For this reason, we will express the research hypotheses in terms of observed differences between the behavior of test group and the behavior of the control group.

The null hypothesis will be thus formulated:

**H0** – The market share of the test group does not increase relative to the market share of the control group as a result of the relationship marketing program.

In case this hypothesis is verified, we will conclude that the relationship marketing program under analysis did not prove to be effective. However, our purpose is to delve further, trying to understand the causes of such an outcome. Considering the alternative hypothesis that the market share does increase, we will wish to know which factors were responsible for the change. In case it remains stable or decreases, we will want to know if by chance some underlying variables moved in opposite ways, thus canceling each other. Consequently, we will define several alternative hypotheses regarding the effects of relationship marketing on the variables that characterize buying behavior:

**H1** – The penetration rate of the test group tends to increase relative to the penetration rate of the control group.

**H2** – The buying rate of the test group tends to increase relative to the buying rate of the control group.

As noted, the buying rate in turn depends on the behavior of two independent variables: purchase frequency and purchase per occasion. Hypothesis H2 must therefore be complemented by two sub-hypotheses:

**H2.1** – The purchase frequency of the test group tends to increase relative to the purchase frequency of the control group.

**H2.2** – The purchase per occasion of the test group tends to increase relative to the purchase per occasion of the control group.

Finally, we will add a last hypothesis in order to elucidate the time horizon of relationship marketing programs, namely regarding its eventual cumulative effect as the relationship with the brand gets longer:

**H.3** – The observed behavioral differences between the test group and the control group tend to increase with time.

#### **4.6 - CONCLUSION**

In this chapter the research issues were analyzed in detail and the hypotheses were defined. The focal theory presented in the previous chapter anticipates several problems that might hinder the effectiveness of relationship marketing programs aimed at building brand loyalty. In fact, the NBD-Dirichlet theory sustains the existence of certain fixed repeat-buying patterns, among them double jeopardy and the duplication of purchase law, which raise doubts on the effectiveness of loyalty strategies. According to some authors, excess-loyalty brands and niche brands are very exceptional phenomena that seldom occur in practice. If this conjectures were found to hold, two outcomes would be possible: either (a) relation marketing programs are simply ineffective, or (b) in case they benefit a brand's performance, this would result not from increased loyalty but from growing penetration.

We selected market-share as the single most important indicator of a brand's performance, and then proceeded to identify the main behavioral factors that drives it. The Parfitt-Collins's formula was our point of departure, allowing the identification of the three main variables that determine market-share: penetration rate, exclusivity rate, and intensity rate. Using the sales equation presented in Chapter 3, we then found that the exclusivity rate is in turn determined by two other variables: purchase frequency and purchase per occasion. To conclude the chapter, we defined the null hypothesis and three alternative hypotheses, with the second one of the latter being sub-divided into two distinct sub-hypotheses.



# Chapter 5

## Research Methodology and Data Sources

### 5.1 - INTRODUCTION

Having laid down in the last Chapter the hypotheses that will be subsequently tested, the present Chapter will present the selected research methodology, justify its choice, and describe the data sources used. We will start by briefly introducing the relationship marketing program that was selected for investigation. The first section of this Chapter will provide information on the company, its brands, and its strategic marketing objectives, as well as details of the program itself and its metrics. After this short introduction, our attention will turn to consumer panels, its origins, foundations, purposes, methods, and advantages as tools of marketing research. Next, we will concentrate on the TNS consumer panel in Portugal, explaining how the actual sample was created and managed, how information is collected and aggregated, and how a special sub-panel was created to monitor the impact of the relationship marketing program that is the object of our research. The final part of this Chapter will be devoted to the description of the statistic techniques that were used to analyze the panel data.

### 5.2 - THE RELATIONSHIP MARKETING PROGRAM

The test of the hypothesis formulated in the previous Chapter can only be carried in the context of a significant relationship marketing program aimed at consumers of fast-moving consumer goods. Fortunately, a large multinational company operating in a number of consumer markets agreed to give us access to the information needed to conduct this research.

This company has been conducting a large-scale pilot relationship marketing program in Portugal. It was started in 2000 and goes on at the moment this report is being written. The name of the company, as well as the names of its business units and brands, will not be disclosed for reasons of data confidentiality. It will be called hereafter the XXX company and its divisions will be named A, B, C, and D. The brands of the A business unit will be named A.1, A.2, A.3, etc., the brands of the B business unit B.1, B.2, B.3, etc., and

so forth (see Figure 1.1 in Chapter 1).

**Table 5.1**  
**Correspondence Between Products and Brands**

Division	Product	Brand
A	A.1	A.1
	A.2	A.2
	A.3	A.3
	A.4	A.4
B	B.1	B.1
	B.2	B.2
	B.3	B.3
	B.4	B.4
C	C.1	C.1
	C.2	C.2
	C.3	} Same brand
	C.4	
	C.5	C.5
	C.6	} Same brand
	C.7	
D	D.1	} Same brand
	D.2	
	D.3	
	D.4	
	D.5	
	D.6	
	D.7	D.7

Table 5.1 above shows that some brand names compete simultaneously in several product categories. Thus, a single brand name is used for products C.3 and C.4. The same happens with products C.6 and C.7, as well as with products D.1, D.2, D.3, D.4, D.5, and D.6.

The choice of this particular program was based on seven basic reasons:

1. **Complexity of the marketing concepts and techniques involved.** It is not a simple incentives program of the type described in section 2.5.3, whose weaknesses are by now well known due to its worldwide application to several types of markets and products (Dowling and Uncles, 1997). It is not either a merely defensive loyalty program designed to protect the company and its brands from similar initiatives undertaken by the competition. It is in fact a pioneering program based on innovative ideas seldom tested before on such a

large scale in markets for fast-moving consumer goods.

2. **Program target market.** Relationship marketing strategies are still an exception in markets for fast-moving consumer goods, a situation that makes this program even more interesting. Relationship marketing initiatives are much more frequent in service markets (air transportation, credit cards or large retail, for instance) and also, on a smaller scale, in business markets. As to companies dedicated to manufacture and sell fast-moving consumer goods, only recently did they start to become interested in those concepts.
3. **Number and variety of product categories involved.** The program covers a total of 24 different fast-moving product categories and 16 brands. This includes a variety of food products, household cleaning products and personal care products with different levels of frequency purchasing, variety-seeking behavior, prices, promotional activity, number of competitors and own label competition.
4. **Number of participating consumers.** The program under examination is a large scale pilot program involving in Portugal about 300 thousand households. Of course, this scale makes it extremely significant when compared with other similar but much more limited initiatives previously undertaken in Portugal.
5. **Time span of the experience.** The XXX relationship marketing program has already entered its sixth year of existence. While demonstrating a serious commitment toward the consumers enrolled, this also means that the data generated by the program should allow us to analyze the evolution of its effects over time.
6. **Quantity and quality of the metrics used to control the program.** Unlike the overwhelming majority of relationship programs launched either in Portugal or abroad, the objective evaluation of the program's results has been a major concern from its very beginning. For this reason, a complete battery of indicators was put in place. No other relationship program running in Portugal would, to our knowledge, allow us to perform an in-depth investigation of the kind we wished to undertake.

7. **Willingness of the company to cooperate with the research project.** Last but not least, the openness of the company and its readiness to give us access to the necessary data was, of course, the crucial factor in the choice of the program as the focus of this research.

The rest of this section introduces and describes in some detail the relationship marketing program of XXX, including its objectives, strategies, action programs, metrics and general organization.

### **5.2.1 - On the XXX Corporation**

XXX is one of the largest multinational companies operating worldwide in fast-moving consumer goods markets. It has played since its foundation a leading role in the creation and development of the contemporary consumer goods industry as we know it. It was instrumental in the internationalization of this industry and pioneered and disseminated the principles and techniques of modern marketing. It has been operating in many countries for over a century, especially in Western Europe and the US, but also in Latin America and in large parts of Asia. In the last few years, like most of its direct competitors, it has been expanding rapidly in China, India and Eastern Europe. Owing to the importance of its brands, XXX is invariably one of the top advertisers in every market where it competes.

XXX has been operating in Portugal since the mid-20th century, creating a number of powerful brands that became household names. At the same time, the company has also been a major force in the introduction of marketing concepts and practices in the country. It used to include four different autonomous business units (named here A, B, C, and D), but has recently acquired a new company. However, since its brands were not involved in the program, it will not be mentioned further. XXX presently competes in Portugal in dozens of product categories and its brands are market leaders in most of them.

### **5.2.2 – The origins of the program**

XXX was inspired by certain experiences conducted in France by the Danone group since 1995 to launch its own relationship marketing initiatives. The Danoé program started as a long-term promotion (the Bingo program involving Danone brands), which invited consumers to try some brands and to collect purchase proofs in order to create a

deeper relationship between the group's brands and the participating households. One of the central marketing objectives was to increase the penetration rate of the lesser-known brands of the group. Danone was so satisfied with the results of this initiative that they expanded it gradually until it covered around 4 million households, that is about 20% of the total number of French households.

As to XXX, its first experimental program gave its first steps in France in the last quarter of 1997, involving several brands of five different companies owned by the group. In the UK, a different format was tested in cooperation with two other multinational companies (Kimberley-Clark and Cadbury's) whose brands did not compete directly with XXX's, but the French model has inspired most of the new experiences that have since been launched in other countries.

In fact, encouraged by the results reached in France, XXX started considering the launch of similar initiatives in other countries in 1999. Similar programs were therefore started in Germany, Portugal and Spain in 2000. The French format oriented the creation of those programs, although several adaptations were introduced to attend the peculiar conditions of those countries and of their markets and consumers.

### **5.2.3 – Start-up in Portugal**

XXX started preparing the ground in the last quarter of 1999 in order to launch its relationship marketing pilot project in Portugal. The first step included the inventory of the material and organizational conditions indispensable to the implementation of the project, including the selection of a relationship marketing agency and of other related local support services. At the beginning of 2000 a small group was created inside XXX to conduct the project and an agency was chosen.

The set-up of the basic infra-structure was concluded during the Summer of 2000 and the project was finally ready to start in the final months of the year. The first contacts with the target group took place near the end of 2000, and, some weeks later, the first issue of the program's magazine was distributed. From then on, the program became known after the name of the magazine.

### **5.2.4 – Basic features of the program**

Following the example of the French model that inspired it, the program has two

basic distinctive features:

- **It is a multi-brand program.** In the past, too many relationship marketing programs in fast-moving consumer goods' markets failed for a basic economic reason: the cost per contact of the most common direct marketing communication vehicles (mail and telephone) is exceedingly high when compared with advertising in the mass media, and specially with television. As the profit generated by each individual customer is admittedly very low in fast-moving consumer goods, this fact can in itself be enough to jeopardize any kind of direct relationship effort. In order to avoid this central problem, it was decided that several brands would join efforts in the context of the same program, so that they could share costs in a common effort to communicate with their customers. In this particular case, a total of eight core brands decided to team up to support the program. However, a dozen other brands owned by XXX were at a moment or another also involved in the program.
- **It is aimed at the Most Valuable Consumers (MVCs).** There are two reasons for this strategic option. First, it is common knowledge that households vary enormously regarding their consumption potential. In any given market a significant proportion (sometimes a majority) of households are absolute non-consumers, while heavy-user households buy several times more than light-user households. Therefore, not all consumption units are equally relevant for the performance of a brand in its target market, given that its success will depend essentially of the preference it will be able to command among heavy users. Second, it is easier to justify the high cost per contact of direct communications mentioned in the previous paragraph when the potential lifetime value of the customer we are targeting is higher. That is why XXX decided to focus their program on its Most Valuable Consumers (MVCs).

### 5.2.5 – Objectives of the program

The basic aim of the program is to strengthen the position of XXX's brands in their respective markets. Should this mean that the main objective is to increase market shares and that this will be done by protecting and increasing penetration, while simultaneously increasing the customers' buying rate?

Truly, XXX's long-term purpose is more ambitious. What really is at stake is the evolution toward a globally more efficient way of managing marketing than the one usually identified with mass marketing practices. Since the potential value of the households varies extraordinarily from one case to another, then the marketing and communication effort should be proportional to each individual customer's lifetime value. Fortunately, the recent advances of the information and communication technologies created for the first time in history the possibility of solving this problem in a satisfactory way.

A new way of doing marketing must therefore be tested against a more traditional one. The additional revenue generated by this relationship marketing strategy will then have to be compared with the additional marketing investment needed to implement it. In other words, the ROI (Return of Investment) of the program will have to be estimated as rigorously as possible.

In order to meet that goal, the program would have to accomplish a whole set of marketing objectives, including:

- Consolidation and growth of brand penetration
- Stimulation of brand repeat-buying
- Supporting the launch of new brands and products

#### **5.2.6 – Characterization of the best consumers**

Once it was decided that the main target of the program should be the Most Valuable Consumers, there was a need to define concretely the meaning of this expression. To begin with, the household was chosen as the basic unit of consumption, integrating a group of individual consumers with possibly distinct or even divergent tastes and preferences. There is nothing original with this choice, since it corresponds to the common practice of companies that produce and sell fast-moving consumer goods.

Next, the consumers of each product category where XXX competes and of each XXX brand were studied in some detail using the information available in the database of

the TNS consumer panel. A consumer audit<sup>40</sup> was conducted in order to establish the framework and benchmarks for building and maintaining the program's consumer database. The analytical reports generated by this consumer audit provided a classification of the different consumer usage groups for each one of the existing brands, categories, business units and total XXX. This classification also enabled the profiling of all MVCs and heavy consumers.

Consumers participating in the panel were classified according to their value, evaluated by their expenditure, into four categories: (a) heavy; (b) medium, (c) light, and (d) non-users. The audit confirmed that the consumer contribution to turnover varies widely from one household to another. Specifically, the Pareto distribution generally applies, with the top 30% of consumers typically generating 70% of turnover and the top 20% accounting for 50% of turnover. This rule was validated at the brand, category, business unit and total company levels. The results obtained in Portugal were predictably in line with those previously found in other countries, thus confirming the disproportionate importance of heavy consumers to the overall performance of a brand within its served market. The average overall value of customers on a brand, category, business unit and company basis became known, as well the average values of customers in each specific value segment. This knowledge is of the utmost importance for the future economic evaluation of the program at all levels.

Understandably, the profiles of heavy consumers vary somewhat, but not too much, from market to market. In most of them, the main determining factor of the value potential of a household is the dimension of the family and, in particular, the number and age of sons living in the household. However, in some very traditional or very modern food categories, the age of the housewife, the family income and the habitat also play an important role.

Taking into account these variations, the profile of the most valuable XXX consumers was defined by mapping the measured characteristics of the heavy user of the company's brands as a whole. Once identified, this profile was used to orient the search for

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<sup>40</sup> The guiding principles of a typical consumer audit are outlined in Hallberg (1995).



the consumers that ideally should be recruited to the relationship marketing program. The insights obtained from the consumer audit provided the foundations and benchmarks for:

- Developing the appropriate consumer database structure
- Populating and qualifying the database according to relevant segmentation criteria
- Building and maintaining profitable relationships with the MVCs
- Optimizing marketing communications allocation according to the potential value of each consumer, in order to improve the marketing ROI

### 5.2.7 - The overall blueprint of the program

The relationship program itself was structured around a number of communication tools of two main types:

- **Periodic communication initiatives** – a magazine sent to participating households every three months
- **Occasional communication initiatives** – initiatives specific to certain brands or directed to specific groups of consumers

The main communication tool of the program is the magazine. Its editorial content is not advertising in disguise (in other words, it is not something we might call advertorial). It was conceived having in mind the interests of its mainly feminine target group, not only those interests strictly connected with house management, but also interests related to family life, professional life, and leisure, including travel, sports and culture. The magazine tries to compete on the quality of its content and graphic design with other magazines that its target group can find in the newsstand. It must be sufficiently appealing to encourage MVCs to read it and look forward to read it again on the next quarter, something that they would consider paying for if in fact a price was charged.

As stated, the magazine does not accept advertising disguised as editorial matter. Sponsorship is the dominating marketing communication model used in the magazine: XXX brands sponsor this or that article according to their affinities to the themes covered

in it. Each brand has a well-delimited territory defined as much by its functionality and recognized competence as by the symbolic domain with which it is connected. Thus, it makes sense for brands to be associated with articles that match their spheres of influence or symbolic territories. For instance, a brand of shampoo can sponsor articles on the protection of hair against environmental aggressions, while a food brand will prefer to sponsor articles on the art of cuisine. The brand sponsorship is graphically signaled and explained by a so-called “sponsorship box”.

Of course, the choice of the themes covered in each specific magazine is not innocent. Each magazine is designed having simultaneously in mind social trends, the interest and relevance of the proposed themes, and their promotional potential for each one of the core brands. Achieving an adequate balance between relevant content and targeted selling messages is crucial. The magazine was designed to build a personalized relationship with each MVC. It is a new non-shared medium for dialogue with the brands’ customers, being both cross-category and direct to consumer. The magazine also provides a means of delivering value-added brand information while supplementing traditional mass media advertising.

The content of the magazine usually includes:

- Articles covering a wide variety of themes of interest to its readers
- Advice, information and services offered by the company and its brands (e.g. help-lines)
- Brand-building high-involvement promotions related to specific themes
- Personalized coupons and sample offers
- Questionnaires designed to collect more useful information on the participating consumers

The brand-building promotions usually require from consumers a significant effort in order to participate. The consumers or other family members (most notably children) are invited to perform some task that should enhance the value offer of the brand image, such as sending recipes, suggest new usage ideas, send commentaries, take photos, write

advertising slogans, and so on. Although the prizes are usually valuable, the participation rates tend to be low because of the effort that consumers have to put up in order to compete. Therefore, their main goal is to stimulate higher involvement with the brand.

It is well known that price promotions often generate two different types of problems:

- Price promotions may unnecessarily subsidize so-called hard-core loyal purchasers that would buy the brand anyway
- Price reductions or free product promotions risk undermining loyalty among heavy consumers by encouraging them to purchase products only on promotion

In order to avoid those problems, in the context of the program the distribution of coupon is guided by previously knowledge on the purchase habits of each individual consumer. Thus, each magazine comes with a small booklet of personalized coupons, aimed at stimulating trial or repeat-buying of several products and brands. Each consumer receives a particular selection of coupons according to what is known about her buying habits. Thus, if someone is believed to be a regular buyer of a competing brand of certain product, she might receive in successive quarters coupons aimed at inciting her to break her habitual buying behavior routine. However, if she is known to be already a frequent buyer of the company's brand of that product, she will receive instead some coupons to try other products of the range whose penetration the company wishes to increase.

Together with the magazine, consumers receive questionnaires that they are invited to fill and send back to XXX. As a reward for their time and effort, they get a chance to participate in sweepstakes with attractive prizes, such as holidays abroad for the family or high-value household appliances. These inquiries play a crucial role in the process of qualification and characterization of the individual profile of each consumer. The first aim is to collect enough information to classify each household as either heavy, medium or light-user. Starting from there, an effort is made to profile in detail each consumer and to identify the strength of his involvement with each category and brand. Once this basic information is obtained, the next step will be to collect information on secondary although important aspects of the consumer's behavior and attitudes. The distribution of the

questionnaires is of course differentiated according to the specific stage of the relationship.

The periodic component of the program also involves a communication center with the consumers, including a help-line for information as well as communication by mail, email and SMS. Since mid-2002 a special online internet site was created to support the program. The occasional communication initiatives were not very important in the early stages of the program, partly because the proportion of consumers duly qualified was not large, and partly because most brand managers were not very familiar with direct marketing communications. The few occasional initiatives included direct response press advertising to recruit participants, qualification mailings and special offers to selected groups of consumers.

#### **5.2.8 – The infrastructure of the program**

The basic infrastructure of the program is the marketing database specially created to support it. The database contains the data and related files necessary to develop, implement and measure the results of the CRM program. It was designed to:

- Store comprehensive data on consumers, their basic identification, socio-demographic profiles, behavior and attitudes
- Analyze consumer data in order to enable the identification of MVCs and heavy consumers according to the profiles defined by the consumer audit
- Record direct communication actions
- Evaluate and control the program's results

The marketing database that supports the program included four basic distinct modules:

1. **Personal identification elements:** name of the household manager, address, postal code, phone and email
2. **Socio-demographic information:** sex, date of birth, habitat, education, occupation, income, dimension of the family, number and age of sons, possession of certain household equipments (e.g. microwave oven, dish-

washing machine, personal computer)

3. **Information on purchasing habits:** stores visited regularly, monthly expenses on groceries, product categories habitually purchased, buying status in each of those categories, brands habitually purchased in each category
4. **Historic record of participation in promotional activities:** coupon redemption, participation in brand-building promotions, replies to questionnaires, phone calls to the help-line, letters sent, recommendations of friends

The population of the database created some difficult problems. To begin with, the Portuguese company had no previous experience whatsoever of direct marketing techniques. For that reason, no qualified consumer database existed that could provide a starting point for the task. Even so, the company owned 800 thousand individual records collected in recent years in the course of promotional initiatives of several brands that asked for the identification of participants, usually in order to participate in some kind of competition.

As a rule, those records were poor, unreliable, and probably outdated. Most of them contained only the name and address of the person who had entered the promotion, as well as the organizing brand. With very few exceptions, no phone numbers were available. The mailing lists had never been previously used in direct marketing actions by the company, and so their true quality was unknown, especially because some of them had been compiled six or more years ago. Finally, the fields used to classify information varied from one case to another (some of them did not have a separate field for the postal code, for instance), not to mention the fact that some information had not yet been digitalized.

Not only the available information was poor, but it also seemed likely that a good number of the records might prove to be useless because of changes of address and other problems. Besides, in the absence of data on consumption or other behavioral habits, it was impossible to tell if a given consumer was heavy, medium or light. After a merge and purge operation only about 290 thousand consumer records of the original 800 thousand were retained for further examination.

## 5.3 – CONSUMER PANELS

### 5.3.1 – Origins and basic features of consumer panels

Consumer panels are a dynamic analysis technique of market research that has been in use for a long time. Its origins are to be found in the work of Lazarsfeld and Jenkins during the 1930s (Lazarsfeld and Fiske, 1938; Lazarsfeld, 1940; Jenkins, 1938), but the incidences of World War II delayed somewhat its commercial application, which only took off during the late 1940s. Still in the 1930s, however, Art Nielsen had created one of the first retail panels in the world that would afterwards inspire many others. It consisted of an audit service based on a sample of visited stores every two months that supplied estimates of the sales and price levels of a brand and its competitors<sup>41</sup>.

Meanwhile, General Foods created a panel technique designed to test food products, and Market Research Corporation of America launched in October 1941 the first continuous panel of consumer purchases with an initial sample of 2,000 families (Stonborough, 1942). In that very same decade, other panels were created to analyze purchase patterns in New York (Black, 1948), to evaluate merchandise offers (Quenon, 1951), to evaluate readers' interest in features of news magazines (Robinson, 1947) and to evaluate radio audiences (Dunn, 1952; Sandage, 1951; Silvey, 1951). The first discontinuous panel – i.e., a panel that over time asks questions on a broad range of different topics – was started by the National Family Opinion in 1946 with a sample of one thousand households.

The consumer panel is a form of longitudinal analysis, aimed at the measurement and understanding of the variation of key marketing variables over time, including both attitudes and behaviors of buyers and sellers. Compared to other techniques, continuous consumer panels exhibit the following distinctive features:

- a) They work with disaggregated data on individuals' attitudes and behavior;
- b) They measure repeatedly the same variables from a stable sample of individuals during a certain period of time.

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<sup>41</sup> The information contained in this section is based mainly on Carman (1974) and Sudman and Wansink (2002).

Carman proposed the following definition of a panel, which remains valid in spite of the technological advances of the last three decades:

The panel design is one in which individual behavior or attitudes are studied by repeated measurements of the variables of interest obtained from a single sample of respondents (Carman, 1974).

In panel research, the same questions are usually asked over and over to the members of the panel in successive surveys, given that this is the best way to take advantage of the distinctive features of a panel. But sometimes it also happens that new questions are introduced more or less frequently.

The creation and management of a panel is extremely expensive. For this reason, its costs are commonly shared by a large group of subscriber companies, each one of them accessing more or less substantial parts of the collected information according to its needs and financial means. It was in the fast-moving consumer goods industry that panels immediately benefited from a wider acceptance, but nowadays there are a large variety of panel types covering durable consumer products as well, including panels specialized in the automobile industry. Besides, marketing managers are very familiar with audience panels measuring the number of people that watch television channels and programs at different times of the day.

The recruitment of panel members is a delicate operation, as their representativeness must be guaranteed both in terms of its overall dimension and of its socio-demographic composition. The panel must be continually renewed for a number of reasons: natural mortality of its members, lack of cooperation from some members, changes in the socio-demographic condition of members, changes in the socio-demographic composition of the universe, etc. The members of the panel are usually rewarded with some small compensation for their work, consisting, for instance, in the attribution of points that can be later exchanged for a choice of gifts. The gifts should not be too valuable, in order to avoid attracting opportunists whose sole motivation to participate is to benefit from the rewards.

### **5.3.2 – Advantages and disadvantages of consumer panels**

Consumer panels are distinct from retail panels, and less common than them. Retail panels collect sales information in selected stores and their main purpose is to follow the movement of goods as they progress through distribution channels. The collected information allows the supplier to track global and brand sales in each covered market. A very accurate evaluation of the variation of market shares of the competing brands can thus be obtained, especially at an aggregate level. Although they provide less reliable estimates of market shares, consumer panels offer marketing managers other types of very useful information, such as, for instance, trial rates, repeat-buying rates, purchase frequency, amount purchased per buyer or inter-brand migrations.

In principle, the information provided by a consumer panel can also be obtained by means of independent surveys periodically undertaken with different samples of individuals. However, not only the method of independent sampling is more expensive, as it also has the considerable technical disadvantage of the variation from one experience to another of both the sampling error and its bias. On the contrary, consumer panels minimize the effects of the error and bias of the sample on the process of measuring change, given that those errors will have a systematic nature, that is, they are not expected to vary from one survey to the next. As a consequence, although panels may not be very efficient when it comes to estimate the parameters of the universe population, they are more accurate when it comes to evaluate the direction and dimension of the variations that take place.

Consumer panels also generate more disaggregated information by market segment, as it is possible to analyze the behavior of specific groups of consumers classified according to their age, sex, habitat, educational level, social class or income, for instance. But the segmentation process can also group consumers according to their situation toward the product category or brand, classifying them as potential or real customers, and then distinguishing between light, medium and heavy customers, or between loyal and disloyal ones. Of course, the degree of segmentation depends on the dimension of the sample that is taken to represent each segment. The smaller the segments, the harder it will be to obtain accurate information truly representative of the universe.



Consumer panels are an ideal ground for planned experiences. Thus, a distinction can be drawn between before and after situations when evaluating the impact of certain marketing stimuli (a price reduction, for instance, or the launch of an advertising campaign) on the sales of a brand. More generally, it is possible to separate a test group from a control group in order to isolate the effect of an explaining variable from others that might also influence consumer purchasing behavior.

### **5.3.3 – Panel recruitment**

Consumer panels commonly use stratified samples. As such, the sample selection involves two distinct steps. First, the total dimension of the sample is chosen according to the principles laid out by statistical theory in order to guarantee the desired confidence levels. Second, the strata are selected taking into account key demographic variables like location, life cycle, social class or family type. For the sample to be truly satisfactory, the characteristics of the chosen individuals should match as close as possible those of the sampled population, so that this microcosm really behaves like the total universe. Thus, for instance, if 30% of the universe lives in locations of more than 50 thousand people, it must be guaranteed that 30% of the sample fulfils this condition, and the same must be true of all the key stratification variables.

The plan for the regular substitution of the panel members is developed together with the sampling plan, given that, after a while, some or many of the panel members will not wish or will not be able to go on cooperating. Panel rotation must be considered as a necessary evil. It is indeed an evil thing, since it endangers the stability of the panel, which is, as previously noted, one of the main advantages of this technique when compared with the alternative of periodically surveying independent samples. Each time a member enters or leaves the panel, the sampling error is affected, and this makes it more difficult to compare the results of two contiguous surveys. Therefore, it is advisable to avoid large and frequent changes in the composition of the panel. But panel rotation is, on the other hand, absolutely necessary, because otherwise the representativeness will be destroyed in the long term, either in general terms or regarding each one of the segments that we wish to monitor.

The reliability of the panel depends crucially on the possibility of reducing to a minimum the panel bias. There are three main sources of bias:

a) **Bias caused by refusals.** It is very frequent to observe a high number of refusals among people pre-selected to join a panel. When this happens, people with certain psychological tendencies will be systematically excluded from the panel; thus, the sample will not really be random. This problem is very common in market research, but it gets obviously more serious as the effort demanded from the respondents increases, as is the case with consumer panels.

b) **Bias created by subsequent defections.** It can also happen that a certain number of people who in the beginning willfully accepted to join the panel give up after realizing that the tasks that they have to perform take them too much time, or are too complex, or force them to reveal opinions or behaviors that they had rather hide. This is known to happen especially among people belonging to either very low or very high social classes, a phenomenon that tends to increase the bias of the sample. Low class individuals might have trouble completing the tasks that are assigned to them, or be ashamed to admit that they do not purchase a large number of the products covered in the survey; as to upper class people, they might consider themselves too busy to waste their precious time with surveys.

c) **Bias created by habit.** From the moment they join a panel, some individuals start feeling special, a situation that might induce them to start acting as if they were somewhat special or different from common consumers. This can make them even trade their previous purchase patterns for others that they consider to be more “normal”, that is, more in line with the behavior of what they believe to be the average consumer. In other cases, the same feeling of self-importance created by their new position as “opinion leaders” might induce them to send “messages” to the manufacturers. Finally, some people who obviously lack the time or the patience to take careful note of their purchases, instead of abandoning the panel may decide to report week after week the same alleged behavior, even when those records deviate significantly from the truth.

#### **5.3.4 – Methods of information collection**

The above-mentioned problems are especially acute when the diary method is used.

In this system, people are given pre-printed books that they must fill manually and send back every week to the company that manages the panel. This demands from participating consumers not only a strong self-discipline in order not to miss the deadline, but also a lot of work and accuracy in the registration of all the purchases made in all the product categories covered by the survey. Some books are voluminous, often including dozens of pages, each of them covering a number of product categories. For each product category, consumers are invited to declare at least the amount and specific form of product purchased, the brand and option, the price, and the store where it was bought, not to mention the existence of any kind of promotional offer. It is not hard to imagine that this task might demand more than an hour of work per week, even after the panel member becomes reasonably proficient in the task of filling the diary. These problems can and do affect the readiness of consumers to cooperate, a situation that might induce them either to give up or to communicate information totally or partially false in order to avoid losing too much time performing the task.

In the 1960s a universal system of codification of consumer goods – the UPC (Universal Product Code) – was created. Those codes can be automatically read by scanners installed in the stores by the cash register, allowing easier tracking of the movement of the products through the distribution channels. Although the prime motivation for this innovative system was the improvement of the logistics of distribution, in the mid-1980s someone had the idea of turning product codification into a market research tool. By 1993, Nielsen Market Research and Information Resources, Inc (IRI) were already the two main world suppliers of information collected by electronic reading of bar codes and had started expanding their operations internationally (Totten and Duffy, 1994).

Panels based on scanners have many advantages over purchase diaries that must be filled manually. First, they reduce significantly the probability or even the possibility of error in the collection of information. Second, they reduce attrition caused by the frequent defection of panel members. Third, they allow large savings on the costs of introducing the collected information in the computer system. Fourth and last, these technologies favor the automatic overlaying of panel data with information obtained from other sources, such as retailer databases containing information on prices, use of coupons by consumers or special promotional activities on the point of sale (e.g., demonstrations or displays). The

integration of different information sources led to the creation of so-called single source panels, registering simultaneously, for instance, which advertising spots were viewed by panel members (McDonald, 2000).

The wealth of information originated by consumer panels of all types is now inducing the development of more and more sophisticated tools of analysis, including complex statistic and econometric models. Although the control of market performance was the first driver of the growing demand for panel information, the attention and interest of marketing managers is now turning to its potential to help them understand better the relative effectiveness and efficiency of different marketing stimuli, hoping for a better overall return on marketing investments (Bucklin and Gupta, 1999). Not only is it easier to conduct market tests with the help of consumers panels, as it is also more economical to obtain reliable and accurate information on the real results of alternative courses of action.

#### **5.3.5 – Information aggregation**

As previously stated, panel information is, by its very nature, very disaggregated. The basis of the collected information is the individual purchase made by each individual (or, more precisely, by each household) on each given week; as a direct consequence of these records, it is possible to reconstruct the complete history of each consumer's purchases on each product category. In itself, this disaggregated information is not, as a rule, very relevant for marketing managers. Thus, the first step in the treatment of the collected information consists in consolidating it at successively higher levels of aggregation. This consolidation is the result of grouping units of information that share certain common characteristics in some way relevant for the desired type of analysis. Here are some examples of aggregation sequences:

- **Time period:** Week → Month → Quarter → Year
- **Geography:** Location → Region → Country
- **Product:** Dimension, Form, Flavor → Segment → Brand → Manufacturer → Category
- **Consumers:** Individual → Niche → Segment → Market

The information directly collected by the panel concerns only the sample. This information must afterwards be projected to the universe in order to give its subscribers a global idea of what is going on at the scale of the overall market, usually referring to a certain country. The extrapolation process consists in simply multiplying the average values obtained for each stratum of the sample by the total number of households estimated to exist in each one of them in order to obtain the sales volume and the sales value of each category and brand during the time period under consideration, as well as the market share of each individual brand.

The accuracy of this projection depends on the correction of the assumptions on which the stratification of the sample was based. In other words, it will only be valid if the breakdown of the sample is found to match the socio-demographic breakdown of the households that make up the country's population. Whenever the data of the census are incorrect or outdated, possibly as a consequence of unusually fast social changes in the time period between two successive censuses, serious mistakes can take place when extrapolating the sample information to the universe. Market dimensions and market shares can in such cases turn out to be systematically under or overvalued.

## **5.4 – THE TNS PANEL IN PORTUGAL**

### **5.4.1 – Creation and management**

The Nielsen retailer panel was for a long time the only panel survey in Portugal providing information on consumer markets. As previously mentioned, retail panels are very accurate in the evaluation of brand market shares, not to mention the estimation of the absolute and pondered distribution rates of each supplier. This effectiveness is a result of their capacity to register directly a very large proportion of sales by surveying a relatively small number of stores. Furthermore, the trend toward a growing concentration of the retail business that took place during the last decades contributed to improve even more the accuracy of retail panels.

The first real consumer panel was created in Portugal in the mid-1990s by TNS (formerly Taylor Nelson Sofres), a multinational market research firm. More recently, Marktest established its own consumer panel in 2003, and Nielsen did the same in 2005. We will now describe in some detail the workings and the organization of the TNS panel, since it was the source of the data used in the present investigation.

Under its present form, the TNS consumer panel features two distinct parts: one focusing on fast-moving consumer goods, the other on textiles and apparel. Obviously, only the first one will concern us. Selected consumers receive quarterly a book of pre-printed forms organized by weeks, each of a different color to make its identification easier. The four quarters are not of the same length: the first, second and fourth include each twelve weeks; the third, coinciding with the summer holidays, during which purchase patterns change significantly, includes sixteen weeks.

This panel belongs to the self-administered purchase diary type: consumers are invited to register in writing their weekly purchases on each of the product categories covered by the survey. In case of doubt on how the diary should be filled, consumers can send the label of the product whenever this alternative is a viable one. In order to ensure the accuracy of the information, consumers should fill the diary at the precise moment when, entering their homes after shopping, they take the products out of their bags and stock them in the refrigerator or in any other appropriate place; moreover, they should copy from the sales ticket the price of purchase. These procedures of course cause some inconvenience to the consumers, but, when they are not followed, they may be later incapable of recalling correctly the information. All this shows that a considerable margin exists for errors of registration of the collected information.

At the time when the XXX relationship marketing program was launched, there were no scanner-based panels operating in Portugal, because it was believed that the demand for this service did not justify the high initial investment that this technology requires<sup>42</sup>. As previously mentioned, diary-type panels have problems of reliability, but, for the moment, there was no alternative source in the country that might allow us to conduct the present investigation with more accurate information.

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<sup>42</sup> The situation changed recently, since TNS started testing in the beginning of 2005 a scanner-based system of data collection in Portugal. The new consumer panel created by Nielsen in the same year is also scanner-based.

#### 5.4.2 – Collection, verification and codification of the information

The information collected from the sample of consumers used by the TNS panel on their weekly purchases is organized into seven main groups:

- **Products** – Some categories are broken into subcategories. For instance, category “Frozen foods” comprehends: non-prepared fish and shellfish; prepared fish and shellfish; meat and fish pastries; frozen meat; vegetables and fruit; frozen cooked meals, pizzas, lasagna, etc; and other frozen.
- **Presentation** – In many cases, such as “Olive oil” and “Margarine”, consumers must indicate their preferred type of packaging.
- **Brand and variety** – Main brand and sub-brand or product variant. When purchasing “Olive oil”, consumers must indicate acidity degree; when purchasing “Beer”, they must report whether they purchased alcoholic beer, light beer or alcohol free beer; when purchasing “UHT Milk”, whether they purchased fat milk, half-fat milk or low-fat milk; and so on.
- **Purchased quantity** – Number of units or packs purchased.
- **Weight or unit volume** – Consumers are requested to specify the quantity of product contained in the individual pack, which can sometimes be, for instance, a group of six bottles or cans. The amount of product can be measured in either weight or volume.
- **Unit or total price.** The consumer has the choice to declare either one or the other, since the computer will calculate automatically the one that is missing. This information allows the identification of those situations when the purchased product was benefiting from a price promotion.
- **Where the product was bought** – Type and name of the store and number of register machines. This group of questions admits a large number of replies, comprehending both modern and traditional retail. Mail order buying is also considered, although this is only relevant for textile and apparel products.

Filling diaries is necessarily a slow task, requiring a considerable amount of patience and concentration from the panel members. The collected data can be distorted as a result of mistakes caused both by carelessness or excessive zeal. For this reason, operators check the accuracy of the information before it is codified and only afterwards is it introduced in the computer system. Whenever some kind of doubt arises, the inquiries are put aside for further confirmation, usually demanding a phone call to the panel member. The information is then automatically processed in order to produce several types of reports.

### **5.4.3 – Panel organization**

The basic unit of information collection is the household. The diary must therefore register the purchases made by all members of the family, a requirement that is difficult to meet when the person in charge is not always the same. During the period under analysis, the panel sample included 1,826 households<sup>43</sup> representing the total universe of 3,594,279 households that, according to the INE Census existed in Portugal in 2000. The sample is stratified taken into account a variety of socio-demographic criteria:

- Region of residence: Greater Lisbon (23.5%), Greater Oporto (10.9%), Coastland (38.7%), Inland North (13.3%), Inland South (13.6%)
- Habitat: up to 2,000 inhabitants (37.7%), from 2,001 to 10,000 inhabitants (11.7%), from 10,001 to 1,000,000 inhabitants (16.2%), metropolitan areas (34.4%)
- Number of persons in the household: 1 or 2 persons (46.8%), 3 persons (25.5%), 4 or + persons (27.8%)
- Age of the housewife: up to 34 years (21.7%), 35 to 49 years (29.6%), 50 years and + (48.7%)
- Presence of children: no children (70.5%), up to 5 years (14.6%), from 6 to 15 years (14.9%)

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<sup>43</sup> In 2005, the sample was expanded to include a total of 2,500 households.



- Social class: upper + medium upper (15.0%), medium (29.0%), medium lower (39.0%), lower (17.0%)

Social class is not determined directly, that is, panel members are not asked what class they belong to. Instead, it is determined by a number of clues, such as the profession of the head of the family, the educational level of the head of the family and a number of life-style indicators (secondary home, house servants, number of bathrooms, cable TV, internet at home) and possession of certain equipments (video recorder, centrifugator, vacuum-cleaner, photo camera, PC, dish-washing machine, hi-fi, microwave oven, refrigerator, electric coffee machine, video camera, electric tooth-brush, mobile phone).

The panel sample was significantly readjusted in 2003 after the results of the INE population census of 2001 were published. In fact, the country underwent a considerable social and economic transformation during the last decade of the 20<sup>th</sup> century, leading to rapid and meaningful population changes. As a consequence, the extrapolation of data based on the previous census was providing a very distorted picture of market reality and brand performance.

The main trends taking place between 1991 and 2001 were the following:

- Increasing proportion of households with 3 or less persons
- Increasing proportion of households with just 1 person
- Increasing proportion of households with no children
- Decreasing proportion of lower class households

#### **5.4.4 – Available information**

The TNS consumer panel provides its subscribers with two main types of standard information: Continuous and Diagnosis. The Continuous information (the one that will concern us directly) is presented as a single report. The Diagnosis information includes five different types of reports:

- Loyalty study
- Transfer study
- New product launch study
- Light, Medium and Heavy buyers
- Duplication study

We will now briefly summarize the contents of each one of the standard reports.

##### ***Continuous report***

The information contained in the Continuous Report, typically issued every quarter, describes the situation of the brands competing in a given product category. The general information is detailed by specific target/profile, region, distribution channel, and retail chain. This information enables marketing managers to follow the evolution of the general market, of their brand and of the competing brands, both globally and by segments.

They will get to know if the market increased or decreased in volume and value and how their brand performed in comparison to the others. Besides market share, they also become acquainted with their penetration rates, buying rates, purchase frequency and average purchase per occasion. The observed variations of market shares can thus be broken down and their causes traced and understood.

### ***Loyalty study report***

The loyalty study is based on the comparison of the data of two successive periods of time. The subscribers are informed on how many consumer households repeated the purchase of the brand, how many traded it for competing brands and how many switched to the brand after having previously bought another one. After identifying the loyal consumers, the new customers and the lapsed customers, the study establishes their socio-demographic profile, estimates their average intensity of consumption, indicates how their purchases are divided among the several brands and identifies the retail channels where they usually buy.

### ***Transfer study report***

The Transfer Study analyzes the gains and losses of the brands from one period to the next. The report presents a Markov-type matrix showing how consumers move from one brand to another. The marketing manager gets to know which brands are losing sales to them (and by how much) and what brands are gaining sales from them (and by how much). When these movements are confirmed in successive periods, trends emerge that make some brands advance their market shares while others are left behind. On a tactical perspective, the Transfer Study also shows what happens when a brand implements some marketing initiatives such as advertising campaigns, price reductions or sales promotions.

### ***New product launch report***

As suggested by its name, the New Product Launch report aims to help marketing managers understand as soon as possible what is going on after they launch a new brand or a new product.

This report provides information in three stages concerning trial rates and purchase-repeat rates after the launch, and also shows how buyer behavior changes after the first trial. Managers also receive information on the socio-demographic profile of trialists, repeaters and non-repeaters.

### ***Light, medium, and heavy consumers study report***

The purpose of this study is to provide information that allows a better targeting of the marketing initiatives aimed at increasing market share by evaluating the differential behavior of consumers according to their consumption potential. This information can namely help pinpoint market niches of high potential.

The report segments purchasers according to their market value, establishes their socio-demographic potential and describes the purchase behavior of each segment.

### ***Duplication study report***

As most consumers currently buy more than one brand, managers naturally wish to know which brands belong to their repertory and how they come to prefer one brand to others. The Duplication Study describes how buyers of each brand distribute their purchases between the remaining brands in order to know which are their more direct competitors as well as their strengths and weaknesses. Exclusive buyers and their socio-demographic profile are identified as well as the degree of substitutability among brands.

This report takes advantage of the Parfitt-Collins formula to break down market-share into three main variables: relative penetration rate, feed rate (or share of requirements), and consumption index (intensity rate).

## **5.5 – THE XXX SUB-PANNEL**

### **5.5.1 – Metrics of the XXX relationship marketing program**

XXX created a comprehensive battery of performance indicators to control the effectiveness of their relationship marketing program. The following five control variables were continuously monitored:

- Proportion of households positively qualified as heavy consumers
- Response rates to qualification questionnaires
- Rates of participation in promotional initiatives
- Coupon redemption levels

- Satisfaction generated by the magazine evaluated through phone surveys and focus groups

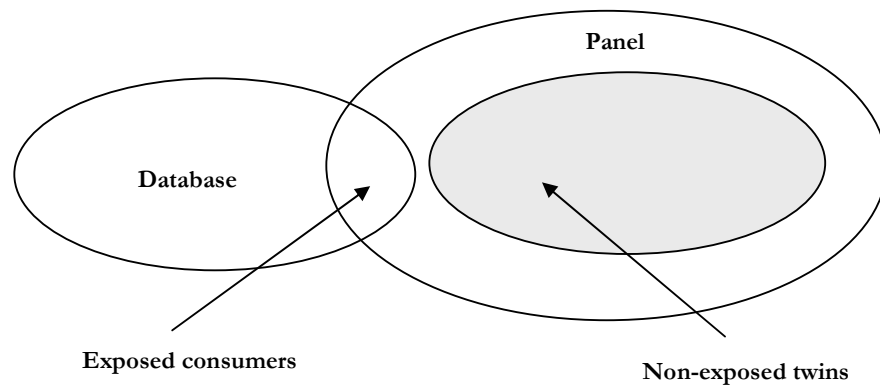
However, no matter how important these indicators may be, none of them is really decisive for the program's central purposes. The main criterion used to judge the goodness of the relationship marketing program was its ability to generate incremental turnover and gross profit and, as a consequence, to produce a satisfactory return on the marketing investment it required. This could only be done by creating a control device that allowed the company to isolate the impact of the program from other factors that might affect the sales of XXX brands, namely the marketing-mix stimuli of other brands competing in the market.

In order to control the results of XXX's relationship marketing program, a special sub-panel was created within the general TNS consumer panel. Its main purpose was the simultaneous and parallel control of the purchase behavior of two distinct consumer groups: on the one hand, those enrolled in the program (i.e., the customers exposed to it), and, on the other hand, those excluded from it (i.e., the customers non-exposed to it).

### 5.5.2 – Test group and control group

This monitoring system was designed to compare a control group (consumers excluded from the program) with a test group (consumers enrolled in the program), with both groups having a similar socio-demographic profile. Ideally, the only known significant difference between both groups should lie in the fact that one is being impacted by a given marketing initiative while the other one is not. The fulfillment of this condition would allow us to conclude that the observed differences of behavior between both groups must necessarily have been caused by the relationship marketing program.

**Figure 5.1**  
**Test Group and Control Group Selection**



Source: Author.

This metric involves identifying control households (also known as “twins”) who are excluded from the relationship marketing program but who have the same profile as the households exposed to the program. Figure 5.1 shows the relationship between the program database, the consumer panel database, the test group (exposed consumers) and the control group (non-exposed consumers). The test group is located at the intersection of the program database with the consumer panel database, given that its members belong simultaneously to both of them. On the contrary, the control group is exclusively composed of consumers that can be found in the consumer panel database but not in the relationship program database.

The XXX relationship marketing program included some 280 thousand consumer households, that is, roughly 7.7% of the total number of households existing in the country

according to the 2001 Census. By merging the program database with the panel database, it was possible to identify more than two hundred households common to both of them, of which precisely 200 were retained to integrate the test group. The next step was to create a control group with the same socio-demographic structure as the cross sample that served as test group. The selected control group included 1,626 households.

Once this stage was concluded, the last quarter before the program began (the 4th quarter of 2000) was selected as the benchmark for future comparisons, establishing the reference parameters of purchase behavior both in the control group and in the test group.

### **5.5.3 – The sample dimension of the test group**

The sample representing the exposed consumers – only two hundred households – is of course a small one. In practice, it is even smaller whenever we wish to consider separately the situation in each product category (slightly smaller in high penetration categories, but much smaller in low penetration categories).

This problem must be considered having in mind the peculiar features of consumer panels. As previously mentioned, the fact that this research technique consists in surveying repeatedly the same group of individuals makes the dimension of the sample relatively less important since the sampling error and its bias are not expected to change from one period to the next. Thus, we must be ready to work with small samples, keeping in mind that, while the parameters will not be measured with the desired accuracy, the stability of the sample will allow us to identify unambiguously the direction of the observed changes. Even so, it was deemed necessary to define a minimum threshold under which the data obtained from the survey would not be accepted. As a rule of thumb, for each analyzed product the data of the test group were disregarded whenever less than 30 purchase occasions took place during a given quarter. In those cases, the data were considered “non-available”.

### **5.5.4 – Length of the time-series**

The time-series used in our research includes one quarter before and nine quarters after the start of the program. This covers the period between the 4<sup>th</sup> quarter of 2000 and the 1st quarter of 2003. Why do we lack data after this last date if the program is still running at the present moment? The answer to this question has to do with the changed composition of the TNS panel decided after the publication of the results of the 2001

Census which took place in 2002. In fact, the Census showed that the composition of the panel sample no longer reflected adequately the situation of the country at the turn of the millennium. As a consequence a different stratification of the sample was called for. The necessary corrections were undertaken in 2003 and the results of the panel were recalculated for the previous years. As a consequence, the time-series for both the control and the test group were also reconstructed from 2001 on until the present (excluding the last quarter of 2000) which meant that the previous time-series were discontinued.

So, we now have two different groups of time-series:

- The first one starts in the 4th quarter of 2000 and end in the 1st quarter of 2003, extending for two years and a half.
- The second one starts in the 1st quarter of 2001 and continues up to the present time.

Besides having ignored the benchmark quarter, the new time-series both for the test and the control groups are also different in that, unlike the previous ones, they are based on a different idea, that is, the comparison between the situation in the weeks immediately before and immediately after each issue of the magazine. Since the periodicity of the magazine was also changed from four times a year to three times a year, this means that the new data does not cover what happens during the full year. This is unfortunate, because it makes the new time-series doubly unsuitable for our purposes: on the one hand, because it ignores the zero time period; on the other hand, because in practice we no longer have a continuous time-series. For these reasons, we chose to keep the first time-series and discard the second one at the cost of analyzing a shorter time period.



## 5.6 – EXPERIMENTAL DESIGN AND STATISTICAL TECHNIQUES

The available data allowed us to conduct a scientific experiment in order to establish whether the XXX relationship marketing program had any impact on the observed behavioral variables, and it also allowed us to estimate how large that impact was<sup>44</sup>. In fact, as previously indicated, the data obtained through the consumer panel satisfies two crucial conditions:

a) It includes a pre-program period that provided us with a benchmark, or baseline, that we will call period 0. The observed behavior of the enrolled consumer households occurring after the beginning of the program can therefore be compared with the situation previous to its start. In so-called time-series quasi-experiments such as this, behavior is observed for some time, a marketing stimulus is then directed at customers, and sales are observed both during and after the program. In this case, the period previous to the stimulus is restrained to one single quarter, which of course is a limitation, for reasons that will later become clearer. On the other hand, we do not have a post-program period either, but that is not a serious concern, since we did not intend to study for how long the effects of the program remained after its conclusion. Now, if we only had a time-series describing the behavior of the test group before and during the launch of the program, this would not have been satisfactory from a scientific point of view, because we would not have a way of being sure that the cause of the behavioral variations taking place from period 1 until period 9 could be attributed to the program. In fact, since the marketing environment cannot be expected to keep still for such a long period of time, any kind of stimuli originating in it could be the right explanation for such variations. What this means is that comparing the situation after the program with the situation before it started is not enough to allow a proper test of the hypotheses laid out in the last chapter.

b) Fortunately, we also benefited from the existence of a separate control group including only consumer households not exposed to the program. Since this

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<sup>44</sup> This section is based mainly on Campbell and Stanley (1963), Banks (1974), Mills (1977), Aaker and Day (1980), Pyndick and Rubinfeld (1981), and Blattberg and Neslin (1990).

control group is also exposed to the general marketing environment, the comparison between the test group and the control group will allow us to factor out the behavioral variations extraneous to the relationship program. Since the test group and the control group only differ because the first one was exposed to the program while the second one was not, we can reasonably infer that any differential change in behavior that takes place in the test group relative to the control group after period 0 must have been caused by the program itself. Furthermore, it should be noted that neither the members of the test group nor those of the control group were at anytime aware that their behavior was being specifically monitored in connection with XXX's relationship marketing program. Thus, there is no reason to suspect that they might have altered their usual behavior as a consequence of being under scrutiny for this particular reason. On the other hand, a matching of the two groups was performed before the start of the program in order to minimize the possibility that divergent behaviors might be caused by very different profiles of its members. Finally, the composition of both groups satisfies reasonably the demand of randomness in their formation.

To sum up, our investigation benefited from a two-group pre-post experimental arrangement. We have a period 0 that surveys the situation of the behavioral variables before the start of the program, and we have nine periods after the start of the program (X). Then, we have the complete ten period time-series for both the test group and the control group. The general design of the experiment can be diagrammed as follows:

Test Group:                     $O_0$  X  $O_1$   $O_2$   $O_3$   $O_4$   $O_5$   $O_6$   $O_7$   $O_8$   $O_9$

Control Group:                 $O'_0$      $O'_1$   $O'_2$   $O'_3$   $O'_4$   $O'_5$   $O'_6$   $O'_7$   $O'_8$   $O'_9$

Another way of representing this experimental design is shown in the following Figure.

**Figure 5.2**  
**Comparison Between Before vs. After and Test vs. Control**

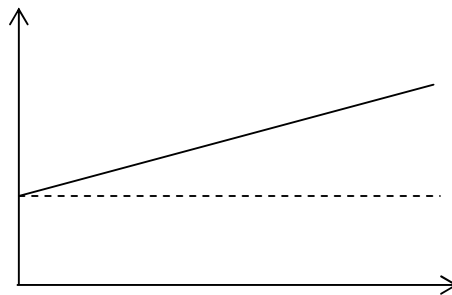
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$t_0$	$t_1$	$t_2$	$t_3$	$t_4$	$T_5$	$t_6$	$t_7$	$t_8$	$t_9$
Test: Purchase behavior of exposed households									
Control: Purchase behavior of non-exposed households									

Source: Meyer-Waarden (2004).

Graphical representation and visual inspection will give us a first idea on how a certain behavioral variable is moving as a consequence of the relationship program. In fact, we can represent in the same graphic the time-series of each of the relevant variables of both groups and fit to them a linear trend. If the samples are truly random, if their members have the same profile and if there is no sample error due to a special cause, we would expect any impact of the program to show up like this, with the full line representing the test group and the dotted line the control group:

**Figure 5.3**  
**Hypothetical Impact of the Program on the Behavior of the Test Group**

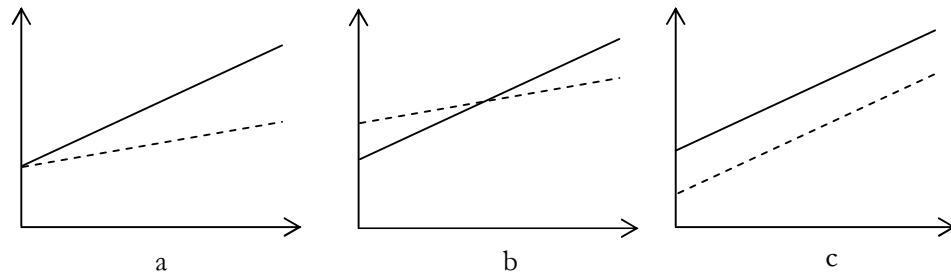


Source: Meyer-Waarden (2004).

What this graphic means is that, if the marketing environment remains stable, we would expect to see no changes in the control group, while any positive impact of the program on the variable under examination would translate into a positive sloped trend line in the test group. Also note that the program effect, instead of being instantaneous, would in this case proceed in a cumulative way, working gradually from period 1 and improving continuously until period 9. Of course, in practice, we expect to find less tidy data, possibly

leading to graphic representations more like the following ones:

**Figure 5.4**  
**Different Patterns of Impact on the Behavior of the Test Group**



Source: Meyer-Waarden (2004).

In graphic (a) the starting point is similar for both groups at moment zero. The marketing environment also causes a simultaneous improvement in both of them, but the positive trend is stronger in the test group than in the control group, an indication that the program would be producing results. In graphic (b) the test group starts below the control group, possibly because of a sampling error at period 0, but there is also a clear positive effect of the program. Finally, in graphic (c) the starting point is different, but the trend lines grow in parallel, suggesting that the relationship program had no impact whatsoever on the observed variable.

The trend line will be determined by fitting the following equation to the data:

$$O_{xt} = \alpha + \beta t + \varepsilon \quad (5.1)$$

Where

$O_{xt}$  – Observed value of variable x in period t

t – time (quarters 0 to 9)

$\varepsilon$  - random error term

The estimation of parameters  $\alpha$  and  $\beta$  is done using the least-squares procedure. Of course, we need to know how well each trend line fits the analyzed time-series, or, in other words, how closely the variation of the variable is in fact related to the passing of time. This problem will be solved by inspecting the correlation coefficient associated to each

trend equation, which will tell us how confident we can be that the variable under scrutiny is really changing in line with the passing of time after the start of the program. Thus, a high correlation coefficient will mean that the variable is moving consistently in a certain direction, while a low correlation coefficient will lead us to conclude that we cannot put too much faith in the trend line, since the variation in the time-series includes a significant irregular component.

An alternative approach is to take the differences between the observed values in the test group and in the control group, and then analyze the trend of the differences instead of studying separately the evolution of each group. Thus, we would consider:

$$D_t = O_t - O'_t \quad (5.2)$$

Where  $O_t$  (observed value in the test group) and  $O'_t$  (observed value in the control group) have the same meaning as above and  $D_t$  is the difference between one and the other in period  $t$ . Now, recalling our research hypotheses, we want to know (a) whether the program changes the behavioral variables and by how much, and (b) whether its impact is instantaneous or increases with time. In order to clarify these issues, we will resort to the following linear regression model:

$$D_{xt} = \alpha + \beta P_t + \delta t + \varepsilon \quad (5.3)$$

Where:

$D_{xt}$  – Difference between the observed values of variable  $x$  in the test group and the control group in period  $t$

$P_t$  – Dummy variable that assumes the value 0 in period 0 (before the program is launched) and the value 1 in subsequent periods (when the program is active)

$t$  – Duration of the program since its beginning measured in quarters ( $t = 0, 1, 2, \dots, 9$ )

$\varepsilon$  - random error term

When we analyze a time-series and fit a linear trend to it we are not actually explaining anything, since time is not really a cause of the observed variation. On the

contrary, the two-variable regression model represented by this equation actually tries to explain the variation in  $D_x$  as a function of  $P$  and  $t$ , that is, as a function of the program and of how long it has been running. The  $\beta$  coefficient tries to measure the impact of the program on the variable, and the  $\delta$  coefficient tries to identify its cumulative impact as the relationship is gradually being built from quarter 1 to quarter 9. Further, in order to know if those coefficients can be trusted, that is, if we can reject the null hypothesis that they are not significantly different from zero, we will have to analyze the  $t$  statistics associated to the regression. On the other hand, the  $F$  statistics will allow to test the null hypothesis that none of the proposed explanatory variables help explain the observed variation.

It is interesting to note that testing the null hypothesis that the  $\beta$  coefficient in the above model is not different from zero is equivalent to testing the hypothesis that the observed values of the behavioral variables before and after the launch of the program belong to the same random distribution and, therefore, even if some variation is displayed by the data, we cannot take it as a proof that the program had some kind of real impact on the exposed consumer households.

## 5.7 – CONCLUSION

In this chapter we described in some detail the XXX relationship program, its objectives, strategies and metrics. We gave due emphasis to consumer panels as a specific tool of market research, and discussed both their advantages and shortcomings when analysing consumer purchasing behavioral patterns. We presented the TNS Portuguese consumer panel, and showed how it was used to monitor the relationship program that we intend to study.

Given that the monitoring instrument of the program was designed before the beginning of this investigation, and that certain changes in the panel structure determined by the publication of the 2001 Census led to the abandonment of the control group used between the fourth quarter of 2000 and the first quarter of 2003 and to the break of the time-series after that date, we were unable to use more recent data. On the other hand, and for the same reasons, we were also unable to explore the data in ways that had not been previously considered by XXX. We could not, for instance, study the evolution of the share of requirements in the test group, nor, for that matter, analyze how the program may have affected the intensity rate or the duplication of purchase.

Nevertheless, the available data allows the conduction of a proper scientific experiment based on a before-after and test-control design, although with some limitations pointed out in this Chapter. The next Chapter will present in detail the results of our research.





# Chapter 6

## Presentation of the Results

### 6.1 – INTRODUCTION

This chapter presents the results obtained from the application to the empirical data of the analytic methodologies described in Chapter 5, and discusses their relevance for the research issues. At each level of analysis (corporate level, business level, and product level), we prepared tables displaying the data of both the test and the control group used for the analysis, represented them graphically, identified time trends, computed correlation levels and performed regression analysis using the equations presented in the previous chapter.

The analyzed purchase variables were market share, penetration, buying rate, purchase frequency and purchase per occasion whenever they were available, meaning whenever the number of observed purchase occasions during a certain quarter was large enough to classify the data as reliable<sup>45</sup>. For each one of those variables, the following operations were performed on the original data:

1. The time-series were graphically represented, both for the test group and the control group describing its evolution along ten quarters
2. Linear trends were fitted to those time-series, and the slopes of the equations were estimated
3. Correlation coefficients between each analyzed variable and time were computed for each time-series

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<sup>45</sup> As previously indicated, TNS used a rule of thumb according to which the data would not be trusted whenever less than 30 purchase occasions took place during the period under analysis.

Then, new time-series were constructed by calculating the differences between the values taken by each variable in the test group versus the control group during the same time period. Again, a number of operations were performed on these data:

1. Linear trends were fitted to the time-series, and the slopes of the equations were estimated
2. Correlation coefficients between each analyzed variable and time were computed for each time-series
3. Linear multiple regression analysis was conducted taking as independent variables time and a dummy variable that equaled “0” before the program starts and “1” after it was launched

The dummy variable allowed us to test the hypothesis that the values taken by the behavioral variables after the program started were significantly different from the ones measured before it began. The purpose of the time variable was to help us understand whether the effect of the program was instantaneous or if it increased with time instead. Thus, whenever the dummy variable appeared to be positive and statistically significant, we would expect the time variable to be null if the impact of the program was instantaneous and positive if it was gradual and cumulative. A significance level of  $p < 0.05$  was retained throughout our analysis.

The results will be presented in three different sections of this Chapter, one for each level of analysis. Thus, results at the corporate level will be presented in Section 6.2, results at the division level in Section 6.3, and results at the product level in Section 6.4.

In Section 6.2 the full results of our analysis will be shown. First, a synthetic table displays the evolution of the behavioral variables under consideration over time, from the beginning to the end of the quasi-experiment. Second, five different graphic representations (one for each behavioral variable: market share, penetration rate, buying rate, purchasing frequency, and purchase per occasion) compare visually the evolution of purchase behavior in the test group against purchase behavior the control group. Third, we will look at the trends and correlations associated with the time-series of the differences between the test group and the control group for all the purchase variables. To conclude,

the results of the multiple regression analysis will be introduced.

This way of presenting the results has the advantage of making the reader familiar with all the basic data that underlie our research and with the calculations performed on them. However, the detailed presentation of the results level after level and variable after variable, besides being tedious, might make the reader lose sight of the overall picture. In order to keep the presentation of the results as straightforward and readable as possible in sections 6.3 and 6.4 the tables presenting the evolution of the behavioral variables, their graphic representation, trend equations and corresponding correlation coefficients will not be shown. This was absolutely necessary since a total of 246 time-series were analyzed<sup>46</sup>. The interested reader will find them in Appendix 1. On the other hand, the detailed results of the regression analysis are available for full inspection in Appendix 2.

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<sup>46</sup> This figure includes the time-series of the behavioral variables in the test group, of the same variables in the control group and of the differences between both of them. A total of 159 incomplete or unreliable time-series had to be discarded from the original 405.

## 6.2 – RESULTS AT THE CORPORATE LEVEL

### 6.2.1 – Evolution of the behavioral variables

As indicated, we will start with the analysis of the overall behavior of XXX brands and products, aggregating all the markets in which the company presently competes. This will give us a general idea of the impact of the program. Table 6.1 below summarizes the evolution of the analyzed behavioral variables during the period covered by our research both in the test and in the control group.

**Table 6.1**  
**Corporation XXX – Evolution of the Behavioral Variables**

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	28.70	27.7	94.1	93.0	25.7	20.2	5.7	5.0	4.51	4.04
I – 2001	28.60	26.30	93.1	91.6	26.1	20.1	5.2	4.5	5.02	4.47
II – 2001	32.80	27.70	92.5	94.6	29.4	21.6	4.5	4.4	6.53	4.91
III – 2001	30.40	28.20	98.4	95.8	35.7	28.5	6.1	5.6	5.85	5.09
IV – 2001	29.00	27.40	88.6	92.0	32.3	22.0	4.9	4.4	6.59	5.00
I – 2002	29.80	27.50	95.7	91.3	23.9	21.3	4.6	4.3	5.20	4.95
II – 2002	30.80	27.70	95.2	91.1	27.3	22.1	5.2	4.6	5.25	4.80
III – 2002	31.00	27.50	95.6	91.0	28.5	21.5	5.4	4.5	5.28	4.78
IV – 2002	30.60	25.60	96.4	90.6	28.6	20.6	4.9	4.2	5.84	4.90
I – 2003	28.20	26.60	94.2	91.2	25.1	20.6	4.3	4.2	5.84	4.90
Average	29.99	27.22	94.38	92.22	28.26	21.85	5.08	4.57	5.59	4.79
Standard deviation	1.41	0.80	2.64	1.72	3.56	2.44	0.56	0.43	0.66	0.31
% sd	4.71	2.92	2.80	1.87	12.61	11.18	10.97	9.40	11.85	6.49

Source: TNS.

For an easier and faster understanding of the data reproduced in Table 6.1, five different graphic representations were prepared (one for each variable under consideration) that will be shown under the following sub-headings. In each graphic trends have been fitted to the data series representing the parallel evolution of the situation in the control group and in the test group. The long-term trends of each group (or absence thereof) should emerge clearly from the visual inspection of these graphics. The equations underlying those trends and their  $R^2$  coefficients have been added to the graphics to provide a better understanding of the overall picture. For consistency and ease of understanding the trend equation and the  $R^2$  coefficient of the test group are displayed on the left of the figure, while those of the control group are shown on the right.

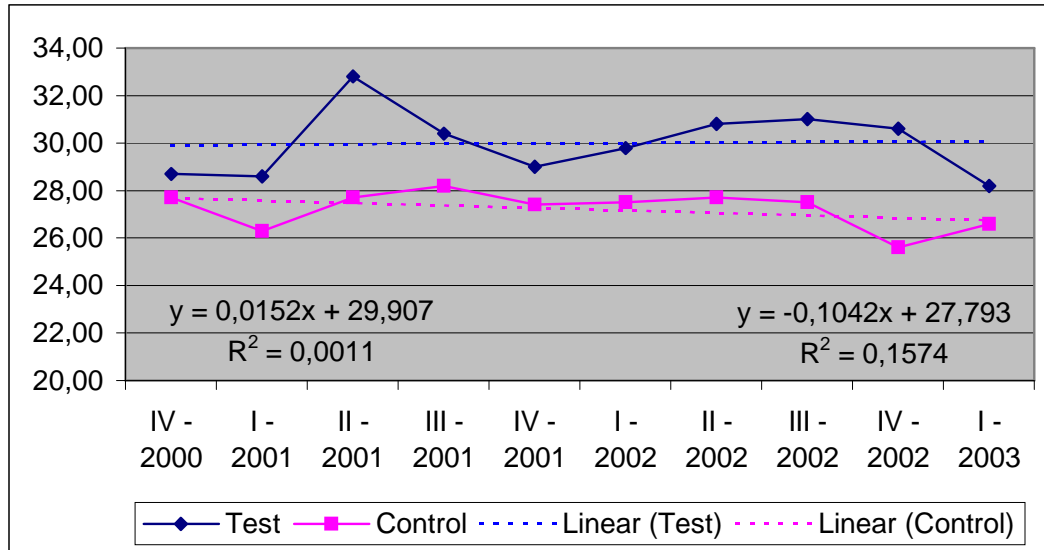
### ***Market share***

As a consequence of the global importance of XXX brands in the Portuguese markets for fast-moving consumer goods, its overall average value market share during the period under consideration is estimated by the TNS consumer panel to have reached 27.22% in the control group and 29.99% in the test group, as can be seen in Table 6.1. This difference between the control group and the test group probably means that heavy users are somewhat over-represented in the test group. However, both estimates show that XXX command a very strong market position in the served product categories. As a result, they have a significant bargaining power toward consumers and even some power toward retailers.

Table 6.1 also shows that XXX's overall market share underwent some erosion during the period under consideration, a point to which we will later return. We noted in the previous chapter that the variables pertaining to the test group were estimated from a much smaller sample than those relating to the control group. As a consequence, the former are of course less reliable than the latter. For that reason, the trend of the control group is usually much neater than the trend of the test group. This can be confirmed by the fact that the standard deviation around the average of the test group is both in absolute and relative terms larger than the standard deviation around the average of the control group. As should be expected this phenomenon occurs for all the variables considered and at all levels of analysis.

Figure 6.1 shows the evolution of market share in both groups, together with the trend line of each time-series. The corresponding linear equations and  $R^2$  are also displayed in the figure: on the left, the ones relative to the test group; on the right, those of the control group (a similar arrangement will be followed in the next figures as well).

**Figure 6.1**  
**Corporation XXX - Market Share**



Source: Author.

A general trend can be noticed for the decrease of XXX's overall value market share in the control group. The fall is slow but steady, amounting to a total of – 0.9378 percent points in the period of 10 quarters covered by the data<sup>47</sup>. It is generally acknowledged that manufacturers of fast-moving consumer goods have been losing ground in Portugal during the last few years to own brands of large retail chains, and especially to those of discount retailers. In other words, the general market environment has been moving in a direction rather unfavorable to XXX. However, XXX appears to have sustained or even increased very slightly its overall value market share in the test group during the same period. As a consequence, in the period of a year and a half as a whole the test group shows an increase of 1.0746 percent points relative to the control group. Considering that the average XXX value market share was estimated to be 27.22 %, this translates into a relative gain of 3.95% in value sales.

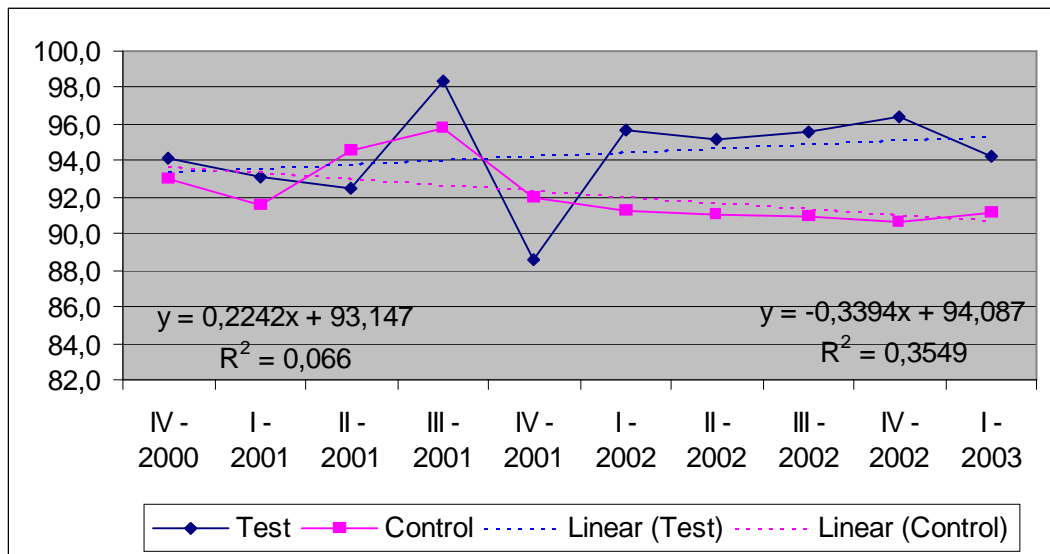
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<sup>47</sup> We recall that the average decrease in one period is given by the inclination of the curve (- 0.1042 in this case). Multiplying it by 9 we estimate the decrease for the whole 10 quarter period (- 0.9378).

**Penetration rate**

The penetration rate provides us an even more impressive indication of the importance of XXX brands. According to Table 6.1, an average of 92.22 % of the households in the control group and 94.38 % of the households in the test group purchased at least once a brand of XXX during any given quarter. This means that XXX brands can be found in practically any Portuguese household irrespective of social class, location or any other socio-demographic characteristic. On the other hand, it also means that there was not much room for further growth of the overall penetration rate. Once again, the average penetration rate is higher in the test group than in the control group, and the same happens with the standard deviation both in absolute and relative terms.

**Figure 6.2**  
**Corporation XXX - Penetration Rate**



Source: Author.

Figure 6.2 reveals a clear tendency for a decrease of the penetration rate in the control group, meaning that less households buy at least one XXX brand during a given quarter. As a whole, XXX brands are therefore losing consumers. This is a much more distinct trend than the one previously spotted while analyzing the market share data: during the 10 quarter period under examination, the penetration rate in the control group was reduced by 3.05 percent points. However, this movement appeared to be countered by a favorable evolution in the test group, where a gain of 2.02 percent points in penetration

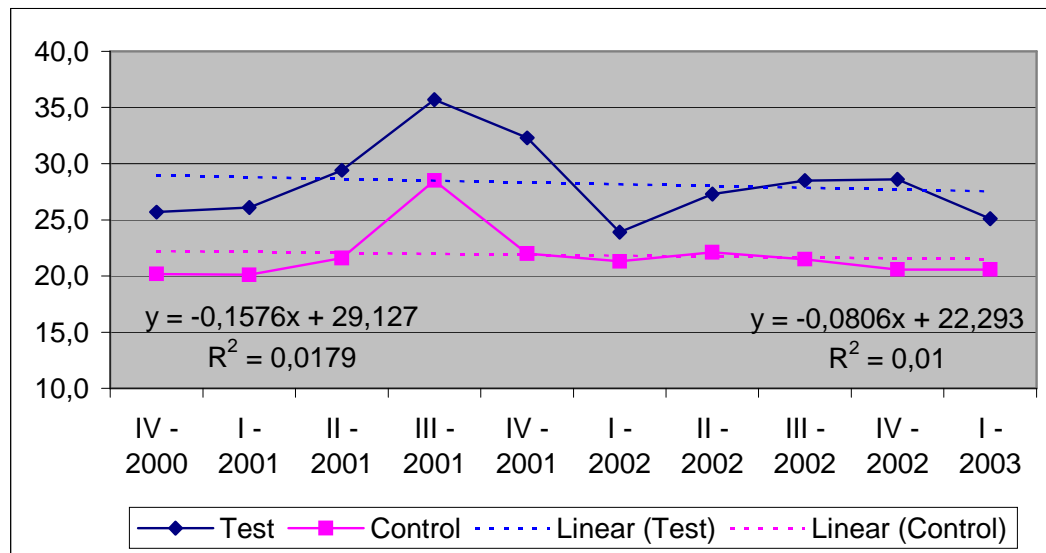
actually seemed to take place. The gain of the test group relative to the control group therefore amounted to 5.07 percent points, a significant change. Figure 6.2 also suggests that the penetration gains only emerged five quarters after the program began.



### **Buying rate**

The value buying rate was on average 21.85 euros in the control group, significantly less (-22.86%) than the 28.26 euros found in the test group, confirming that heavy users may have been over-represented in the latter group. The average purchase value is of course very low, something that would only come as a surprise for those who are not familiar with the realities of fast-moving consumer goods. It should be reminded that these are averages over a large number of very different individual households: a small number of heavy consumer households including a large number of members and benefiting from high incomes account for much higher purchase values than the average household during any quarter; in contrast, a very large number of light consumer households of one isolated low income person account for very small purchase values.

**Figure 6.3**  
**Corporation XXX - Buying Rate**



Source: Author.

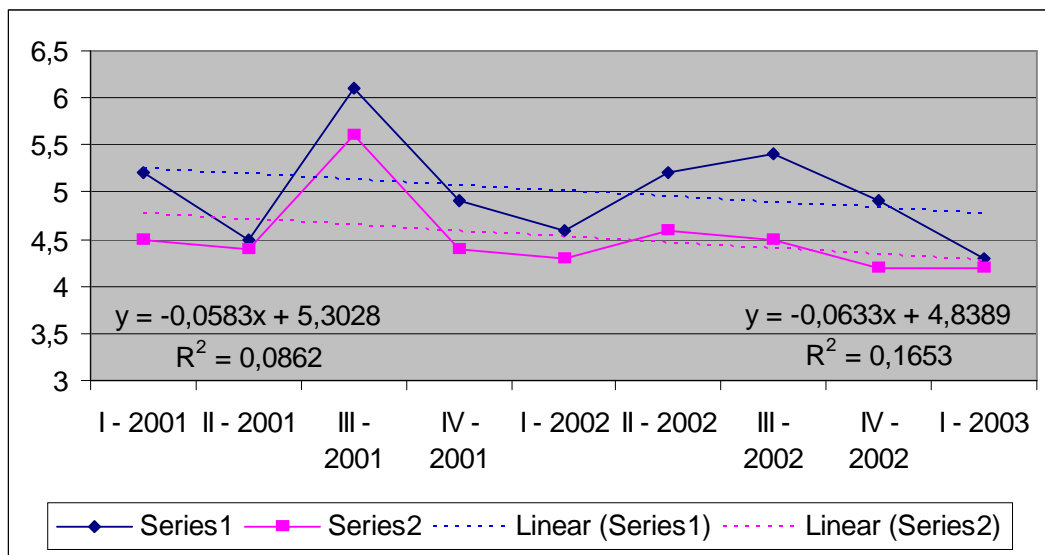
The evolution of the value buying rate shows a similar pattern in both the control and the test group: it increased during the first year and decreased afterwards. Overall there is a slight downward trend in both groups. The value buying rate decreased on average – 0.73 euros in the control group and –1.42 in the test group.

Thus, unlike what happened with market share and penetration, the variation of the value buying rate was somewhat more negative in the test group than in the control group. This amounts to say that, overall, no significant loyalty effect seems to have emerged from the XXX relationship marketing program.

**Purchase frequency**

The buying rate is the product of two independent factors: purchase frequency rate and expense per occasion. Table 6.1 shows that the quarterly average purchase frequency of XXX products is 5.08 for the test group and 4.57 for the control group. This means that, on average, members of the test group bought at least one product from XXX on 5.08 different occasions during a quarter, while, also on average, members of the control group bought at least one product from XXX on 4.57 different occasions during a quarter.

**Figure 6.4**  
**Corporation XXX - Purchase Frequency**



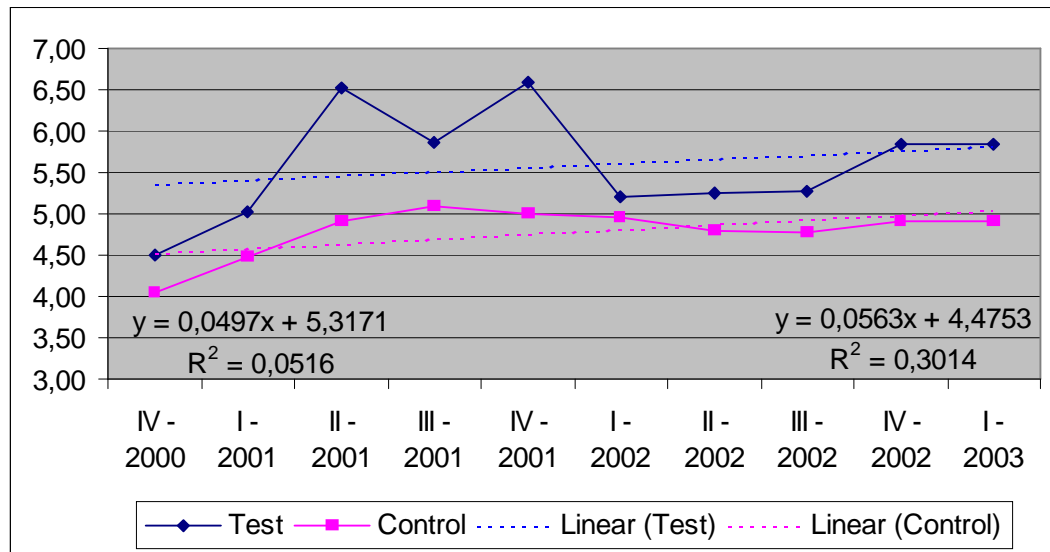
Source: Author.

The evolution of purchase frequency again follows a similar pattern in both groups, with a negative trend showing up. The purchase frequency decreased -0.57 in the control group and -0.52 in the test group. Thus, no significant effect of the program could be identified.

### *Purchase per occasion*

The average expense per occasion is very low: no more than 5.59 euros in the test group and 4.79 euros in the control group. Once again, it should be reminded that these are averages of very unequal situations, lumping together a small number of heavy consumers and a very large number of medium and light consumers.

**Figure 6.5**  
**Corporation XXX - Purchase per Occasion**



Source: Author.

Purchase per occasion evolved favorably to XXX in both the control and the test group. In the control group there was an overall gain of 0.51 euros, while the gain in the test group was a bit lower: 0.45 euros. The evolution of purchase per occasion in the test group seems somewhat irregular: it appeared to grow steeply during the first year, but afterwards fell down coming closer to the control group. The purchase per occasion in the control group also increased at first and then reached a plateau and stayed there. Overall, no significant effect of the program on purchase per occasion was found.

## 6.2.2 – Trends and correlations of the differences time-series

As indicated in Chapter 5, after analyzing separately the evolution in the test group and the control group we also fitted trend lines to the time-series of the differences between the observed values in the test group and in the control group using the least-squares procedure. We will now look at the temporal evolution of those differences.

**Table 6.2**  
**Corporation XXX**  
**Trends of the Differences between the Test and the Control Group**

		Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
XXX	Variation	1.0746	5.0724	-0.693	-0.0711	-0.0594
	Average	27.22	92.22	21.85	4.57	4.79
	% Var.	3.95	5.50	-3.17	-1.56	-1.24
	Correlation	0.26	0.57	-0.11	-0.09	-0.04

Source: Author.

The data included in Table 6.2 require a short explanation. As previously mentioned we adjusted a linear trend<sup>48</sup> to the observed differences between the test group and the control group. Recall from Chapter 5 that the following equation was used:

$$D_{xt} = \alpha + \beta t + \varepsilon \quad (6.1)$$

Where

$D_{xt}$  – Difference between the observed values of variable x in the test group and the control group in period t

t – time (quarters 0 to 9)

$\varepsilon$  - random error term

For each variable the  $\beta$  coefficient indicating the slope of the fitted line provides us an estimation of the average quarterly variation during the examined period. When its sign is positive, the analyzed variable in the test group is of course improving relative to the

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<sup>48</sup> We found no justification to fit non-linear trends to the data.

control group; when its sign is negative, the opposite is happening. By multiplying the slope coefficient by 9, we will estimate the total variation of the test group against the control group during the full 10-quarter period (period 0 plus the nine subsequent periods).

Table 6.2 tells us that, since for company XXX as a whole the market share in the test group improved on average 0.1194 percent points relative to the control group in each quarter, during the whole period of 10 quarters there was a gain of 1.0746 (i.e., 0.1194 times 9) percent points from the beginning to the end. As the average market share in the control group was 27.22% (see Table 6.1), in relative terms the above-mentioned positive variation amounted to 3.95% of that value. Finally, we found a positive correlation of 0.26 between  $D_t$  (the dependent variable) and  $t$  (the independent variable). This means that there is a fair correlation between the passing of time and the increase of market share in the test group as compared to the control group.

Thus, at the corporate level, the identified trend suggests that the program may have had globally positive results, since the overall market share in the markets served by XXX seems to have increased nearly 1.1% in two and half years. Having in mind the huge turnover of XXX in Portugal, this would have translated into very significant gains in sales and profits. According to data disclosed by XXX itself, its sales volume in Portugal in 2000 amounted to 626 million euros. Considering that the company commands an overall 27.7% market share, we estimate that XXX competes for a total market worth about 2,300 million euros and that a gain of 1.0746 percent points translates into sales worth approximately 24.72 million euros.

When we try to trace the causes for this variation in market share, however, we discover that it does not seem to have been produced by increased customer loyalty. In fact, the correlation coefficients associated with the variables buying rate, purchase frequency and purchase per occasion are all of them negative and negligible. The apparent gain in market share seems to have been driven by increased penetration: a total positive variation of 5.0724 percent points, compared to an average value of 92.22% in the control group, shows a relative variation of +5.5 percent points.

### 6.2.3 – Regression analysis

Descriptive statistical techniques of the kind we employed in the previous section, such as graphical analysis or trend fitting, give us a feel for what is going on. However, they do not allow us to draw definite conclusions on the hypothetical impact of the program on the observed behavioral variables. For that reason, we needed to conduct a regression analysis by fitting the model presented in section 5.6 of the previous chapter. It should be recalled that this model tries to explain the differences between the values of each variable observed in the test group and the values of the same variable observed in the control group as a function of two independent variables: a dummy variable representing the occurrence or not of the relationship program; and a time variable representing the passing of time since the program began. The F and the t-statistics associated to the regression then tell us if we have sufficient grounds to accept the hypothesis that the estimated coefficients are significantly different from zero at a 95% level of significance.

The following Table 6.3 synthesizes the results of the different regressions performed on the time-series representing the differences between the test group and the control group. The column labeled “Overall” presents the result of the F-test: whenever the test is positive, a “Y” is shown, meaning that we can reject the hypothesis that the coefficients associated to the independent variables are not all zero; otherwise, i.e., whenever the test is negative, a blank is left in the Table. The three columns labeled respectively “Intercept”, “Dummy” and “Time” present the result of the t-test associated to each of them. Whenever the coefficient passed the test a “+” or “-“ sign is shown, depending on whether the related coefficient was positive or negative; otherwise, i.e., whenever the coefficient did not pass the test, the corresponding cell is left blank.

**Table 6.3**  
**Corporation XXX – Regression Analysis**  
**Significance**

		Overall	Intercept	Dummy	Time
XXX	Market share				
	Penetration				+
	Buying rate		+		
	Purchase frequency		+		
	Purchase per occasion				

Source: Author.

According to Table 6.3, none of the statistics associated to the regression where

“market share” appeared as the independent variable proved significant. Therefore, the hypothetical impact of the relationship marketing program on the company’s market share was not confirmed, since neither the F-test nor the t-tests uphold that conclusion.

In fact, it should be noted that none of the five regressions we performed at this level of analysis passed the F-test. Besides, only the time coefficient in the case of “penetration” and the intercept coefficients in the cases of “buying rate” and “purchase frequency” passed the t-tests. In no case did the dummy coefficient – the one that tries to measure directly the impact of the program – pass the t-test. Thus, although penetration during the period under analysis seems to be positively correlated with time, it was not possible to identify any connection between penetration and the program itself.



### **6.3 – RESULTS AT THE DIVISION LEVEL**

After concluding the presentation of the results at the corporate level, we will now move to the division level immediately below. Recall that four distinct divisions – designated for our purpose as A, B, C, and D – were considered.

Unlike the previous section, where the results of the analysis performed at the corporate level were presented in considerable detail, regarding the division level we will not show in the main text the original data portraying the evolution of the behavioral variables separately in the test group and the control group, the graphical representation of those data and of the linear trends fitted to them, the estimated slopes of the equations, and the  $R^2$  coefficients between each analyzed variable and time. All this information can be inspected in Appendix 1.

Instead, we will now focus exclusively on the temporal evolution of the differences between the values taken by each variable in the test group versus the control group during the period under examination.

### 6.3.1 – Trends and correlations of the differences time-series

**Table 6.4**  
**Divisions A to D**  
**Trends of the Differences Between the Test and the Control Group**

	Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
A Variation	2.8431	3.2562	1.566	0.2124	-0.21
<i>Average</i>	38.7	43.44	12.66	1.73	7.33
<i>% Var.</i>	7.35	7.50	12.37	12.27	-2.86
<i>Correlation</i>	0.24	0.23	0.30	0.32	-0.18
B Variation	1.3023	12.54	-0.3375	-0.1036	-0.09
<i>Average</i>	20.01	36.81	5.68	1.75	3.25
<i>% Var.</i>	6.51	34.07	-5.94	-5.92	-2.77
<i>Correlation</i>	0.10	0.86	-0.07	-0.12	-0.06
C Variation	-1.6776	7.02	-1.6029	-0.2727	-0.2484
<i>Average</i>	27.73	83	9.67	3.6	2.68
<i>% Var.</i>	-6.05	8.46	-16.58	-7.58	-9.27
<i>Correlation</i>	-0.31	0.57	-0.42	-0.35	-0.43
D Variation	3.4533	0.7965	-10.1214	-0.0549	-4.9743
<i>Average</i>	18.81	33.9	21.46	2.34	9.26
<i>% Var.</i>	18.36	2.35	-47.16	-2.35	-53.72
<i>Correlation</i>	0.24	0.07	-0.39	-0.08	-0.45

Source: Author.

At the business level, we found possible increases of market share in three divisions (A, B and D) and a decrease of market share in the remaining one (C). In all four divisions there are indications of possible penetration gains, while loyalty might have decreased in three of them. It should also be noted that, both regarding the corporation as a whole and each division separately considered, purchase per occasion shows signs of negative evolution, while the purchase frequency goes down in three divisions. The symmetrical behavior of the penetration rate, on one side, and of the buying rate, on the other, as if the loss in one variable compensated for the gain in the other, is interesting to note, especially because the former effect partially or entirely (in the case of C) offsets the latter one. Nevertheless, before starting to speculate too much on this phenomenon, we should point out once again to the rather low correlation coefficients that as a rule were estimated.

### 6.3.2 – Regression analysis of the differences time-series

**Table 6.5**  
**Divisions A to D - Regression Analysis**  
**Significance**

		Overall	Intercept	Dummy	Time
A	Market share				
	Penetration				
	Buying rate				
	Purchase frequency				
	Purchase per occasion				
B	Market share				
	Penetration	Y			+
	Buying rate				
	Purchase frequency		+		
	Purchase per occasion				
C	Market share				
	Penetration				+
	Buying rate				
	Purchase frequency		+		
	Purchase per occasion				
D	Market share				
	Penetration				
	Buying rate				
	Purchase frequency				
	Purchase per occasion				

Source: Author.

With one single exception – penetration in B division – the F-test was always found to be non-significant<sup>49</sup>. This means that only in that case do we have grounds to accept the hypothesis that not all the regression coefficients are equal to zero. However, even in this specific regression, only the t-test related to the time variable was found to be significant, which means that the gain in penetration in division B cannot be attributed to an impact of the relationship marketing program.

Furthermore, it should be noted that in none of the 20 regressions described in the Table above could a significant t-statistics be associated to the dummy variable.

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<sup>49</sup> The detailed results of all the performed regressions can be seen in Appendix 2.

## 6.4 – RESULTS AT THE PRODUCT LEVEL

In this section the presentation of the results will follow the same organization of the previous one. We will thus focus once again on the differences time-series. More detailed information on the original time-series describing separately the behavioral variables in the test group and the control group can be found in Appendix 1.

### 6.4.1 – Trends and correlations of the differences time-series

#### *Products of Division A*

**Table 6.6**  
**Products A.1 to A.4**  
**Trends of the Differences Between the Test and the Control Group**

		Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
A.1	Variation	6.1263	-0.6651	3.5523	0.2232	0.72
	<i>Average</i>	<i>43.09</i>	<i>29.76</i>	<i>14.04</i>	<i>1.55</i>	<i>0.08</i>
	<i>% Var.</i>	<i>14.22</i>	<i>-2.23</i>	<i>25.30</i>	<i>14.40</i>	<i>900.00</i>
	<i>Correlation</i>	<i>0.46</i>	<i>-0.06</i>	<i>0.58</i>	<i>0.52</i>	<i>0.34</i>
A.2	Variation	10.0971	5.1057	-2.6028		
	<i>Average</i>	<i>48.31</i>	<i>7.5</i>	<i>7.6</i>		
	<i>% Var.</i>	<i>20.90</i>	<i>68.08</i>	<i>-34.25</i>		
	<i>Correlation</i>	<i>0.30</i>	<i>0.42</i>	<i>-0.44</i>		
A.3	Variation	-5.4747	-1.3154	-1.44		
	<i>Average</i>	<i>17.86</i>	<i>7.16</i>	<i>3.82</i>		
	<i>% Var.</i>	<i>-30.65</i>	<i>-18.37</i>	<i>-37.70</i>		
	<i>Correlation</i>	<i>-0.27</i>	<i>-0.13</i>	<i>-0.25</i>		
A.4	Variation	12.7	7.1073	0.7533		
	<i>Average</i>	<i>12.08</i>	<i>8.03</i>	<i>2.58</i>		
	<i>% Var.</i>	<i>105.13</i>	<i>88.51</i>	<i>29.20</i>		
	<i>Correlation</i>	<i>0.75</i>	<i>0.63</i>	<i>0.41</i>		

Source: Author.

Market share seems to have increased for products A.1, A.2 and A.4, and decreased for product A.3. In the cases A.2 and A.4, such increases are associated with penetration gains, but not in the case of A.1, where it is accompanied by loyalty gains as shown by the positive change of the buying rate. On the other hand, the decline of market share for product A.3 follows a similar decrease of penetration. This means that in three out of four products, the changes of market share, for better or for worse, are clearly driven by changes in penetration.

*Products of Division B*

**Table 6.7**  
**Products B.1 to B.4**  
**Trends of the Differences Between the Test and the Control Group**

	Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
B.1 Variation	2.3058	9.126	-1.7424	-0.3267	-0.5454
<i>Average</i>	8.57	7.76	4.71	1.36	3.4
<i>% Var.</i>	26.91	117.60	-36.99	-24.02	-16.04
<i>Correlation</i>	0.21	0.84	-0.45	-0.67	-0.29
B.2 Variation	12.52	3.0537	1.5723		
<i>Average</i>	23.23	8.15	3.46		
<i>% Var.</i>	53.90	37.47	45.44		
<i>Correlation</i>	0.37	0.24	0.39		
B.3 Variation	0.8298	3.087	-0.8381		
<i>Average</i>	6.77	6.42	2.93		
<i>% Var.</i>	12.26	48.08	-28.60		
<i>Correlation</i>	0.12	0.49	-0.40		
B.4 Variation	-5.4306	1.1889	-2.4768		
<i>Average</i>	16.49	5.89	5.56		
<i>% Var.</i>	-32.93	20.19	-44.55		
<i>Correlation</i>	-0.35	0.26	-0.43		

Source: Author.

Again we find three cases (B.1, B.2 and B.3) where the fitted trend suggests an improvement of market share in the test group relative to the test group during the 10-quarter period. And once again we also witness a similar trend of penetration. In one of the products that appear to gain market share (B.2) loyalty as measured by the buying rate also improves. In all the remaining cases loyalty declines, and in one of them (B.4), the negative change is large enough to offset the observed gain of penetration.

*Products of Division C*

**Table 6.8**  
**Products C.1 to C.7**  
**Trends of the Differences Between the Test and the Control Group**

	Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
C.1 Variation	-6.255	-5.0184	-0.7614	-0.1964	-0.0189
<i>Average</i>	30.4	28.35	8.96	2.05	4.37
<i>% Var.</i>	-20.58	-17.70	-8.50	-9.58	-0.43
<i>Correlation</i>	-0.38	-0.52	-0.16	-0.27	-0.01
C.2 Variation	24.8994	9.153	0.1575	0.1309	-0.0027
<i>Average</i>	61.82	34.28	2.13	2.05	1.04
<i>% Var.</i>	40.28	26.70	7.39	6.39	-0.26
<i>Correlation</i>	0.71	0.56	0.17	0.20	-0.01
C.3 Variation	-29.38	-4.806	-3.9906		
<i>Average</i>	12.45	5.79	2.63		
<i>% Var.</i>	-235.98	-83.01	-151.73		
<i>Correlation</i>	-0.83	-0.53	-0.81		
C.4 Variation	-0.1053	7.6203	-1.2555	-0.4905	-0.117
<i>Average</i>	20.42	26.02	4.68	2.46	1.9
<i>% Var.</i>	-0.52	29.29	-26.83	-19.94	-6.16
<i>Correlation</i>	-0.01	0.57	-0.38	-0.46	-0.21
C.5 Variation	-2.9178	-7.0524	-0.3753	-1.3968	1.6911
<i>Average</i>	9.23	21.42	5.73	2.38	2.41
<i>% Var.</i>	-31.61	-32.92	-6.55	-58.69	70.17
<i>Correlation</i>	-0.39	-0.46	-0.06	-0.68	0.68
C.6 Variation	-22.9626	-3.5343	-0.9459		
<i>Average</i>	35.44	8.09	4.47		
<i>% Var.</i>	-64.79	-43.69	-21.16		
<i>Correlation</i>	-0.62	-0.29	-0.33		
C.7 Variation	45.0837	7.6527	0.3195		
<i>Average</i>	44.61	6.77	1.67		
<i>% Var.</i>	101.06	113.04	19.13		
<i>Correlation</i>	0.69	0.74	0.34		

Source: Author.

Unlike the situation found in divisions A and B, we see more negative trends in division C regarding the evolution of individual products. Thus, we found only two instances of apparently increasing market share (C.2 and C.7) contrasting with five cases of decline (C.1, C.3, C.4, C.5, and C.6). However, with one single exception (C.4), market share and penetration always seem to move in the same direction. Loyalty, as measured by the buying rate, declined in five out of seven products.

*Products of Division D*

**Table 6.9**  
**Products D.1 to D.7**  
**Trends of the Differences Between the Test and the Control Group**

	Market Share	Penetration	Buying Rate	Purchase frequency	Purchase per occasion
D.1 Variation	-0.7146	-0.4041	-2.1825		
<i>Average</i>	14.41	12.37	8.58		
<i>% Var.</i>	-4.96	-3.27	-25.44		
<i>Correlation</i>	-0.05	-0.06	-0.27		
D.2 Variation	-5	-3.4803	-0.2889		
<i>Average</i>	19.81	7.16	5.14		
<i>% Var.</i>	-25.24	-48.61	-5.62		
<i>Correlation</i>	-0.16	-0.33	-0.05		
D.3 Variation	18.675	2.7216	2.682		
<i>Average</i>	31.13	3.39	7.63		
<i>% Var.</i>	59.99	80.28	35.15		
<i>Correlation</i>	0.55	0.50	0.20		
D.4 Variation	1.494	0.054	1.3113	-0.153	-0.549
<i>Average</i>	30.24	15.98	4.2	1.87	2.24
<i>% Var.</i>	4.94	0.34	31.22	-8.18	-24.51
<i>Correlation</i>	-0.11	0.01	-0.49	-0.18	-0.42
D.5 Variation	31.94	-4.6692	1.8783		
<i>Average</i>	35.87	7.9	6.49		
<i>% Var.</i>	89.04	-59.10	28.94		
<i>Correlation</i>	0.73	-0.48	0.34		
D.6 Variation	7.155	0.6489	1.2204		
<i>Average</i>	13.31	2.44	6.05		
<i>% Var.</i>	53.76	26.59	20.17		
<i>Correlation</i>	-0.16	0.22	0.11		
D.7 Variation	16.2	-1.7019	-0.8946		
<i>Average</i>	56.49	18.93	7.29		
<i>% Var.</i>	28.68	-8.99	-12.27		
<i>Correlation</i>	0.46	-0.18	-0.09		

Source: Author.

A very mixed situation was found in division D, especially taking in consideration that in a good number of cases the correlation coefficients are very low. All in all, market share trends point up in five products (D.3, D.4, D.5, D.6, and D.7) and down in the remaining two (D.1 and D.2. With two exceptions (D.5 and D.7), penetration and market share move in the same direction. Loyalty as measured by the buying rate seemed to evolve positively in four out of seven products: D.3, D.4, D.5, and D.6.

## 6.4.2 – Regression analysis of the differences time-series

### *Products of Division A*

**Table 6.10**  
**Products A.1 to A.4 – Regression Analysis**

		Overall	Significance	
			Intercept	Dummy
A.1	Market share			
	Penetration			
	Buying rate			-
	Purchase frequency			
	Purchase per occasion			
A.2	Market share			
	Penetration			
	Buying rate			
A.3	Market share		+	
	Penetration			
	Buying rate			
A.4	Market share	Y		+
	Penetration			
	Buying rate	Y		-

Source: Author.

Only in two instances (market share and buying rate for product A.4) did the F-test uphold the conclusion that the regression coefficients are not all equal to zero. The t-tests were found to be significant in only a some number of cases, and in none of them did they confirm the existence of a positive impact of the relationship marketing program. In fact, in the two only occasions (buying rate for A.1 and buying rate for A.4) when the t-statistic associated to the dummy variable was deemed significant the coefficient showed a “wrong” sign (i.e. a negative one). There seems to have been a positive impact of time on market share and buying rate of A.4, but this effect is not relevant to our purpose.



*Products of Division B*

**Table 6.11**  
**Products B.1 to B.4 – Regression analysis**

		Intercept		
		Overall	Intercept Dummy	Time
<b>B.1</b>	Market share	Y	+	
	Penetration	Y		+
	Buying rate			-
	Purchase frequency	Y		-
	Purchase per occasion			
<b>B.2</b>	Market share			
	Penetration			
	Buying rate	Y	-	+
<b>B.3</b>	Market share			
	Penetration			
	Buying rate	Y	-	
<b>B.4</b>	Market share			
	Penetration			
	Buying rate			

Source: Author.

Five regression equations passed the F-Test: the ones concerning market share, penetration and purchase frequency for product B.1; buying rate for product for product B.2; and buying rate for product B.3. However, the t-statistic associated with the dummy variable (the one indicating whether the relationship program was “on” or ”out”) only proved significant in three cases; besides, there was but one case when the coefficient sign was positive, and that was in the market share regression for product B.1. In four instances the coefficients associated with the time variable passed the t-test. Once again, the situation is confusing, because the coefficients are positive in two cases and negative in the other two. However, the conclusion is clear: we found no confirmation of a positive effect of the relationship program on the behavioral variables under scrutiny regarding the products of division B.

*Products of Division C*

**Table 6.12**  
**Products C.1 to C.7 – Regression Analysis:**

		Significance			
		Overall	Intercept	Dummy	Time
<b>C.1</b>	Market share	Y	+	-	
	Penetration	Y	+		
	Buying rate				
	Purchase frequency				
	Purchase per occasion				
<b>C.2</b>	Market share	Y	-		
	Penetration				
	Buying rate				
	Purchase frequency				
	Purchase per occasion				
<b>C.3</b>	Market share	Y	+		-
	Penetration		+		
	Buying rate	Y	+		-
<b>C.4</b>	Market share				
	Penetration				
	Buying rate				
	Purchase frequency				
	Purchase per occasion				
<b>C.5</b>	Market share	Y		+	-
	Penetration				
	Buying rate				
	Purchase frequency	Y			-
	Purchase per occasion				+
<b>C.6</b>	Market share	Y			-
	Penetration		+		
	Buying rate				
<b>C.7</b>	Market share	Y			+
	Penetration	Y			+
	Buying rate				
	Purchase frequency				
	Purchase per occasion				

Source: Author.

Ten regression equations out of thirty one for the products of division C passed the F-test. Confirmation of a positive impact of the program on the consumer's behavior, though, is only apparent in the case of product C.5's market share. In the other hand, the program appeared to have a negative impact on C.1's share of market. We found situation where some variables improved with time (purchase per occasion for product C.5; market share and penetration for product C.7), but the origin of those effects could not be traced

to the program. Conversely, time is associated with in decline of some variables in other instances: market share and buying rate for product C.3; market share and purchase frequency for product C.5; and market share for product C.6.

We can thus conclude for a lack of strong evidence regarding the presumed effect of the relationship program on customer behavior.

*Products of Division D*

**Table 6.13**  
**Products D.1 to D.7 – Regression Analysis:**

		Significance		
		Overall	Intercept	Dummy Time
<b>D.1</b>	Market share			
	Penetration	Y	+	-
	Buying rate			
<b>D.2</b>	Market share			
	Penetration			
	Buying rate			
<b>D.3</b>	Market share			
	Penetration			
	Buying rate			
<b>D.4</b>	Market share	Y	+	-
	Penetration		+	-
	Buying rate			
	Purchase frequency		+	
	Purchase per occasion			
<b>D.5</b>	Market share	Y		+
	Penetration		+	
	Buying rate			
<b>D.6</b>	Market share			
	Penetration			
	Buying rate			
<b>D.7</b>	Market share			
	Penetration			
	Buying rate			

Source: Author.

Only three regression equations in a total of twenty three passed the F-test, and the t-statistics associated to the dummy variable proved significant in just three cases, but with the “wrong” sign (i.e. a negative one) attached to the relevant coefficients. Besides, the only instance when a behavioral variable improved with time was market share for product D.5.

As a consequence, no indication was found of a positive influence of the relationship marketing program on the enrolled customers.

## 6.5 – CONCLUSION

In the present chapter we reported the results of the empirical research we conducted at three different levels of analysis: corporate, division, and product. Trend-fitting, correlation and regression techniques were used to make sense of the data, consisting in time-series describing the evolution of behavior in the test and the control group and the differences between them.

In short, the empirical evidence confirmed the null hypothesis that the relationship marketing program had no demonstrable positive impact on the behavior of the customers that were enrolled in it. Likewise, none of the behavioral variables that might have induced such impact appeared to change as a result of the adopted relationship strategy.

In the next chapter we will sum up the conclusions about the research issues and the research problem. We will then conclude by drawing the implications of these results for theory and management practice and making suggestions for further research.



# Chapter 7

## Conclusions and Implications

### 7.1 – INTRODUCTION

As indicated in Chapter 1, the general purpose of our research was to contribute to the understanding of the effectiveness of relationship marketing strategies in the particular case of the markets for fast-moving consumer goods. More specifically, we intended to:

- a) Conclude whether relationship marketing strategies are able to increase the market-share of a given company or brand;
- b) Identify the chain of intermediate behavioral effects (such as penetration rate, buying rate, purchase frequency, or expense per occasion) of relationship strategies that might lead to an increase in market-share; and, finally,
- c) To evaluate how long it takes for those effects to take place.

By implication, we tried to clarify how useful the two main contending marketing theories – the Howard-Sheth theory (Howard and Sheth, 1967; Howard and Sheth, 1969) and the NBD-Dirichlet theory (Goodhart, Ehrenberg and Charfield, 1984; Ehrenberg, 1988) – are when it comes to explain the way consumers relate to brands of fast-moving consumer goods, given that, as previously indicated, those theories make conflicting predictions regarding the possibility of increasing customer loyalty. In fact, whereas the Howard-Sheth theory says that loyalty is a perfectly sound marketing objective, the NBD-Dirichlet theory disagrees and therefore discourages any attempt to pursue it.

This last chapter is dedicated to clarify the contribution of our investigation to the advancement of our knowledge regarding those issues.

## 7.2 – CONCLUSIONS ABOUT THE RESEARCH ISSUES

It should be kept in mind that our research was focused on a number of markets of a particular kind, that is, on markets involving the purchase of fast-moving consumer goods. Furthermore, it dealt with several product categories and brands of a specific corporation (XXX) in a specific country (Portugal). What general conclusions can we draw from this particular situation? It is well known, for instance, that in markets for fast-moving consumer goods buyers display a certain type of behavior that may differ from the one that will be found in other kinds of markets. On the other hand, can the results obtained for the analyzed product categories be generalized for other products? Finally, can we assume the behavior of Portuguese consumers to be similar to the behavior of consumers in other countries?

The first two objections should not bother us too much. Our purpose was from the start restricted to the understanding of whether and how relationship marketing strategies can be applied successfully to fast-moving consumer goods. Besides, the NBD-Dirichlet theory that we wanted to test was specifically developed to account for the purchase behavior of consumers in this type of market. Regarding the validity of our conclusions for fast-moving consumer goods as a whole, it can be pointed out that the product portfolio of XXX is vary large, including a wide range of penetration rates, buying rates, purchase frequencies and selling prices. As a consequence, given that similar results were found in all of them, we can be confident that our generalizations make sense.

The possibility of inferring universal patterns of behavior in response to loyalty programs in fast-moving consumer goods from the behavior of Portuguese consumers is clearly another matter. In fact, a number of variables regarding culture, demography, competition levels, purchasing habits, peculiarities of the distribution systems, product variety, available brands, and so on, might in principle originate divergent behavior patterns among Portuguese consumers when compared with consumers in other countries. The possibility that our results are somehow peculiar to this particular country cannot be ruled out. More research will no doubt be needed in order to clarify this point.



### **7.2.1 – Impact of relationship marketing on market share**

We found no clear evidence that the relationship marketing program had a positive impact on market share, either at the corporate, the division or the brand levels. In fact, although the trend analysis we carried suggested that, besides the corporate level, an improvement might have taken place in 3 divisions out of 4 and in 13 products out of 22, the regression analysis only confirmed this in the case of 8 products: B.1, C.1, C.3, C.5, C.6, C.7, D.4, and D.5. Even so, only in 2 instances (products B.1 and C.5) could the effect be unambiguously attributed to the program.

Such results seem to confirm the warnings of those authors who insist that relationship marketing strategies are not adequate to low involvement situations where customers have no special motivation to engage in demanding and time consuming long-term relationships. Of course, a different explanation of this failure is possible. In fact, it might be the case that, although relationship marketing is generally a good idea, either the specific type of program chosen by XXX was inadequate or its implementation proved to be flawed. We will come back later to this point.

### **7.2.2 – Impact of relationship marketing on the penetration rate**

The hypothesized impact of the program on the penetration rate was not confirmed either. In the first step of the research, the trend analysis suggested promising results at both the corporate and the division levels, since an upward trend of the penetration rate was identified in all the 4 divisions. Besides, a similar trend showed up in 12 out of 22 products. However, the regression analysis told another story: the increase of the penetration rate was only confirmed in one division (B) and in 4 products (B.1, C.1, C.7, and D.1), and in none of those instances could the effect be attributed directly to the program.

As previously noted, some authors who support the NBD-Dirichlet theory believe that relationship marketing programs can only impact positively the market share of a brand by increasing its penetration rate. Clearly this has not been the case with XXX's relationship program. There are of course many possible explanations for this. Let us discuss briefly some of the most relevant ones.

According to the NBD-Dirichlet theory, a brand usually grows by acquiring more

customers, that is, by increasing its penetration rate. Therefore, the marketing strategies and tactics of a brand should be designed with this purpose in mind, and that is precisely what advertising and sales promotions usually do by increasing salience, promoting trial, reinforcing prevailing attitudes and stimulating repeat-buying. Admittedly, the impact of advertising depends essentially on two factors:

- a) The quality of the communication efforts; and
- b) The quantity of the impacts provided by the media schedule. How did the relationship program under analysis fare on these accounts?

Given that the members of the test group were exposed to additional communications on top of those received by the control group, some extra results should be expected in terms of penetration rate. We therefore face two possibilities: either the content of the relation program (i.e., the quality of the communication) was inadequate, or the extra number of exposures created by the program was too small to produce any significant results. Starting with the second possibility, it is very likely that the very low frequency of extra contact with the customers provided by the program explains the inability of the program to generate increasing penetration. In fact, besides the magazine being published and distributed only four times a year, each individual product or brand had on top of that to share the attention of the enrolled customers with all the remaining participating products and brands. Regarding the first possibility, suffice it to say that, since the program was conceived with the main purpose of developing loyalty, it is only natural that strategies and tactics oriented to increase penetration might have been overlooked. In other words, initiatives designed to increase awareness and generate trial were probably given insufficient attention given the program's initial intentions.

In this respect, the choice of the core brands participating in the program should in itself be considered significant, since as a rule they already commanded very high penetration rates to begin with. If we accept as natural that the rule of diminishing returns might be at work here, any effort to reach additional penetration rates would possibly be too costly to justify itself. A strategy designed to increase penetration should instead have focused on improving the situation of weaker brands or on supporting the launch by the corporation of new products or brand extensions. This orientation would have amounted to a kind of large-scale cross-selling operation where stronger products and brands of the

XXX's portfolio would support and finance the growth of the weaker or newer ones. But, clearly, this was not the option of the managers who designed and launched this relationship marketing program.

### **7.2.3 – Impact of relationship marketing on the buying rate**

As stressed in previous chapter, the buying rate may be considered a synthetic indicator of loyalty. The performance of the program on this account is therefore very important to evaluate its usefulness. The trend analysis suggested that there might have been an increase of the buying rate in the cases of 1 division (A) and 10 products (A.1, A.4, B.2, C.2, C.7, D.3, D.4, D.5, and D.6). The regression analysis, however, only confirmed the existence of a definite change of the buying rate in the case of 3 products (A.4, B.3, and C.3), with the aggravating circumstance that in 2 of these 3 cases the program had a negative impact on the buying rate, not a positive one.

The immediate conclusion is that we could identify no significant impact of the program on customer loyalty, its declared main purpose and justification. In general terms, this result appears to vindicate the opinion of those authors who interpret the phenomenon of double jeopardy as meaning that any marketing initiatives designed to improve loyalty are doomed to failure.

### **7.2.4 – Impact of relationship marketing on the purchase frequency**

The preliminary analysis of comparative trends in the test group versus the control group showed the possibility that the purchase frequency might have increased in division A, and in 2 of the 7 products where enough information was available. But the regression analysis confirmed none of those possibilities.

The impossibility of increasing significantly the purchase frequency of a brand above its “natural” value defined by the theoretical value determined by the Dirichlet distribution is a direct prediction of the NBD-Dirichlet theory of purchase behavior. Apparently, the NBD-Dirichlet theory is thus corroborated, while the Howard-Sheth theory is invalidated.

### **7.2.5 – Impact of relationship marketing on purchase per occasion**

No impact whatsoever of the program on the purchase per occasion was found. The stability of the purchase per occasion in repeat-buying situations is a very well established fact and a prediction of the NBD-Dirichlet theory. As such, this result was hardly surprising.

### **7.2.6 – Time-pattern of the impact of relationship marketing**

A complementary purpose of our investigation was to enquire how fast and how regularly do relationship marketing effects on the studied behavioral variables show up after the start of a program. The obtainment of useful information regarding this specific hypothesis was of course conditioned by the confirmation of a positive effect of the program on customer's behavior in the test group. Since no relevant effects of the program were identified, this research issue obviously became meaningless.

## **7.3 – CONCLUSIONS ABOUT THE RESEARCH PROBLEM**

The NBD-Dirichlet theory seems to be a better guide to relationship marketing strategies than the alternative Howard-Sheth theory. This is an important conclusion, since the overwhelming majority of the authors who have written on relationship marketing have ignored the ideas developed by Ehrenberg and other researchers of similar inclinations and disregarded its main consequences.

In fact, as we repeatedly noted, the standard relationship marketing theory takes for granted that loyalty is a sound business purpose irrespective of industry, market and prevailing general competitive conditions (v.g., Reichheld, 1996). As we have seen, the NBD-Dirichlet theory suggests otherwise, based on an impressive amount of quantitative research collected in extremely various situations and mostly based on panel data. The rarity of sole-brand buyers, the double jeopardy phenomenon and the duplication of purchase law, among other well-established facts, all point to the difficulty of changing the patterns of repeat-buying that prevail in a given market by resorting to loyalty programs (Dowling and Uncles, 1997; Dowling, 2002).

As predicted by the NBD-Dirichlet theory, our research found no signs of increased loyalty as a consequence of the XXX relationship marketing. Besides, although the theory allows for the occurrence of larger penetration levels, this did not happen either.

## 7.4 – IMPLICATIONS FOR THEORY

The investigations on the results of relationship marketing programs are still very scarce, although huge and growing sums are being spent on such marketing schemes. Serious empirical studies of relationship marketing based on hard data in markets for fast-moving consumer goods are even harder to find, either because the necessary data do not exist or because interested researchers were not given access to them by the companies that launched such relationship programs. A major exception is Meyer-Waarden (2002).

As soon as this problem is subjected to serious research, attention must necessarily be paid to the body of findings on the patterns of repeat-buying research that have been unearthed by Ehrenberg and other authors. Therefore, our first contribution was to bring together the parent theory of relationship marketing (Gronroos, 2000) with the focal theory of buyer behavior developed by Ehrenberg and others (Ehrenberg, Uncles and Goodhart, 2002). In the process, we confronted systematically two alternative theories of buyer behavior – the Howard-Sheth theory on one side, the NBD-Dirichlet theory on the other – and deduced the consequences of each of them for relationship marketing practice. As a consequence, definite predictions of each of them regarding the outcome of relationship marketing strategies were laid down and turned into research hypotheses.

Finally, the conclusions of our research established the conditions under which relationship marketing programs may or may not be expected to work in markets for fast-moving consumer goods.

## 7.5 – IMPLICATIONS FOR MANAGEMENT PRACTICE

Relationship marketing is still a relatively new idea for manufacturers of fast-moving consumer goods, a situation that creates some uncertainty and confusion regarding the conditions and the scope of its applicability (Reinartz, Krafft and Hoyer, 2004; Reinartz and Kumar, 2000; Reinartz and Kumar, 2002; Reinartz, Thomas and Kumar, 2005). Moreover, managers trained in the conventional marketing wisdom that prevails in management circles in a general way and especially in companies operating in such specific markets usually find the main concepts of relationship marketing difficult to understand and to implement. As such, a strong need for guidance is currently felt as the threats that low-involvement consumer industries face induces them to try and test continuously new ideas and new territories (Baker, 2003).

In this situation, managers working in consumer industries feel inclined to look for guidance in the experience of other industries, namely business-to-business and service industries (Ford *et al.*, 2000; Gummesson, 2002b). Many of them take for granted that concepts and techniques similar to the ones used in those industries will help increase customer retention and profitability in markets for fast-moving consumer goods as well (Fournier, 1998; Sheth and Parvatiyar, 2000). As we have seen, this is far from being guaranteed, since the patterns of buyer behavior universally observed in panel data make it obvious that: a) sole-brand behavior is an exceptional phenomenon; b) repertory buying suggests that consumers want variety for variety's sake; and c) loyalty is strongly correlated to penetration (Ehrenberg, 1988). Besides, it is not at all clear that consumers in low-involvement markets wish to engage into long-term and time-consuming relationships with companies or brands (Dowling and Uncles, 1997; Dowling, 2002).

Our investigation strengthens such suspicions regarding the relevance of relationship marketing concepts and practices for fast-moving consumers goods, since no effects on market share, buying rate, penetration or frequency of purchase were identified either at the corporate, divisional or brand level. Given the number of customers and brands involved, the variety of categories and brands, the length of the experience and the nature of the evaluation metrics, such results cannot be dismissed as irrelevant.

In such conditions, we feel entitled to ask if there is a future at all for relationship marketing in fast-moving consumer goods, and what kind of future this might be. This

matter will be discussed in some detail in the following sections.

### **7.5.1 – Motivation for relationship marketing**

As we have seen, the main motivation for investing in relationship marketing programs, whether in consumer industries or in other industries, has been the purpose of increasing customer loyalty (Reichheld, 1996). Whatever the definition of customer loyalty, the NBD-Dirichlet theory predicts, and our investigation seems to confirm, that loyalty is not a proper goal to pursue in fast-moving consumer goods, for the very simple reason that consumers do not wish to attach themselves exclusively to a single brand; apparently, they do not even wish to reduce variety (as measured by the number of brands they regularly purchase), except possibly if the incentives to do so offered by the supplier are so large that the operation becomes unprofitable for him (Dowling, 2002).

So, the question naturally arises whether relationship marketing can serve any useful purpose whatsoever. In theory at least that are other reasons besides building loyalty for companies to engage in relationship marketing strategies. Among them have been cited:

- a) Defensive strategies designed to protect a customer base from the in-roads of the competition, especially when an incumbent has reasons to fear the threat of new entrants;
- b) The attempt to lock-in customers by increasing switching costs in markets where low-differentiation and high sensitiveness to price prevail; and
- c) Differentiation through service in order to increase value for the customers and thwart price competition.

How compelling may these motivations be for manufacturers of fast-moving consumer goods? Relationship programs have been used as a defensive weapon by airlines, petrol companies and rent-a-cars, among others (Dowling, 2002). Although these programs are very often considered unprofitable, the competitors in a given market are afraid to simply scrap them, since an unilateral move would very likely benefit the companies that would decide to keep theirs. Thus, although the industry players would probably be better off if no loyalty programs existed, no one dares to take the first step to eliminate them. This is a completely different situation from the one we have at hand, since the existence of

such programs does not seem to translate into a competitive advantage in markets for fast-moving consumer goods.

The second motivation does not seem very strong either, except if a company is prepared to adhere to an altogether new business model. Lock-in consists in the creation of a situation where customers incur in significant to very high costs when they trade a brand for another. This is very common in high-involvement business-to-business markets (v.g. packaging systems, or computer operating systems), and also in a number of service markets (v.g. banking, telecommunications, or professional services), but rather unusual in low-involvement consumer services. The Nespresso system developed by Nestlé and built around an espresso machine that can only operate with Nespresso capsules is one of the few instances where a manufacturer of low-involvement goods has managed successfully to lock-in customers that choose this particular brand.

The third motivation – differentiation by adding service to the product – raises the same kind of problems. Ordinary fast-moving consumer brands often do not care to provide additional services to their customers aside from bringing the product nearer to them by ensuring a proper distribution system of the goods, possibly because they fear that their business might become unprofitable if they engaged in other risky service innovations. Once again, Nespresso – whose underlying idea really was to change their business model by transforming a product into a service – should be seen as an exception, since very few attempts have been undertaken along these lines by other consumer brands. Even so, Procter & Gamble, Unilever, Nestlé and other major manufacturers of consumer goods have in recent years conducted some (mostly failed) experiences whose main purpose was to emancipate themselves from the growing and tyrannical bargaining power of all-powerful large retailers (Baker, 2003).

Thus, the possibility of applying the key ideas of relationship marketing to this industry seems to be dependent on a radical change of the prevailing business model whose main feature would be its transformation from a product industry into a service industry. Can this be taken to mean that, except for such extreme change, fast-moving consumer goods industries have no use for relationship marketing strategies?

In order to answer properly that question, we will have to examine a last possibility, which will be that, while more or less useless regarding the objective of increasing loyalty,



relationship marketing might serve the useful purpose of protecting and increasing a brand's penetration rate. It should be remembered that this hypothesis was explicitly put forward by Dowling (2002), and that, although some authors seem to have found some confirmation of it, our investigation did not. Does our result provide a reason to abandon this hypothesis once and for all? We believe not, as will be explained in the next section.

### **7.5.2 – Objectives and strategies**

Let us suppose that we were instructed to conceive a relationship marketing program for fast-moving consumer goods with the explicit purpose of increasing brand penetration. How should we go about it, that is, how should we specifically design it in order to fulfill that purpose?

The first thing to note is that this would only make sense in the context of a multi-brand program. Whenever an individual brand tries to acquire new customers, it resorts to traditional advertising and promotion techniques with the aim of increasing awareness and trial. It can even use some kind of targeted communications like direct mail by taking advantage of rented lists. One thing however is certain: it cannot strengthen a relationship that does not yet exist. On the other hand, a multi-brand company can use a relationship marketing program in such a way that its stronger brands introduce its weaker brands to its customer base. This would translate into a kind of cross-selling scheme: consumers who already buy habitually brand A are invited to try brand B and then include it in their brand repertory. Thus, large multi-brand manufacturers of consumer goods can create a new competitive advantage out of their large portfolio of brands by cross-fertilizing their customer base and using their present large brands to help promising but struggling younger brands to become large and strong too.

In principle, at least, the relationship program of XXX could have done this. However the objectives assigned to it, the overall strategic choices and the way the program was conceived determined that the purpose of increasing the penetration of the relatively smaller brands of its portfolio was not given due priority. The origin of the problem can partly be found in the way the program was funded. Specifically, both the costs of the program and the weight given to each XXX brand were allocated as a proportion to its present value sales. As a consequence, stronger brands received much more support than weaker brands. But, as a rule, stronger brands already commanded very

high penetration rates; any further progress would always have been difficult and probably too costly. On the other hand, brands with weaker penetration rates, and specially new products, could not get the minimum visibility and support levels they needed in order to take-off.

What this means is that a program designed to further increase penetration rates demands a different definition of objectives and strategies from the ones used in this case. Once this is understood, it starts to become clear why no significant effects could reasonably be expected from the program of XXX regarding this behavioral variable. Very simply, this specific program was not properly designed to deliver improved penetration levels to the participating products and brands.

Now, even if the marketing effort had been concentrated on weaker brands as suggested, there would be a need to ensure that the effort was strong enough to generate the desired aim. The problem is that, as a matter of fact, a mere additional four contacts per year would probably be below the minimum required frequency to have an impact in penetration rate. Media planning experience suggests that it is not sensible to expect that such low frequency levels can impact penetration – that is, stimulate trial and adoption – in any meaningful and lasting way (Broadbent, 1999). This in turn poses another problem: in this type of industry even the Most Valuable Customers display low lifetime value since fast-moving consumer goods typically generate very low unit margins; as a consequence, relationship programs can easily become uneconomical if the frequency and the cost of customer contacts is not carefully controlled. Jumping from four to five contacts a year may thus be sufficient to destroy the profit contribution of the individual consumers involved and jeopardize the efficiency of the program, while clearly not enough to make a difference as far as the consumer's behavior is concerned.

So, on one hand we need extra contacts in order to improve penetration, while on the other hand these extra contacts might increase the costs of the program to the point where the customer lifetime value becomes negative. Given its very low cost per contact, the only acceptable solution should probably be looked for in online communications. The use of the Internet to communicate with customers in the context of relationship marketing programs is however conditioned by the limited coverage of households that this medium allows, since, at the present time, no more than a fifth of them are connected

to it in our country. Besides, middle-aged housewives, the main target of marketing communications in fast-moving consumer goods, have below-average habits of using the Internet as a source of information and entertainment. To summarize, online marketing communications have for the time being serious drawbacks regarding its relevance as a relationship marketing tool, but strong progress should be expected in the near future.

It should be noted that the development of online communications will create a new situation where the rationale to focus relationship marketing efforts on a small target group of Most Valuable Customers or Most Growable Customers (Peppers and Rodgers, 2004) will probably have to be revised. In fact, the main reason to restrain the number of customers enrolled in such programs is that the profit generated by the vast majority of them is so low that even a very small communication cost should be avoided. When, as is the case with online communications, the cost to reach an individual customer approaches zero, there is no reason why relationship programs in markets for fast-moving consumer goods should not cover every household or customer irrespective of its individual value.

The last point to stress is that, if the main benefit to expect from relationship marketing in this type of markets is to be found in the increase of the penetration rate, large multi-brand companies will be those that will stand to gain the most from this approach. In other words, relationship marketing programs might contribute to create a new kind of competitive advantage to very large companies based on the economies of scale that they command, especially regarding their ability to manage large customer bases and develop sophisticated customer-knowledge systems.

### **7.5.3 – Metrics and evaluation**

Our research demonstrates how important it is to design and implement systems that allow managers to evaluate to what extent relationship marketing programs are performing as expected. In the case of the program under analysis special care was taken previously to its launch to ensure that it would be possible to monitor its evolution. Even so, in the course of our investigation we were confronted with several limitations that could have been avoided through more careful planning of the monitoring system. Several types of problems, including insufficient time coverage of the pre-launch period, low representativeness of the test group, unsatisfactory choice of the control variables, and a break in the time-series after the first nine quarters of the experience, caused these

limitations. We will next briefly discuss each of them in turn.

### ***Before/ after purchase data***

A basic requirement of a proper quasi-experimental design is a clear distinction between what goes on “before” and “after” the beginning of the experiment. As explained in Chapter 5, this condition was duly fulfilled. However, the preprogram observation was restricted to one single period, an unfortunate choice since we cannot be certain that the behavior of the consumers was not affected by some unusual influence on this particular period, such as, for instance, demand fluctuation, competitive promotional activity or seasonal factors. For greater accuracy, the preprogram observations should have covered at least a full year (that is, four quarters) preceding the start of the program, because that would have helped researchers to identify data trends in case they existed. It should be noted that it would have been perfectly possible to do this within the frame of the data collected by the consumer panel. The only reason why it was not done was that the importance of this decision was not understood at the time the program began.

### ***Sample dimension of the test group***

Over and over, we found out that the sample dimension of the test group was too small to provide accurate information whenever we tried to analyze consumer behavior regarding low-penetration categories or brands. This is not an easy problem to solve. Since the sample representing the test group was chosen by finding households that were simultaneously present in the program database and in the panel database, a larger sample would inevitably mean larger program coverage, that is, the enrolment of a larger number of households into the program, which in turn would be the cause of increasing costs. A practical solution would have been to recruit consumers directly from the panel members. However, that would violate both the rules of the panel (information on panel members cannot be disclosed to third parties) and its representativeness (the recruiting of panel members would introduce an unacceptable bias into the panel sample). For those reasons, this suggestion was dropped.

Our recommendation is that a careful assessment of the costs and benefits involved should be carried beforehand. If the program managers are only interested in evaluating its aggregate results (v.g., the global ROI of the program) and in understanding how behavior

is being influenced in some major categories, the sample dimension of the test group does not have to be very large to provide the needed information. If, however, they want to know what is going on in lesser categories and brands – and it is difficult to understand why they should not be interested in such information in case the program intends to promote cross-selling, for instance – due consideration should be given to the possibility of enlarging the number of households involved in the relationship program.

### ***Problems with the panel data***

At the date this program started, only one consumer panel was available in Portugal. As indicated, it was operated as a diary panel, a notoriously unreliable technique for reasons that have also been explained at length in Chapter 5. If some consumers inaccurately register their purchases through lack of time or patience, and if inertia induces them to report past behavior instead of the current one, changes of behavior will tend to be underestimated when we analyze panel data. Scanner-based consumer panels should of course be preferred whenever available, as we have every reason to believe that the information they provide is much more accurate and believable. At the time of the writing of this report, TNS and Nielsen are both already operating in Portugal consumers panels based on the electronic reading of product codes, something that will help improve the reliability of future research in this area.

### ***Choice of control variables***

Traditional marketing metrics emphasize variables such as sales growth, market share, penetration rate, buying rate, purchase frequency, and expense per occasion for purposes of the evaluation of market performance. Of course, the control of these variables will remain important to monitor the performance of brands, products, and firms in a given geographical setting. However, managers should acknowledge that new metrics have been developed to evaluate performance based on the value each individual buyer brings to the consumer base (Gupta and Lehmann, 2005; Peppers and Rodgers, 2005). These specifically customer-centric variables include, for instance, share of category requirements, size of wallet, and share of wallet, all of them invaluable measures when it comes to monitor customer loyalty in fast-moving consumer goods categories. These variables have been disregarded in the case at hand, although it would have been perfectly possible to calculate them using the rough data collected by the consumer panel.

### ***What to do when panel data is not available***

A final question might be asked regarding what can be done to evaluate relationship marketing programs when panel data either is not available or is uneconomical to purchase. In this all too common situation, the NBD-Dirichlet suggests a way out. As noted in Chapter 3, given the penetration rate of a product category, the purchase frequency for the category as a whole, the number of competing brands, and the market shares of the individual brands, the Dirichlet distribution provides us the theoretical (or expected) values for penetration, purchase frequency, sole buyers, sole buyer purchase frequency, and proportions of buyers at different frequencies for each specific brand (Ehrenberg, 1988). Since we expect “normal” purchase patterns to be displayed by repeat-buying markets, the success of a loyalty program should entail a violation of at least some of those patterns. For instance, for a program to be successful in increasing loyalty toward a given brand, the usual correlation between penetration and purchase frequency known as “double jeopardy” should cease to apply by virtue of the relationship program. So, in order to test the ability of a relationship strategy to disturb the purchase patterns, all we have to do is observe penetration and frequency for all competitive brands in a given market both pre and post-program and see if the empirical data deviate from those predicted by the Dirichlet distribution (Ehrenberg, Uncles, and Goodhart, 2002). If they do not, we can be sure that, no matter what the appearances to the contrary, nothing substantial really happened. Conversely, if they do, we will have some clues as to what might have happened and we will know how large the deviation was. Furthermore, there will probably be room for further investigations to the causes of this special phenomenon.

## 7.6 – LIMITATIONS

Our investigation focused from the start in the specific area of fast-moving consumer goods. We intended to clarify whether relationship marketing thinking applies to this type of markets, and, in case it does, how consumer behavior might be meaningfully affected in order to retain customers and increase customer value. Hence, the choice of fast-moving consumer goods should not in itself be regarded as a limitation of the research. On the other hand, the fact that a large number of different categories were covered by the investigation also tends to strengthen the validity of its conclusions. Given that we studied a multi-brand program, we have gone much farther than a single market analysis would allow us.

However, limitations do show up when we try to draw general conclusions from the analysis of the chosen program. In fact, it cannot be inferred from the failure of this particular program to produce significant results that relationship marketing is useless in fast-moving consumer goods – only that this one was. It goes without saying that other approaches and other initiatives in different market and competitive contexts should be investigated before such a conclusion could be warranted.

Finally, we have already pointed out the problems we were confronted with while analyzing the data. These had mainly to do with the fact that we could not influence beforehand the strategy for both the collection and the treatment of data. Even considering the need to adapt to the existing situation, the fact that we were given access to such a comprehensive and rich pool of data allowed us to go beyond any known to us previous research conducted on the impact of relationship marketing programs in fast-moving consumer goods – all things considered a good enough reason for having undertaken this research.

## **7.7 – IMPLICATIONS FOR METHODOLOGY**

In itself, the methodology used here was not particularly innovative. Consumer panels have been used for a long time, even if their importance as a source of valuable data to the understanding of consumer behavior has not yet been fully understood, especially in this country. On the other hand, we used rather elementary statistical tools, that is, correlation and regression analysis. There is however no need to apologize for that given that they seemed perfectly adequate to the task and the data at hand.

The main conclusion regarding methodology is that the development of more accurate, more comprehensive, and possibly also less expensive consumer panels due to improvements in methodology and technology hold large promise regarding the future of the research of consumer behavior in general, and relationship marketing programs in particular.

## **7.8 – FURTHER RESEARCH**

The need for further research on these issues covered by our investigation is self-evident. First, there is an obvious need to replicate this type of analysis. This replication should of course cover other markets and other countries, but the main need is no doubt to scrutinize other types of relationship programs and models. It would be specially relevant to study large-scale relationship marketing programs based on alternative strategic and tactic orientations. We believe it would be particularly useful to test programs that differ from this one regarding:

1. Types of incentives offered (v.g., hard promotional offers versus soft value propositions based on recognition and relationship enhancement)
2. Product modification through enlarged offer, namely including special service features
3. Enrollment in the program conditional to certain desired behaviors
4. Higher communication frequency with the target consumers
5. Use of online communications

Second, another recommendable line of investigation would consist in integrating



attitudinal and behavioral loyalty measures in order to understand how each of them influences the other. For instance, our literature review mentioned the ongoing debate on the relative importance of attitude and behavior for the attainment of marketing objectives. Does attitude precede behavior, or is it the other way round? Which comes first? Is it necessary to generate favorable attitudes first among the participants of a relationship program if we want to generate loyalty? In our investigation we chose to focus exclusively on behavior, but there is definitely a need to know whether constructs such as sympathy, trust, bonding, and allegiance toward brands can in the long term induce the desired behaviors. This would be especially enlightening because the very relevance of building relationships in low-involvement markets for goods such as these is far from warranted.

Third, as we tried to explain in this chapter, the proper purposes of relationship marketing strategies are themselves open to discussion. It has been currently accepted knowledge that relationship marketing and loyalty marketing are synonymous. But both the NBD-Dirichlet theory and other research mentioned by us suggest that loyalty might not be the best objective to pursue. On the contrary, some authors believe that penetration might be a more suitable purpose. The explanation for this is that the existence of a relationship program (v.g., an incentive program) can be viewed as an improvement of the value offer that, as a consequence, attracts more customers). On the other hand, a multi-brand program designed to promote cross-selling is in fact intended to increase penetration in those areas where the company is initially weaker. In this context, it would be interesting to compare the relative efficiency of several relationship programs as a function of their stated objectives, given that some commonly used objectives may be unrealistic and therefore condemned to failure.

Fourth, and last, there is a need to know whether different customers respond differently to relationship programs and to understand what demographic or psychographic variables might explain such differences. To begin with, we are especially interested in the retention of high-value customers. It is therefore important to know whether they are eager to engage in a relationship and to change their behavior accordingly. This is an important question to ask, since there are reasons to believe that the profile of the most valuable customers does not necessarily match the profile of the more engaged customers, the second being biased toward less affluent and less active persons.



## **APPENDIX 1**

## 1 – DIVISION A

### 1.1 – General A

The global market share of A in its served markets averaged 38.7% in the period at hand taking as a reference the control group. In the test group the estimated market share was even higher: 42.19%. This is the strongest of XXX's divisions in Portugal, as can be seen by comparing its market share with the overall group's market share. However there has been a continuous loss of market power in the recent years that is well documented in the data of Table 6.2.

The penetration rate is also very high, as should be expected: 43.44% in the control group and 49.34% in the test group. But it has been faltering of late, and the loss of penetration seems to be the main negative force driving market share down.

The value buying rate amounts to 12.66 euros per quarter in the control group and 15.25 euros in the test group, which means that nearly half the money consumers spend on XXX's products are in fact spent on A's brands. Purchase frequency shows somewhat divergent average values in both groups: 2.06 purchase occasions per quarter in the case of the test group, a figure 20.5% higher than the 1.71 purchase occasions per quarter found in the control group. The average expense per occasion is 7.42 euros in the control group and 7.33 euros in the test group.

Table 1  
Division A – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV - 2000	45.30	39.46	53.8	46.9	13.1	10.5	2.2	1.8	5.95	5.84
I - 2001	42.87	40.49	55.7	43.4	12.1	12.4	1.9	1.8	6.39	6.86
II - 2001	36.12	37.47	49.6	45.4	12.3	11.3	1.7	1.6	7.23	7.09
III - 2001	41.04	38.64	50.9	52.0	17.1	12.8	2.2	1.8	7.77	7.11
IV - 2001	42.57	43.04	47.8	44.4	15.9	13.8	1.9	1.8	8.36	7.64
I - 2002	40.27	38.83	43.9	43.0	15.5	12.9	2	1.7	7.77	7.59
II - 2002	45.77	37.32	44.9	40.3	17.9	13.0	2.3	1.7	7.77	7.64
III - 2002	47.93	36.68	47.1	39.8	17.8	12.9	2.4	1.7	7.40	7.58
IV - 2002	41.69	38.73	48.6	41.2	15.9	13.0	2.2	1.7	7.21	7.62
I – 2003	38.29	36.33	52.0	38.0	15.0	14.1	1.8	1.7	8.34	8.29
<b>Average</b>	42.19	38.70	49.43	43.44	15.25	12.66	2.06	1.73	7.42	7.33
<b>Standard deviation</b>	3.55	1.99	3.76	4.05	2.12	1.05	0.23	0.07	0.77	0.66
<b>% sd</b>	8.41	5.15	7.60	9.33	13.92	8.33	11.26	3.90	10.42	8.95

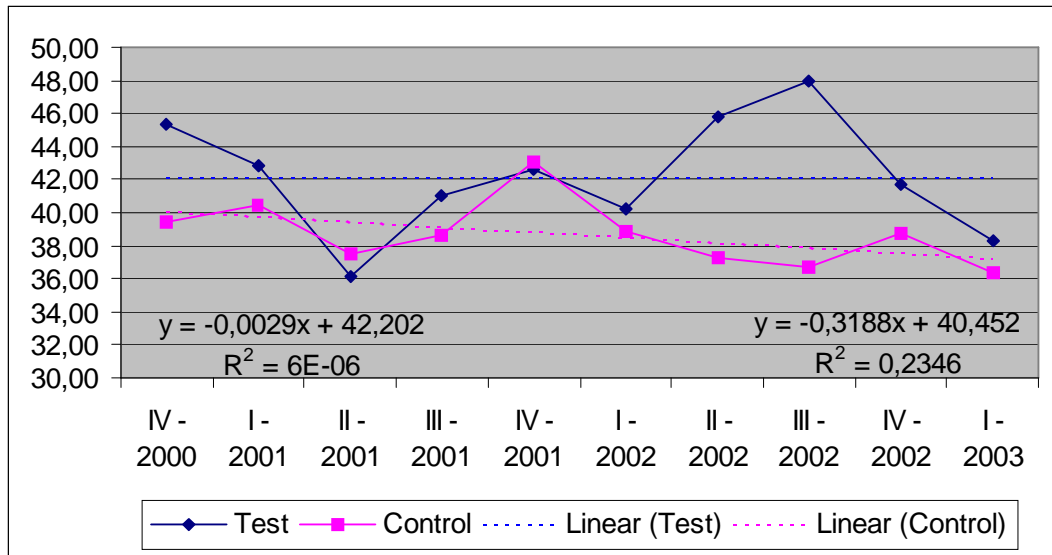
Source: TNS.

**Market share**

The market share of Division A has been falling consistently, as shown by the data of the control group. In the period of analysis, it fell globally  $-2.87\%$ . On the other hand, the test group appears to perform rather well. Although the data sequence appears somewhat irregular, there is no downward or upward trend, suggesting that among this group A managed to sustain its market share. Overall, the test group appeared to gain  $+2.84$  percent points of market share during the period when compared with the control group.

However, the regression analysis does not confirm this hypothetical impact of the program on A's market share.

Figure 1  
Division A - Market Share

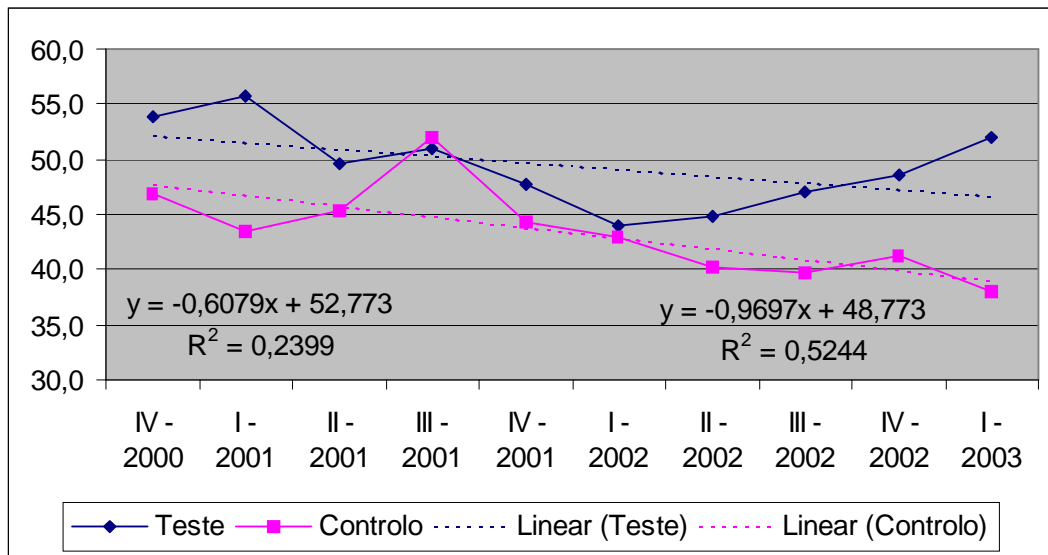


Source: Author.

**Penetration rate**

The fall of market share seems to be strongly correlated with a sustained fall in the penetration rate of A brands: -8.72% in the covered period. Penetration also falls, although less, in the test group. Thus, there is apparently a comparative gain of the test group over the control group of 3.26 percent points in penetration rate. Unfortunately, this is not confirmed by the regression analysis.

Figure 2  
Division A – Penetration

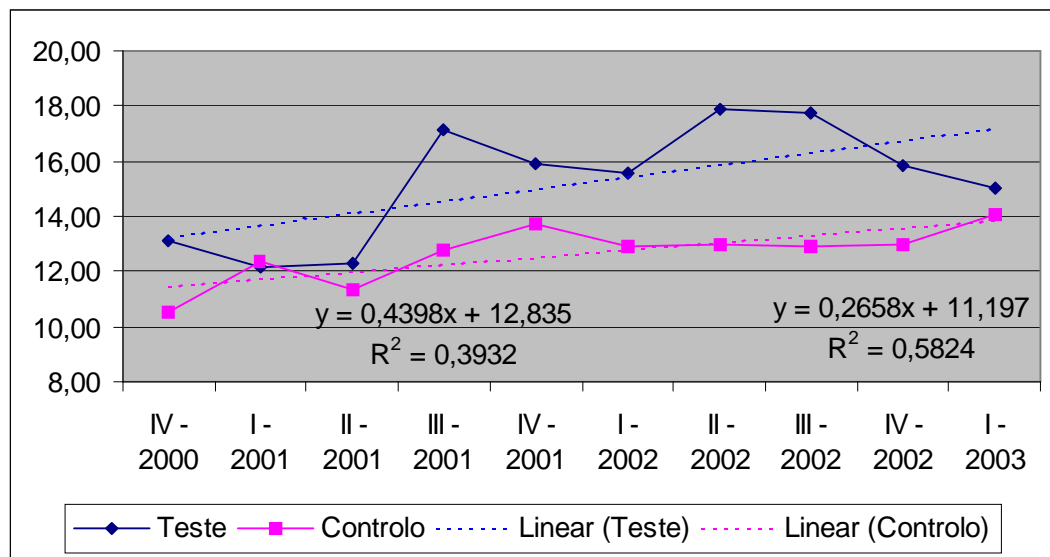


Source: Author.

### **Buying rate**

The test group and the control group also move in the same direction in the case of the value buying rate, but this time the trend is a positive one. In the control group there is a total increase of 2.39 euros per customer. In the test group the growth is even larger, reaching 3.96 euros per customer. All in all, the program would seem to have generated an additional sales value of 1.57 euros per customer. But the results of the regression performed on the data do not confirm this idea.

Figure 3  
Division A - Buying Rate (Value)

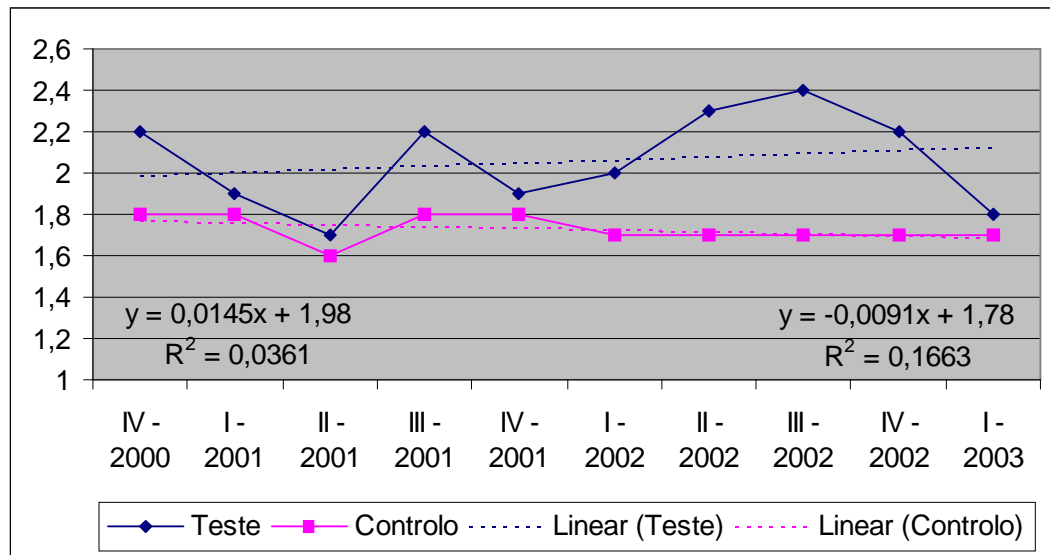


Source: Author.

### *Purchase frequency*

Purchase frequency moves in the right direction in the test group, while staying flat or going down a little in the control group. In fact, the number of purchase occasions decreased marginally in the control group (-0.08), but it increased +0.13 in the test group. We therefore identified a possible positive effect of the program on purchase frequency, increasing it by 0.21 when the behavior of both groups is compared. Once again, however, the regression analysis does not confirm this gain.

Figure 4  
Division A - Purchase Frequency



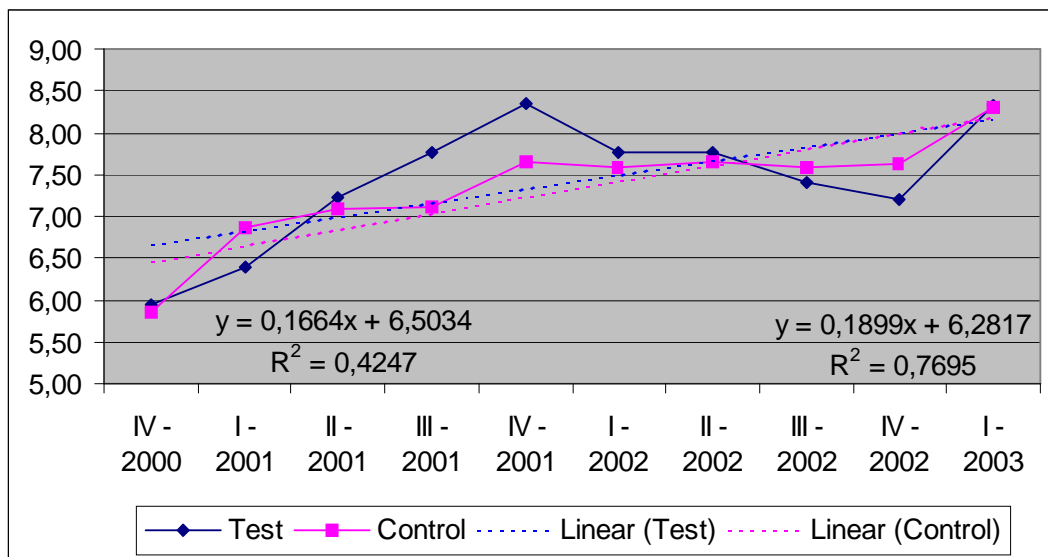
Source: Author.



### *Purchase per occasion*

Purchase per occasion evolved favorably in both groups. It increased 1.50 euros in the test group and 1.71 in the control group. Therefore, no positive effect of the program was found on this account. Both data series follow a very similar trend, with the test group data appearing more irregular, no doubt because of the smaller dimension of the sample used to estimate its behavior. The regression analysis strengthened the conclusion that the program had no effect on this account.

Figure 5  
Division A - Purchase per occasion (value)



Source: Author.

## 1.2 – Product A.1

A.1 is one of the main brands of A and the XXX Group, accounting for about 70% of the total sales of A and 24% of the total sales of XXX in Portugal. Anything that happens to it therefore strongly affects the profitability of the group. It is no doubt a huge brand, both in terms of sales volume and of its status among consumers, being in some way an icon of the company. Table 6.3 shows that absolute penetration in the control group is estimated to have been on average 29.76 % in the period under consideration. This translated into a 43.09% market share, making A.1 the leading brand in its category.

The A.1 brand includes a number of product forms and special purpose variants. Since the penetration of the product category among Portuguese households is already very large, further growth will come mainly from the launch of new products designed to solve special problems.

The buying rate, the purchase frequency and the expense per occasion were all clearly higher in the test group than in the control group, probably meaning that heavy users were over-represented in the sample of the test group. Given the high penetration of A.1, an average of 68 surveyed consumers bought the brand in any given quarter.

Table 2  
Product A.1 – Evolution of Behavioral Variables

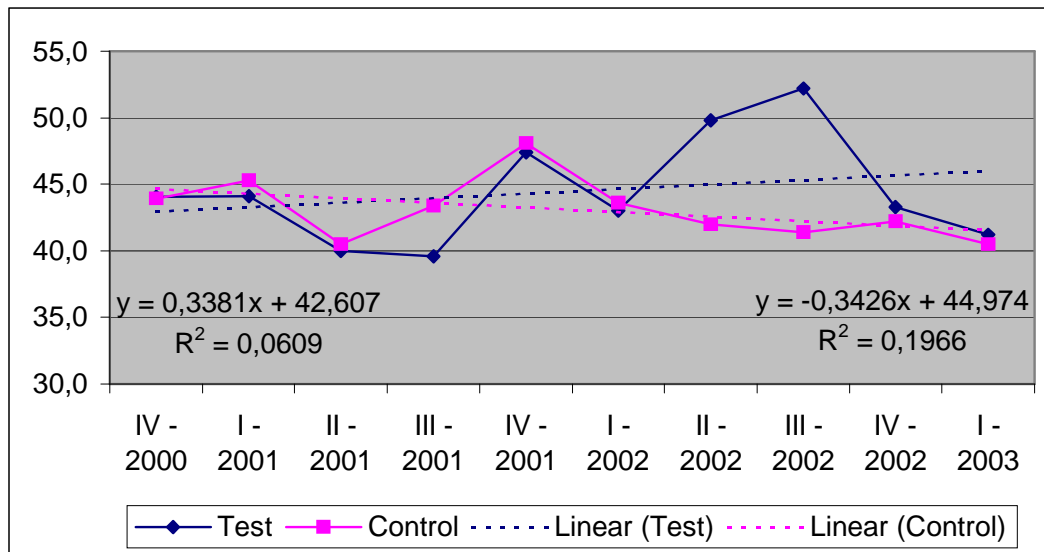
	Market share		Penetration		Buying Rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	44.1	43.90	35.3	31.0	12.7	11.8	1.7	1.6	7.48	7.40
<b>I – 2001</b>	44.10	45.30	37.7	30.8	12.5	13.2	1.5	1.5	8.37	8.82
<b>II – 2001</b>	40.00	40.50	37.2	28.8	12.9	13.4	1.4	1.5	9.21	8.90
<b>III – 2001</b>	39.60	43.40	34.4	36.9	16.7	14.0	1.9	1.6	8.81	8.74
<b>IV – 2001</b>	47.40	48.10	38.7	31.7	14.0	14.7	1.6	1.5	8.77	9.78
<b>I – 2002</b>	43.00	43.60	29.3	30.6	17.1	13.9	1.7	1.6	10.05	8.71
<b>II – 2002</b>	49.80	42.00	31.0	27.5	18.9	14.4	1.9	1.6	9.94	8.99
<b>III – 2002</b>	52.20	41.40	31.7	27.3	18.9	14.1	1.9	1.6	9.94	8.79
<b>IV – 2002</b>	43.30	42.20	31.1	27.3	17.6	14.6	1.8	1.5	9.79	9.76
<b>I – 2003</b>	41.20	40.50	32.2	25.7	17.7	16.4	1.6	1.5	11.06	10.91
<b>Average</b>	44.47	43.09	33.86	29.76	15.91	14.04	1.70	1.55	9.34	9.08
<b>Standard deviation</b>	4.15	2.34	3.26	3.21	2.58	1.17	0.18	0.05	1.02	0.92
<b>% sd</b>	9.33	5.43	9.63	10.78	16.22	8.30	10.38	3.40	10.94	10.09

Source: TNS.

**Market share**

The market share decreased in the control group by a total of –3.08 percent points between the last quarter of 2000 and the first quarter of 2003. On the contrary, it increased by +3.04 percent points in the test group. Therefore, the program would seem to have accounted a total gain of market share in the test group over the control group of +6.12 percent points, a very significant performance. At closer inspection, however, we can see that the anomalous levels displayed by the test group’s market share in just two quarters create this impression. Probably for this reason, the regression analysis does not uphold the hypothesis that the program had a favorable impact on A.1’s market share.

Figure 6  
Product A.1 - Market Share

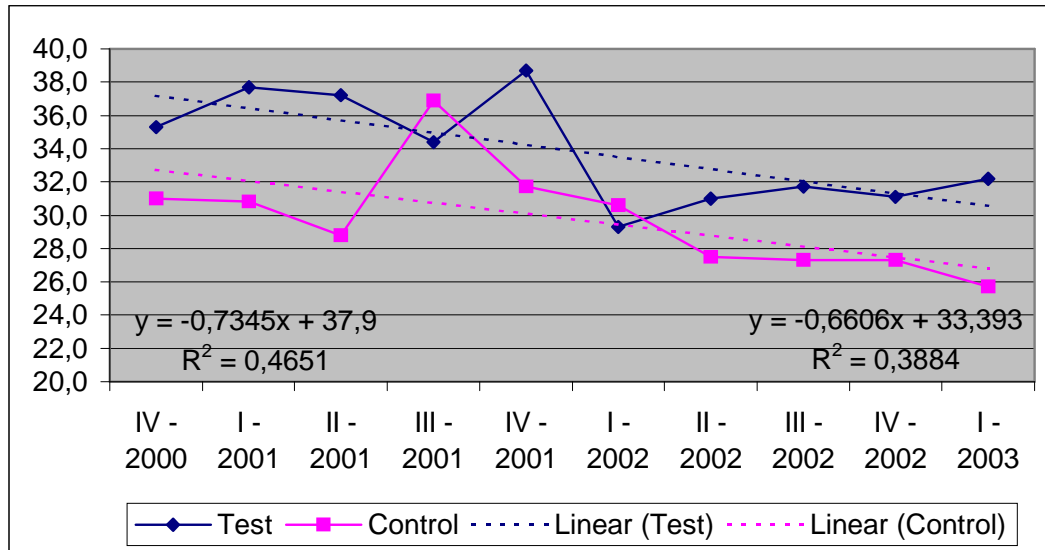


Source: Author.

**Penetration rate**

The penetration rate decreased in both the control and the test group at a similar rate. In fact, in the control group the loss amounted to -5.95 percent point, while in the test group it reached -6.61 percent points. As can be seen, the test group performed slightly worse, losing -0.66 percent points relative to the control group. The regression analysis confirms that there was no impact of the program on the penetration rate.

Figure 7  
Product A.1 - Penetration



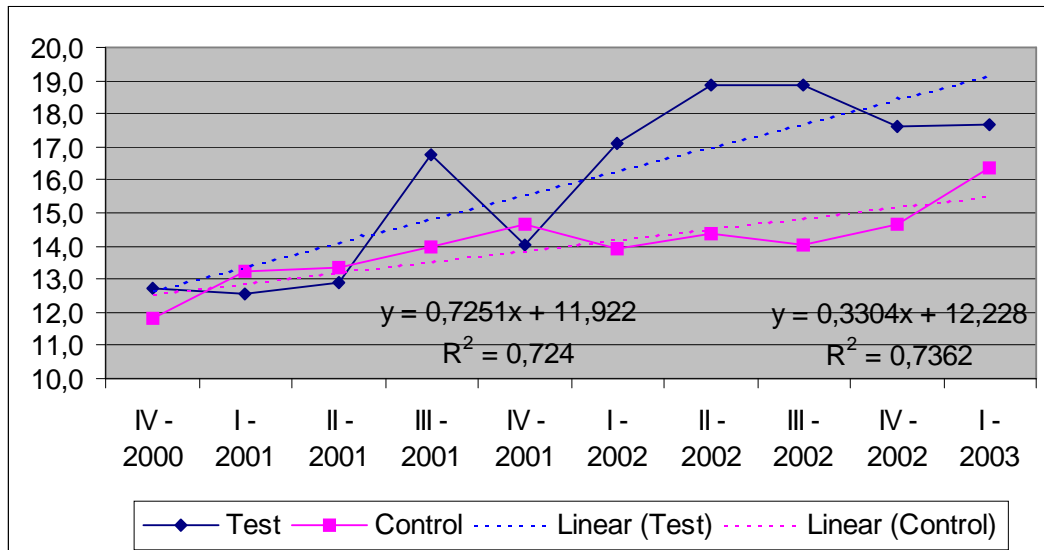
Source: Author.

### **Buying rate**

The buying rate increased in both groups, but significantly more in the test group than in the control group, apparently as a result of the program. The increase in the control group was 2.97 euros, being surpassed by the increase in the test group, which reached 6.52 euros. All in all, the relationship program would seem to have generated a relative gain of 3.55 euros, 22.33% more than the average value of the test group.

However, the regression analysis does not confirm this impression. On the contrary, it even suggests that the program in itself could have had a negative impact on the buying rate.

Figure 8  
Product A.1 - Buying Rate

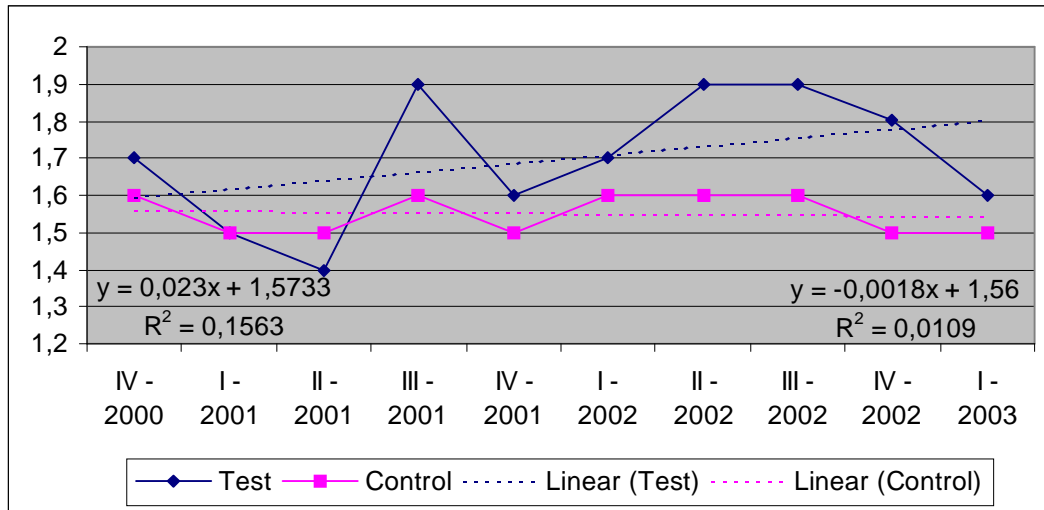


Source: Author.

### *Purchase frequency*

The purchase frequency stayed essentially flat at around 1.55 purchase occasions per quarter in the control group, since no upward or downward trend is apparent. On the other hand, it improved somewhat in the test group where it grew 0.21 occasions during this period of ten quarters. The comparisons between both groups shows an overall increase of 0.22 occasions in the test group relative to the control group, an improvement of 12.94% relative to the average of the period. This suggestion of a positive effect on loyalty is, however, not confirmed by the regression analysis.

Figure 9  
Product A.1 - Purchase Frequency



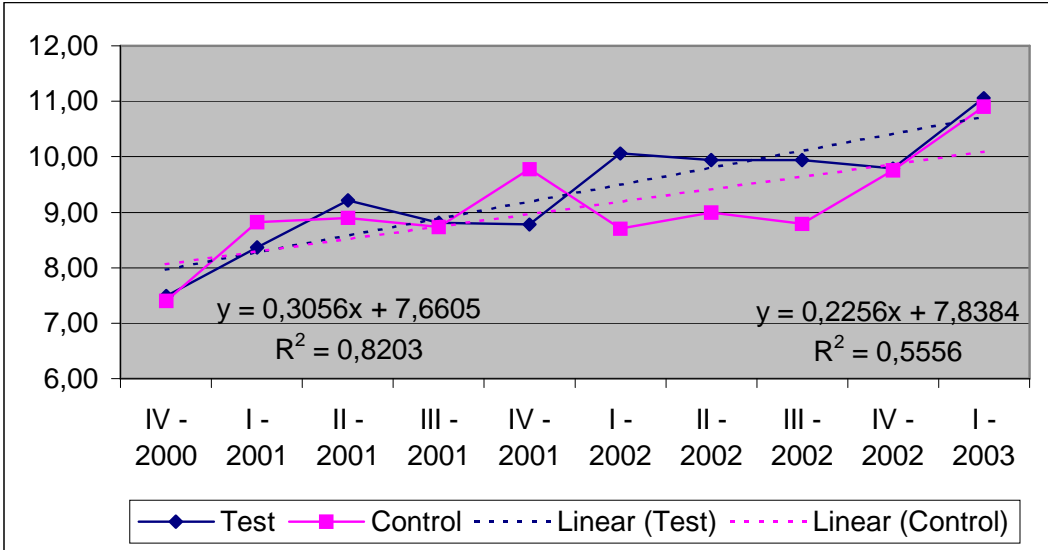
Source: Author.

**Expense per occasion**

The expense per occasion again increased in both groups. The improvement was marginally higher in the test group (+2.75 euros) than in the control group (+2.03 euros). The gain in the consumer group exposed to the program amounted to no more than +0.72 euros, but still represents an increase of 7.7% relative to the period average.

On the other hand, according to the regression analysis, neither the dummy variable nor the time variable had a positive effect on the expense per occasion.

Figure 10  
Product A.1 - Expense per occasion



Source: Author.

### 1.3 – Product A.2

The penetration of the category is low (7.5% in the control group over the period). Although the penetration among the consumer households integrating the test group was somewhat higher (10.18%), this means that no more than an average of 20 consumers bought product A.2 in any given quarter. We therefore worked with a very small sample, a situation common to most of the brands covered by this study that of course limits our confidence in the calculated averages as unbiased estimates of the universe.

A.2 commands a strong and leading position in its served market, as can be seen by its market share, estimated to be as high as 48.31% in the control group and even higher (52.72%) in the test group. The buying rate was on average 7.60 euros in the control group and 8.85 euros in the test group.

The fact that the sample is so small made it impossible to obtain reliable estimates of the purchase frequency and the expense per occasion in some quarters. Thus, no estimates are available for the second and fourth quarters of 2001, and for the first quarter of 2002. Since the basic event of consumer panel estimates is the purchase occasion, no estimate is provided when the number of purchase occasions registered during a quarter is less than 30.

Table 3  
Product A.2 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV - 2000</b>	47.06	41.67	6.5	5.2	10.2	6.9	1.6	1.3	6.36	5.33
<b>I - 2001</b>	45.85	44.45	8.1	6.4	9.1	6.8	1.5	1.1	6.08	6.15
<b>II - 2001</b>	37.16	54.42	3.5	8.3	8.1	6.9	na	1.2	ns	5.74
<b>III - 2001</b>	64.43	62.21	16.9	8.2	6.4	7.6	1	1.3	6.43	5.84
<b>IV - 2001</b>	51.62	49.90	9.7	9.1	8.8	7.6	na	1.2	ns	6.31
<b>I - 2002</b>	57.08	47.75	6.2	7.9	13.1	7.8	na	1.3	ns	6.03
<b>II - 2002</b>	66.58	47.91	13.5	7.3	8.6	8.1	1.4	1.3	6.15	6.26
<b>III - 2002</b>	67.65	44.94	13.8	7.8	8.8	7.8	1.4	1.3	6.30	6.03
<b>IV - 2002</b>	52.89	46.48	11.5	8.4	8.5	7.8	1.3	1.3	6.56	6.02
<b>I - 2003</b>	36.87	43.34	12.1	6.4	6.9	8.6	1.1	1.4	6.31	6.13
<b>Average</b>	52.72	48.31	10.18	7.50	8.85	7.60	na	1.27	na	5.98
<b>Standard deviation</b>	11.28	6.07	4.13	1.18	1.82	0.59	na	0.08	na	0.29
<b>% sd</b>	21.39	12.57	40.54	15.71	20.54	7.72	na	6.48	na	4.84

Source: Author.

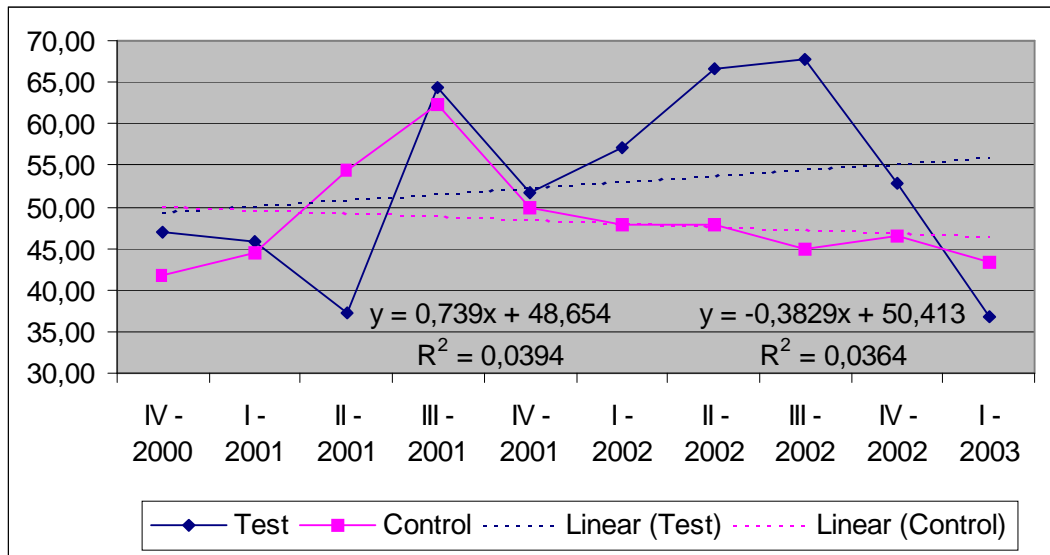


**Market share**

Market share trends in both the control and the test group are nor very clear, since data move up and down in a somewhat irregular fashion. Fitting linear trends, market share in the control group seems to move down while moving up in the test group. The loss in the control group is as high as -3.44 percent points, compared with a gain of +6.65 percent points in the test group. Therefore, the total gain of the latter relative to the former is highly significant: no less then 10.09 percent points. Overall, it would appear that the consumers exposed to the program performed much better than those not exposed, since, taking as a reference the average market share in the test group, sales grew by 19.13% over the period.

Because of the irregularity of the observed data, the regression analysis does not confirm the existence of a positive impact on A.2's market share.

Figure 11  
Product A.2 - Market Share



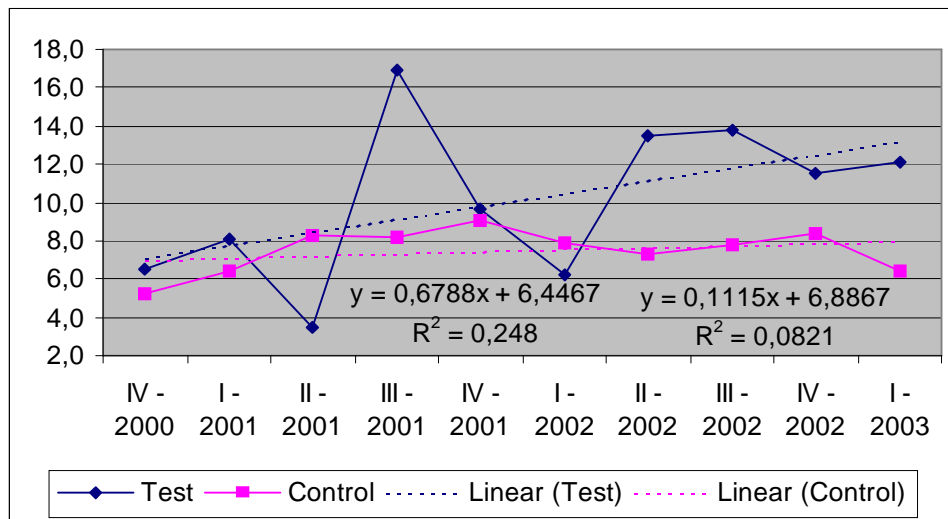
Source: Author.

### ***Penetration rate***

At the root of the improved performance of market share in the test group is the increase in penetration. As can be seen in the Figure 6.17, the penetration rate decreased by -3.45% percent points in the control group, while increasing +6.65 percent points in the test group. As a consequence, the gain in the test group relative to the control group amounted to a remarkable 10.1 percent points.

It should however be noted that the trends do not show up very clearly. As should be expected, the regression analysis confirms this general impression of the irrelevance of the program on the penetration level of A.2.

Figure 12  
Product A.2 – Penetration

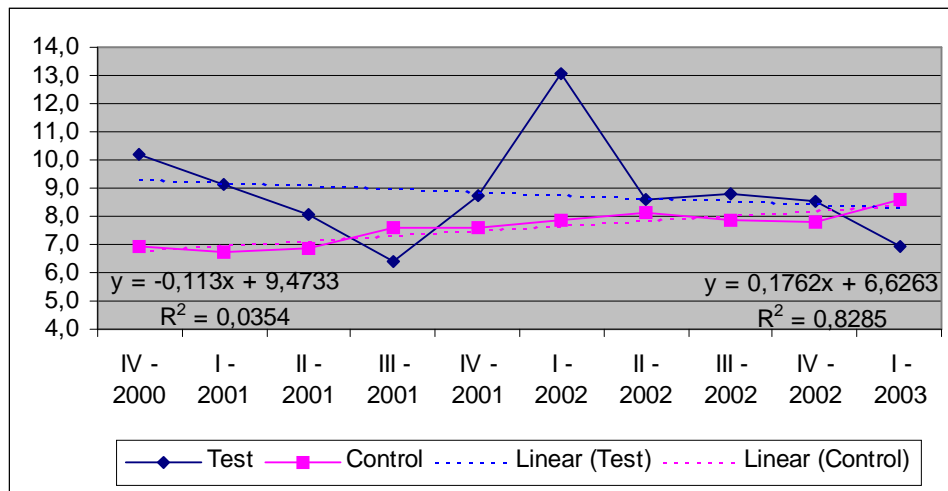


Source: Author.

### **Buying rate**

The buying rate increased steadily by +1.59 euros (+20.9% over the period average) in the control group. On the contrary, it declined by –1.02 euros (-11.53% over the period average) in the control group. On the whole, the exposed consumers behavior was worse than that of the non-exposed, generating a total loss of –2.61 euros. Using the buying rate as a synthetic loyalty measure, no positive effect was found on this account. This is confirmed by the regression analysis.

Figure 13  
Product A.2 - Buying rate



Source: Author.

### 1.4 – Product A.3

A.3 is another low penetration brand of XXX. In the control group, the average penetration was slightly over 7%. In the test group it was 8.7%, which means that only between 16 and 18 consumer households represented in the panel bought A.3 in any given quarter. Once again, we are working with a very small sample on a quarter basis. As a consequence, no estimates are available for the second, third and fourth quarters of 2001 regarding purchase frequency and expense per occasion.

A.3 is an ailing brand, as becomes immediately clear from the inspection of the market share figures. On average, the market share in the control group was only 17.86% and declined continuously over the period. It was higher in the test group (24.10%) as a consequence of also higher penetration and buying rates.

Table 4  
Product A.3 – Evolution of Behavioral Variables

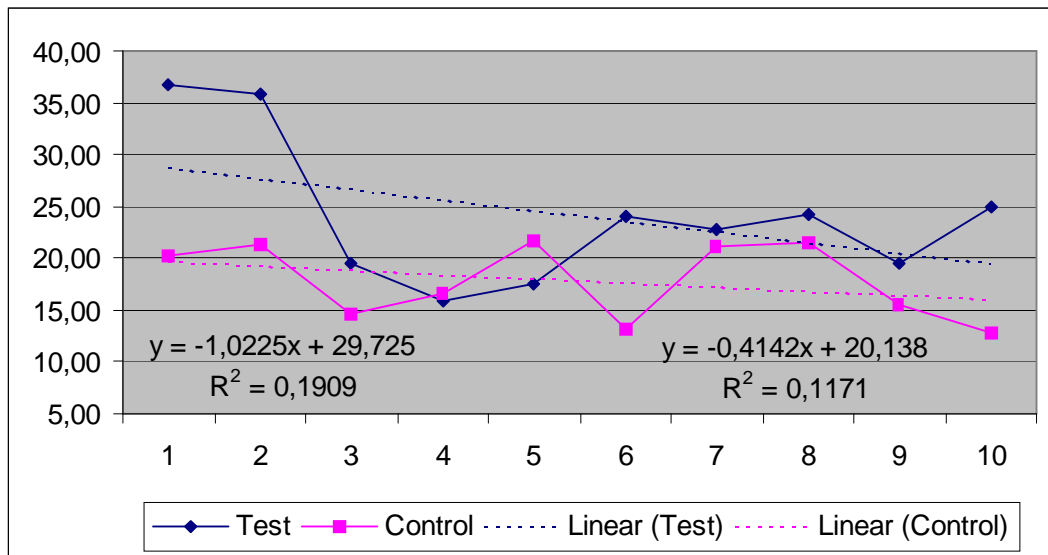
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	36.68	20.3	16.0	10.2	3.8	2.8	1.2	1.1	3.14	2.55
I – 2001	35.88	21.27	12.9	7.7	3.9	4.1	1.3	1.3	3.00	3.13
II – 2001	19.52	14.61	4.3	5.5	6.4	3.6	na	1.3	na	2.77
III – 2001	15.83	16.61	6.6	8.0	5.3	3.6	na	1.3	na	2.78
IV – 2001	17.59	21.71	5.7	8.0	8.1	4.1	na	1.5	na	2.73
I – 2002	24.04	13.20	1.5	5.3	4.1	4.1	1.5	1.3	2.72	3.15
II – 2002	22.69	21.11	5.7	7.8	6.3	4.4	2.1	1.3	2.99	3.40
III – 2002	24.19	21.50	6.2	7.4	6.4	4.7	2.1	1.4	3.04	3.38
IV – 2002	19.59	15.43	6.7	5.8	6.1	3.5	2.1	1.2	2.89	2.94
I – 2003	25.00	12.87	11.4	5.9	5.0	3.3	1.7	1.2	2.95	2.71
Average	24.10	17.86	8.70	7.16	5.53	3.82	na	1.29	na	2.95
Standard deviation	7.09	3.66	3.92	1.53	1.37	0.57	na	0.11	na	0.30
% sd	29.40	20.52	45.02	21.37	24.80	14.94	na	8.53	na	9.99

Source: TNS.

### Market share

Market share declined swiftly in both the control and the test group. Thus, the decrease in the control group reached  $-3.73\%$  over the period. It was even higher in the test group, where it declined by as much as  $-9.20\%$ . The net loss of the test group was  $-5.47\%$ . Very clearly, A.3 did not benefit at all from the relationship program, as the regression analysis confirms.

Figure 14  
Product A.3 - Market Share

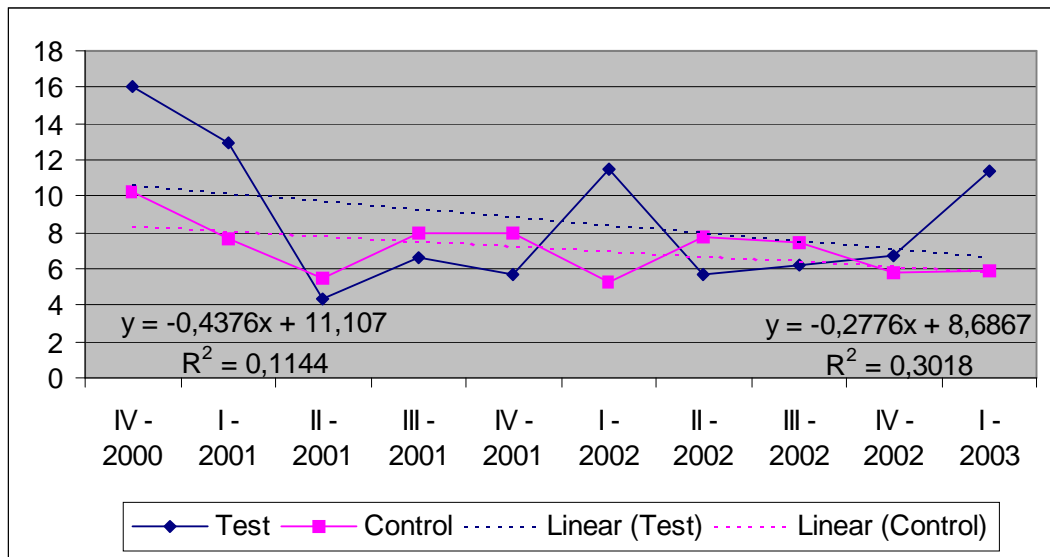


Source: Author.

**Penetration rate**

A.3 lost penetration in both the control and the test group. Once again, the test group performed even poorly than the control group. Witness the loss in the control group (-2.50 percent points over the period) and in the test group (-3.94 percent points). The net loss in the test group is therefore estimated at -1.44 percent points. Compared to the average penetration rate of the period, the decrease was -16.55%. Neither the F-test nor the t-tests allowed the identification of any kind of effect on the penetration rate.

Figure 15  
Product A.3 – Penetration

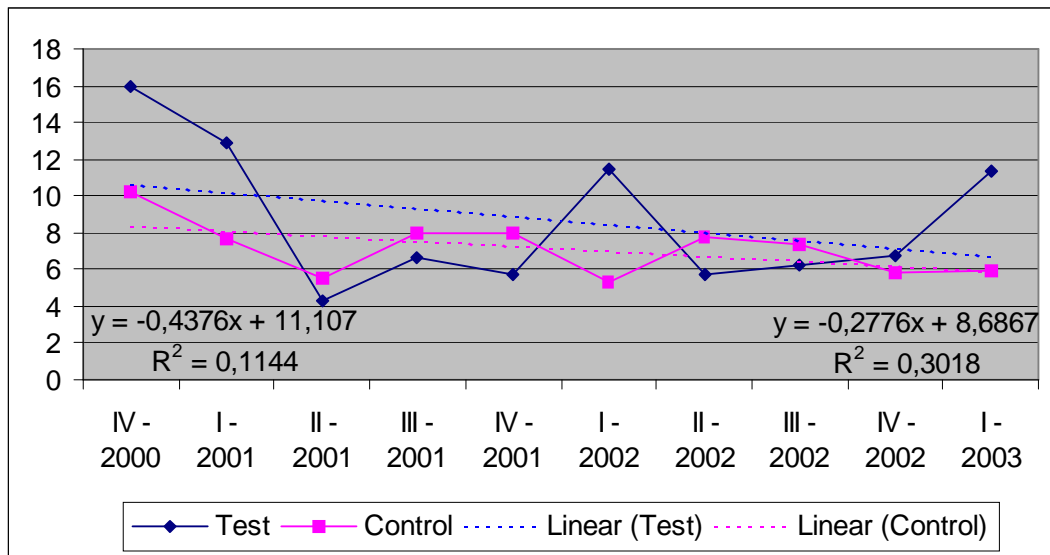


Source: Author.

### **Buying rate**

The buying rate also shows a downward trend in both the control and the test group. In the control group, it decreased by –2.50 euros in a period of ten quarters, compared with an even stronger decrease of –3.94 euros in the test group. We thus find a net fall of –1.44 euros in the test group relative to the control group. Compared with the average value of the period, the decrease amounted to -26.04%. Once again, the regression analysis confirms the ineffectiveness of the program regarding A.3's buying rate.

Figure 16  
Product A.3 - Buying Rate



Source: Author.

## 1.5 – Product A.4

A.4 is a low penetration brand, bought by just 8.3% of Portuguese households according to the estimate of the control group. Once again, we obtain a larger estimate in the test group (9.41%). A.4 is not a major player in the category: its market share is small (12.08% over the period) and is still suffering some erosion.

Only some 18 consumer households surveyed by the panel and exposed to the program bought A.4 in any given quarter. With such a small sample, it is no wonder that no reliable estimates could be obtained for the purchase frequency and the expense per occasion in the second, third and fourth quarters of 2001 and in the first quarter of 2002. Therefore, it was impossible to determine the trend for those two variables.

Table 5  
Product A.4 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	12.47	16.61	9.0	12.0	3.23	2.74	1.9	1.4	1.70	1.96
I – 2001	11.16	12.72	12.8	8.4	1.76	2.73	1.1	1.5	1.60	1.82
II – 2001	6.06	14.81	8.3	10.5	1.99	2.58	na	1.3	na	1.98
III – 2001	8.91	14.86	8.5	11.8	2.88	2.74	na	1.4	na	1.96
IV – 2001	3.56	12.26	3.9	6.6	1.92	3.01	na	1.3	na	2.32
I – 2002	5.92	9.65	5.9	6.7	1.94	2.25	na	1.2	na	1.88
II – 2002	12.61	9.27	10.7	6.7	2.89	2.41	1.6	1.3	1.80	1.86
III – 2002	14.20	9.04	12.2	6.5	2.97	2.40	1.6	1.3	1.86	1.84
IV – 2002	18.28	12.69	12.5	7.4	2.78	2.71	1.8	1.2	1.55	2.26
I – 2003	13.71	8.90	10.3	6.4	2.62	2.25	1.3	1.2	2.02	1.87
Average	10.69	12.08	9.41	8.30	2.50	2.58	na	1.31	na	1.97
Standard deviation	4.53	2.78	2.91	2.27	0.54	0.25	na	0.10	na	0.17
% sd	42.34	23.01	30.92	27.37	21.54	9.64	na	7.59	na	8.85

Source: TNS.

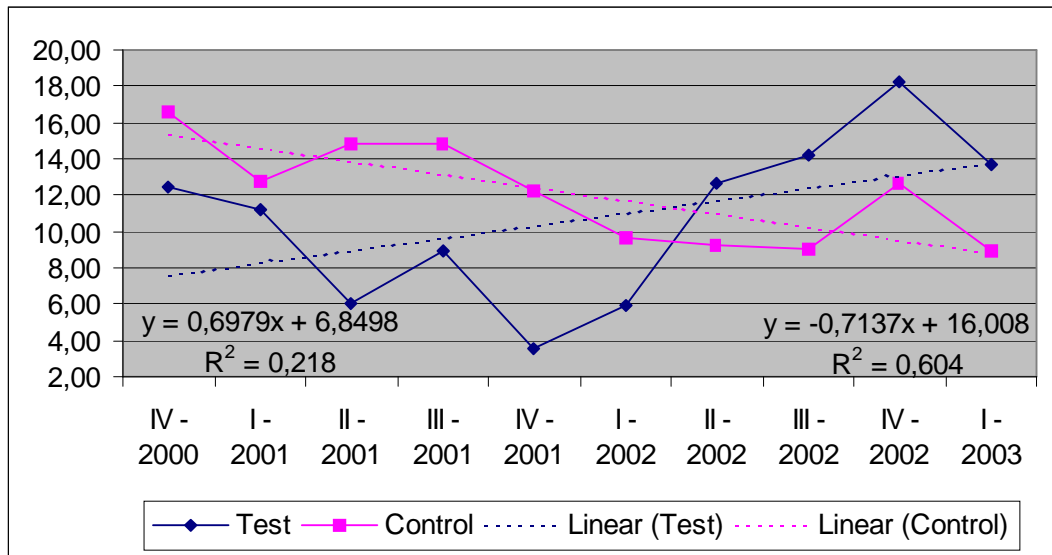


**Market share**

The market share decreased in the control group but increased in the test group. The decrease in the control group was sustained during the ten quarters covered by the analysis, recording a total loss of -6.42 percent points. Inversely, the market share increased by +6.28 percent points in the test group. When we compare the behavior of both groups, we find that market share apparently increased by a total of +12.70 percent points in the test group relative to the control group. This would more than double the average market share during the period, which stood at just 10.69% in the test group.

The regression analysis was unable to identify a direct effect of the program on A.4's market share, since the t-test shows that the coefficient associated to the dummy variable is not significantly different from zero. On the other hand, there is a definite connexion between the time variable and the brand's market share, and the F-test is also positive.

Figure 17  
Product A.4 - Market Share

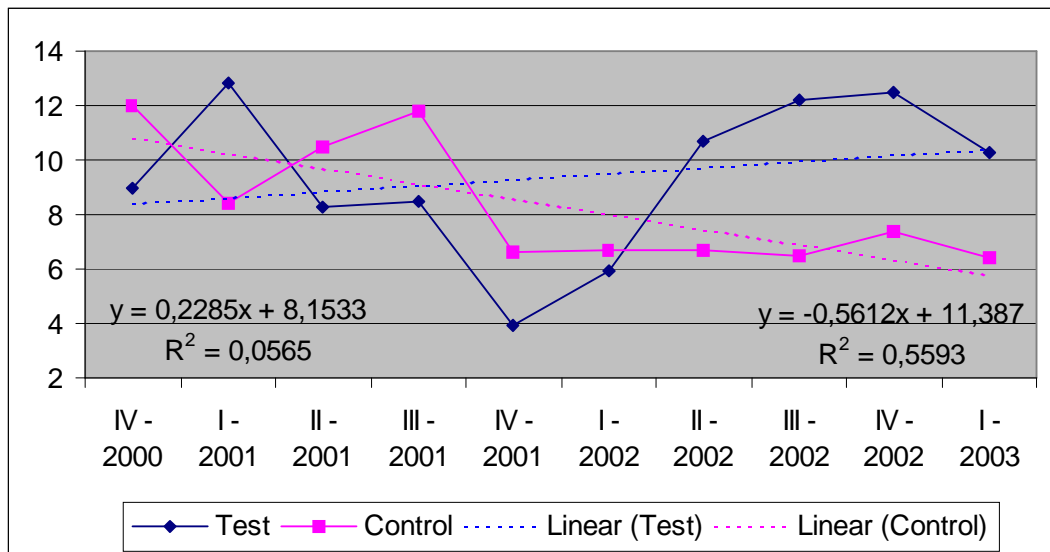


Source: Author.

**Penetration rate**

The increase of the market share was in a large measure driven by the growth of the penetration rate in the test group. Once again the control and the test groups diverged markedly, with the former falling while the latter raised. In fact, we can see that there was a total loss of -5.05 percent points in the penetration rate of the control group. In the same period, however, there seemed to be a gain of +2.06 percent points in the test group. Therefore, the gain of the test group relative to the control group would have reached +7.11 percent point, amounting to an increase of 75.6% over the average penetration rate in the period. This is not however confirmed by the regression analysis performed on the data.

Figure 18  
Product A.4 – Penetration

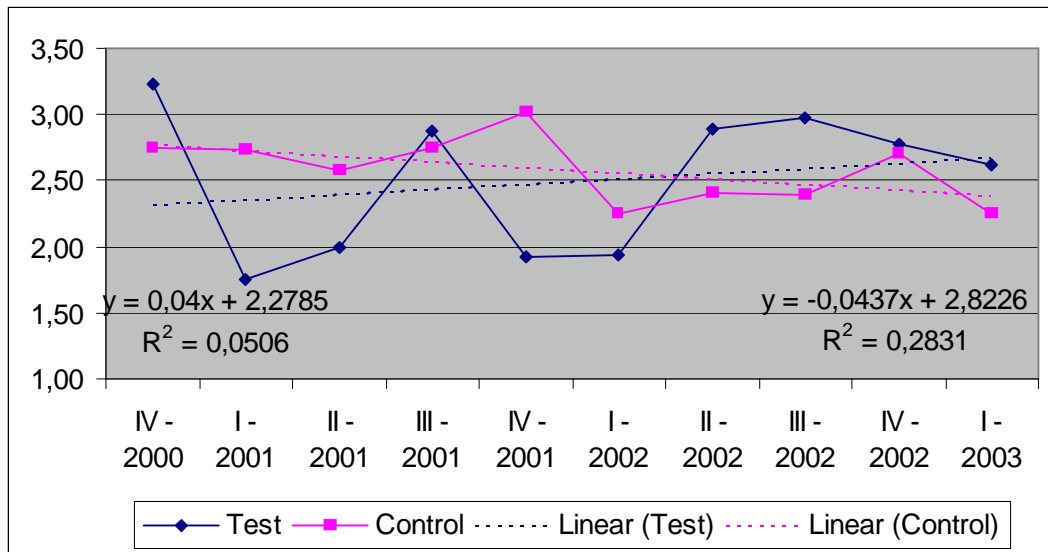


Source: Author.

### ***Buying rate***

Concerning the buying rate, the performance of the test group was clearly positive when compared with that of the control group. In fact, the buying rate declined  $-0.39$  euros in the control group while at the same time increasing  $+0.36$  euros in the test group, thus creating a net gain of  $+0.75$  euros. This synthetic loyalty measure improved  $+30\%$  during the period, suggesting that the relationship program raised the performance of the brand. The regression analysis identifies the impact of the time variable on A.4's buying rate, but is unable to relate this change to the program, since the t-test associated to the coefficient of the dummy variable shows it is not significantly different from zero.

Figure 19  
Product A.4 - Buying Rate



Source: Author.

## 2 – DIVISION B

### 2.1 – General B

Globally, the weighted market share of B in the categories where it competes reached an average of 20.01% in the control group and 23.76% in the test group. Unlike Division A, B has not been losing market share to retailer own brands, which are not major players in these categories, possibly because the main producers have managed to innovate continuously, thus reducing the opportunities for me-too brands. The penetration rate is even higher: 36.81% in the control group and 41.4% in the test group. However, the penetration rate in then control group has fallen significantly in the last few years. Therefore, the stability of the market shared is owed to the increase in the value buying rate that compensated the loss of customers. The purchase frequency is relatively low: a mere average of 1.75 occasions per quarter, considerably less than in the case of A. Concurrently, the expense per occasion is also small (only 3.25 euros per occasion) given that most product sold by B are rather inexpensive.

Table 6  
Division B – Evolution of Behavioral Variables

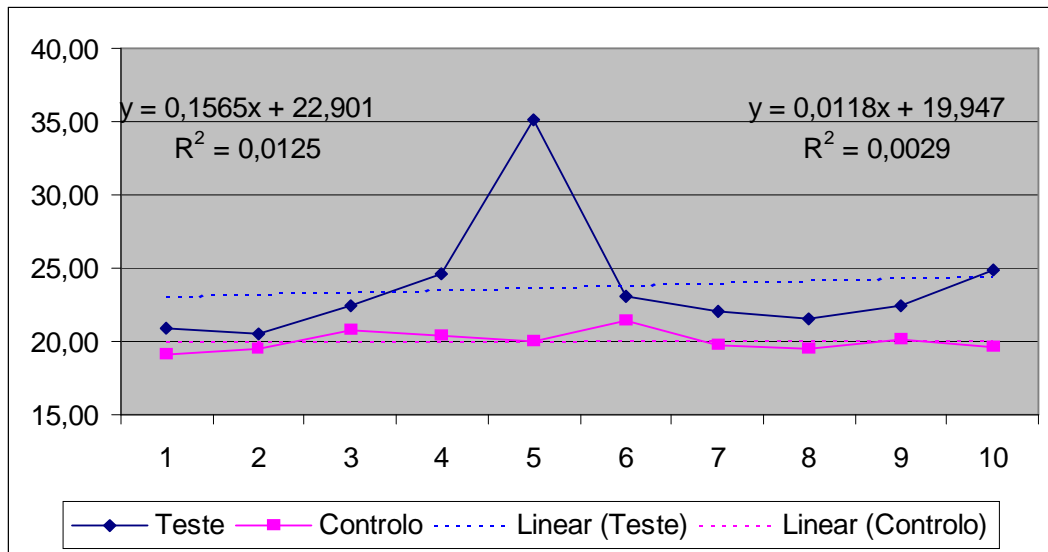
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	20.83	19.15	37.4	37.4	5.7	4.9	2.4	1.8	2.39	2.71
I – 2001	20.49	19.51	37.9	35.6	5.0	5.5	1.6	1.7	3.14	3.23
II – 2001	22.50	20.73	34.6	38.1	5.1	5.6	1.5	1.8	3.41	3.12
III – 2001	24.67	20.32	45.4	41.6	7.4	6.4	2.1	2	3.54	3.21
IV – 2001	35.10	20.00	38.1	36.0	11.1	6.0	2.4	1.8	4.63	3.32
I – 2002	23.04	21.37	40.7	39.0	5.6	5.7	1.8	1.7	3.11	3.32
II – 2002	22.04	19.79	44.8	35.7	5.6	5.6	1.9	1.7	2.97	3.30
III – 2002	21.58	19.53	44.1	35.3	5.9	5.5	2	1.7	2.95	3.23
IV – 2002	22.48	20.13	45.7	34.8	5.6	5.9	1.7	1.7	3.32	3.47
I – 2003	24.88	19.57	44.9	34.6	6.2	5.8	1.6	1.6	3.89	3.64
<b>Average</b>	23.76	20.01	41.36	36.81	6.34	5.68	1.90	1.75	3.33	3.25
<b>Standard deviation</b>	4.24	0.66	4.10	2.22	1.80	0.40	0.32	0.11	0.60	0.24
<b>% sd</b>	17.83	3.31	9.92	6.03	28.40	7.05	17.01	6.17	18.12	7.42

Source: TNS.

### Market share

B's market share looks mainly flat. The adjusted trend shows a slight increase of market share over the period of 0.11 percent points in the control group. The trend is more favorable in the test group, leading to an increase of 1.41 percent points. This translates into a gain of 1.3 percent point of the test group over the control group. It should be noted, however, that the test group data series shows a clear outlier in the fourth quarter of 2001, thus diminishing our confidence in the relevance of the identified trend. This suspicion is confirmed by the regression analysis, according to which the program had no impact on B's market share.

Figure 20  
Division B - Market Share

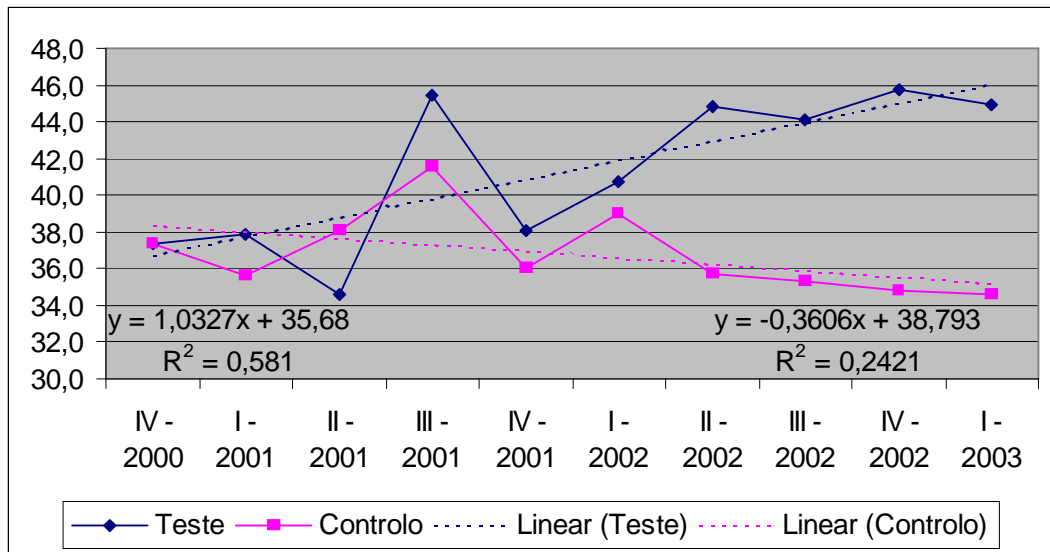


Source: Author.

**Penetration rate**

The penetration rates show very divergent trends when we compare the test group with the control group. The penetration rate is falling rapidly in the control group, translating into a cumulative loss of -3.25 percent points over the period. Meanwhile, the test group exhibits a very positive trend leading to a gain of +9.29 percent points. The net gain of the test group over the control group thus amounts to a very significant difference of +12.54 percent points. The regression analysis displays a significant F statistic. Besides, the time variable is positive and significantly different from zero, although the dummy variable is not.

Figure 21  
Division B - Penetration Rate

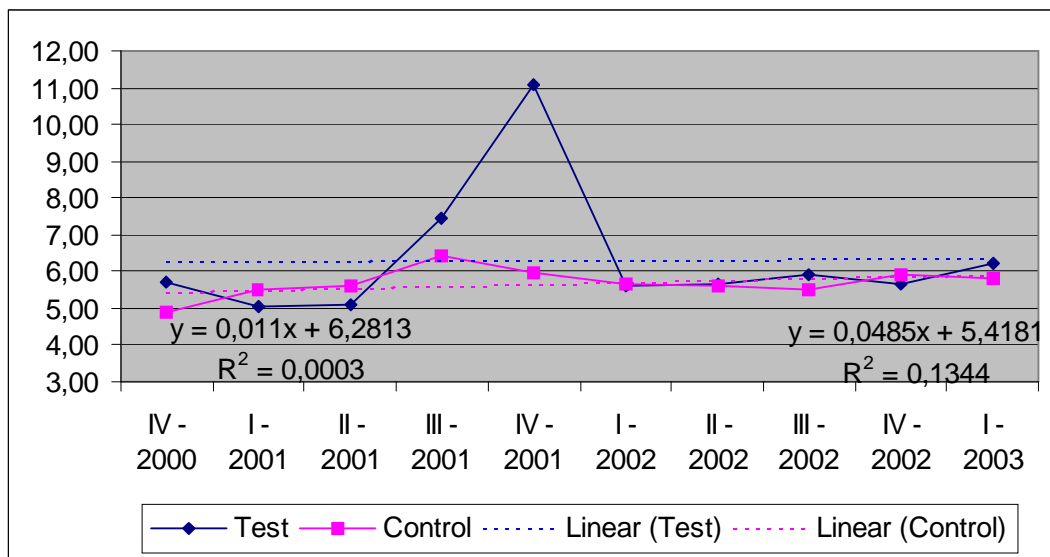


Source: Author.

### **Buying rate**

The value buying rate per customer increased somewhat in both the control and the test group, although more in the former (0.44 euros) than in the latter (0.1 euros). A very anomalous value was found in the test group during the fifth quarter, for which there is no satisfactory explanation. The fact remains that no effect of the program on the value buying rate of the Division B could be identified, a conclusion that is reinforced by the regression analysis.

Figure 22  
Division B - Buying Rate (value)

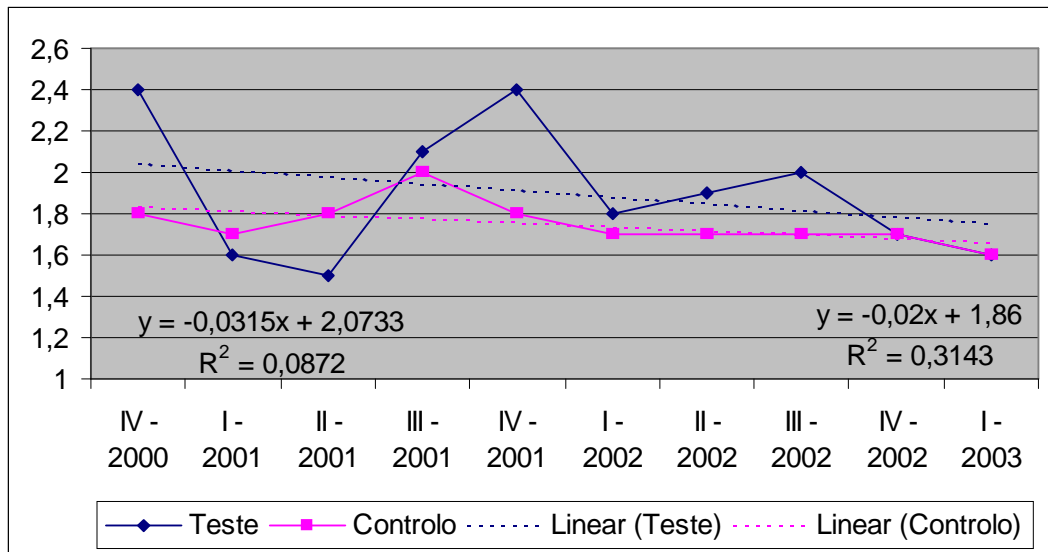


Source: Author.

### *Purchase frequency*

The purchase frequency of B brands was a bit reduced during the period in both groups. Once again, the general trend is similar in both of them, with the test data displaying more variation around the mean. The number of purchase occasions per customer in the control group was decreased by  $-0.18$  weeks in the control group, while in the test group the equivalent figure was  $-0.28$ . The test group therefore showed a net loss of  $-0.1$  occasions per customer. No positive effect of the relationship program on the enrolled participants could therefore be identified. The regression analysis points in the same direction.

Figure 23  
Division B - Purchase Frequency



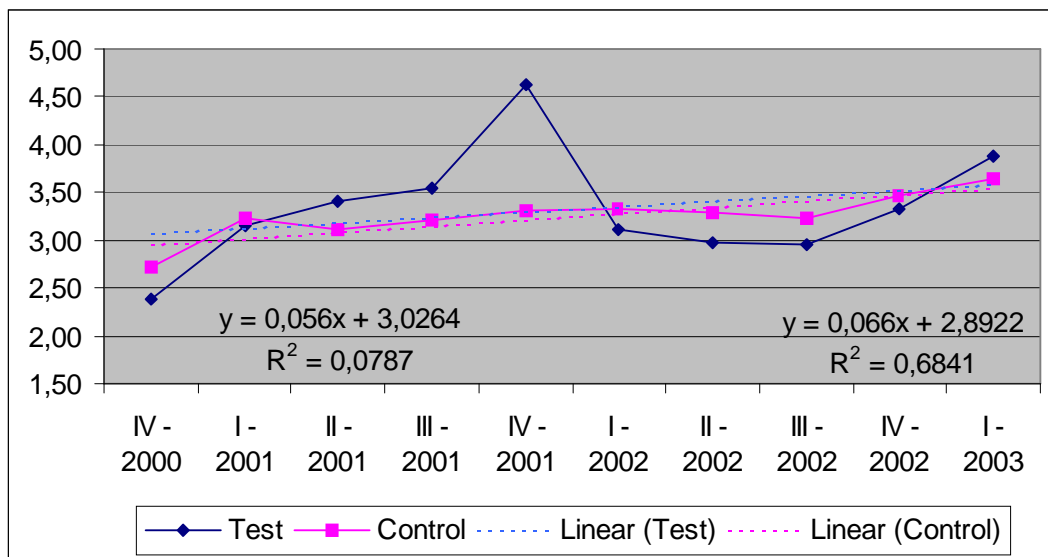
Source: Author.



***Purchase per occasion***

The purchase per occasion moved in the same direction in both groups and even the dimension of the change was not significantly different. According to the trend equations, the expense per purchase occasion increased 0.59 euros in the control group and 0.50 euros in the test group. Given the results of the regression analysis, we can comfortably reject the hypothesis that the program managed to change the purchase per occasion of B's customers.

Figure 24  
Division B - Purchase per occasion (value)



Source: Author.

## 2.2 – Product B.1

B.1 competes against stronger brands than itself. As a consequence, and in spite of all its efforts, it is not a major player. Table 6.8 shows that, in the control group, B.1's penetration was on average only 7.76% during the analyzed period. Likewise, the brand's market share was not very significant either, standing at just 8.57% and showing a clear tendency to decrease. On both accounts, the test group started below the control group but finished above. The number of purchase occasions in the test group was large enough to provide estimates of all the variables in all the time periods considered.

Table 7  
Product B.1 – Evolution of Behavioral Variables

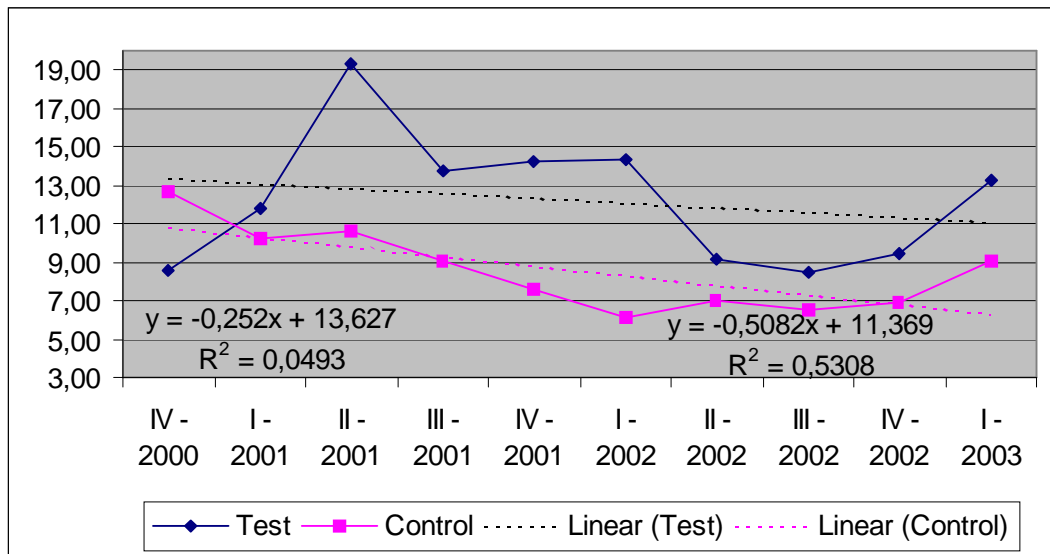
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV - 2000	8.54	12.67	9.1	10.8	3.91	4.70	1.5	1.4	2.61	3.36
I - 2001	11.79	10.19	8.5	8.7	4.84	4.65	1.5	1.3	3.23	3.58
II - 2001	19.33	10.61	7.5	9.5	7.35	4.89	1.5	1.3	4.90	3.76
III - 2001	13.75	9.06	12.1	8.7	6.03	5.28	1.6	1.4	3.77	3.77
IV - 2001	14.28	7.57	12.1	7.3	5.56	4.51	1.6	1.3	3.48	3.47
I - 2002	14.29	6.17	13.9	6.3	4.46	4.10	1.3	1.3	3.43	3.15
II - 2002	9.20	7.05	12.7	6.0	3.33	4.96	1.1	1.3	3.02	3.81
III - 2002	8.51	6.51	12.1	5.6	3.36	4.79	1.2	1.3	2.80	3.68
IV - 2002	9.49	6.89	12.7	6.4	3.26	4.63	1.1	1.2	2.96	3.86
I - 2003	13.23	9.02	14.0	8.3	4.52	4.63	1.2	1.2	3.77	3.85
Average	12.24	8.57	11.47	7.76	4.66	4.71	1.36	1.30	3.40	3.63
Standard deviation	3.44	2.11	2.28	1.71	1.33	0.31	0.20	0.07	0.66	0.24
% sd	28.09	24.63	19.86	22.02	28.59	6.55	14.79	5.13	19.30	6.54

Source: TNS.

**Market share**

B.1 generally performed poorly during the ten observed quarters. As we can see, the market share fell by  $-4.57$  percent points in the control group. It also fell in the test group but only by half, that is  $-2.27$  percent points. This means there was a net gain of the test group against the control group of  $+2.30$  percent points, an increase of  $+18.79\%$  relative to the average of the period. According to the regression analysis, the program seems in fact to have had a positive effect on B.1's market share. We will see next what factors were responsible for this change.

Figure 25  
Product B.1 - Market Share

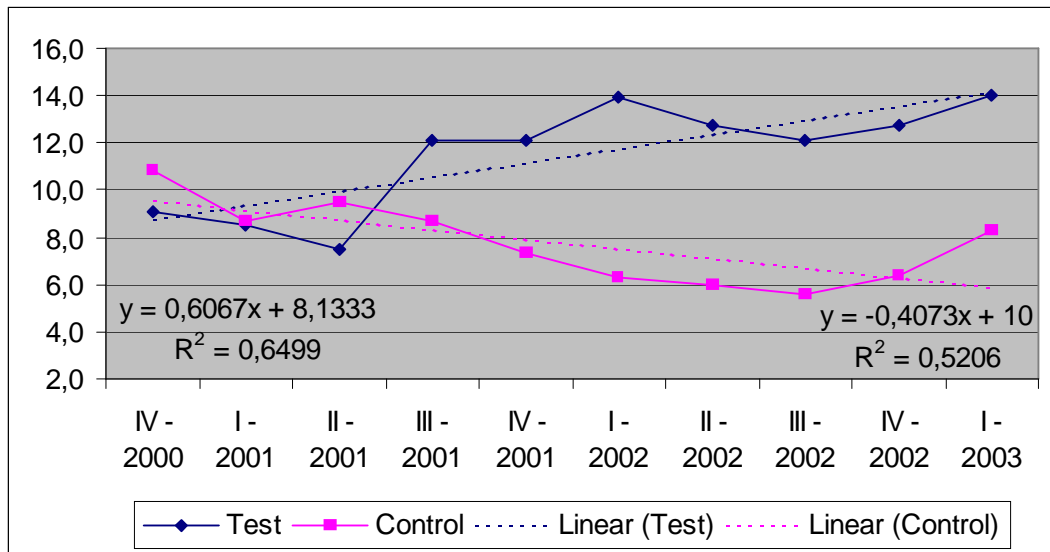


Source: Author.

**Penetration rate**

The test group and the control group followed different ways regarding the penetration rate. While the control group lost  $-3.67$  percent points, the test group gained  $+5.46$  percent points. The increase of the test group when compared to the control group amounted therefore to  $+9.13$  percent points. Relative to the average penetration of the test group, this represents a  $74.59\%$  improvement. The regression analysis shows that the coefficient of the time variable is positive and significantly different from zero. However, the coefficient of the dummy variable is not, meaning that the upward evolution of the penetration rate cannot be attributed to the program.

Figure 26  
Product B.1 – Penetration

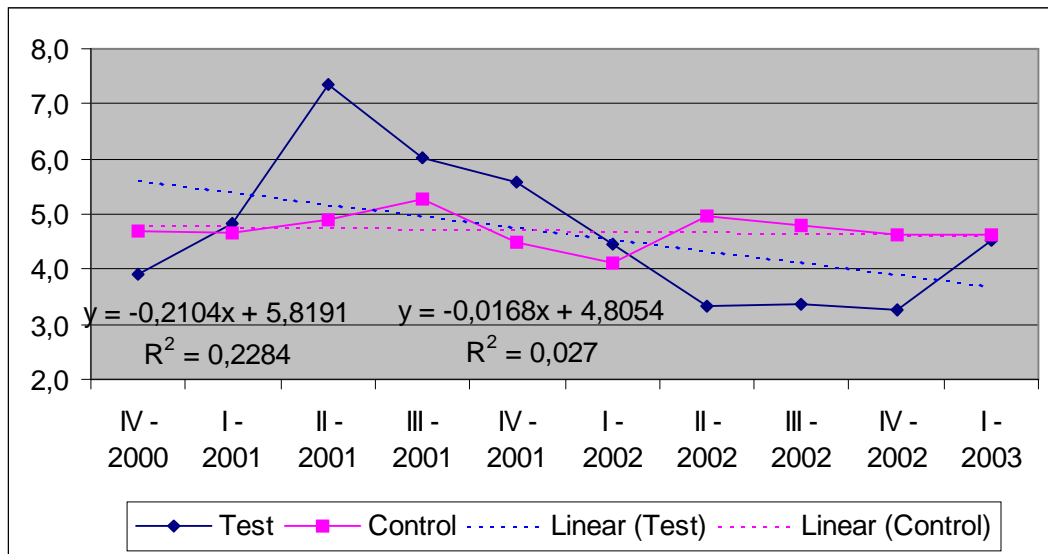


Source: Author.

### **Buying rate**

The buying rate tended to stay flat or decline a little in the control group for the period as a whole: overall, it decreased by a mere -0.15 euros. In the test group, it raised swiftly in the first two quarters, then fell consistently in the next seven quarters, so that, all in all, it came down by -1.89 euros. Therefore, the test group registered a loss of -1.74 euros relative to the control group, thus allowing us to conclude that the program did not improve globally the loyalty of B.1' customers. The regression analysis estimated a negative coefficient for the time variable, but no effect could be attributed to the program itself.

Figure 27  
Product B.1 - Buying Rate

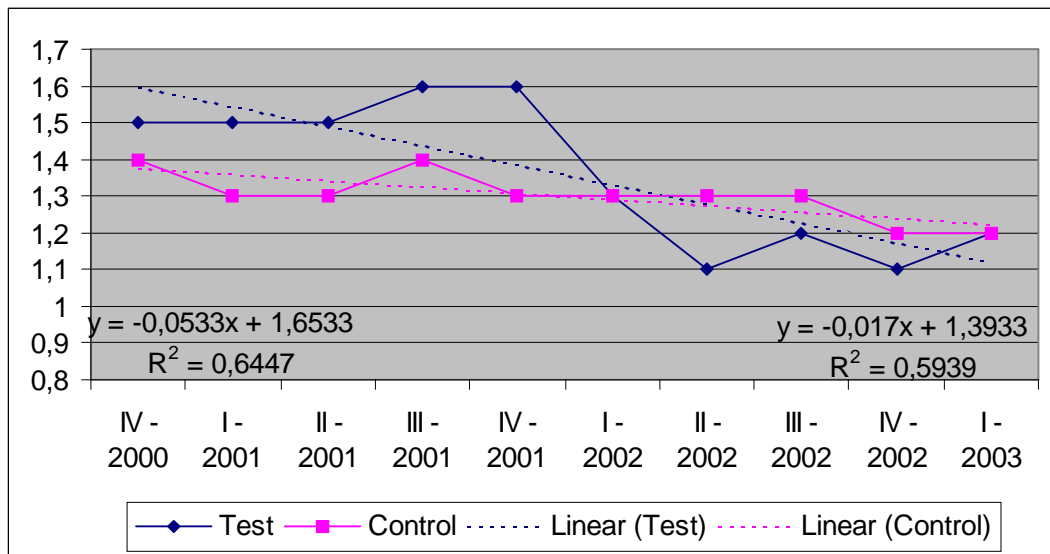


Source: Author.

**Purchase frequency**

The test group did not fare well either concerning purchase frequency. Although both groups exhibited declining purchase frequency, things were worse in the test group than in the control group. In the former there was a loss of  $-0.48$  purchase occasions per quarter, while in the latter it was restricted to a mere  $-0.15$ . As a consequence, the net loss amounted to  $-0.33$  purchase occasions in the test group, in relative terms a fall of 24.26% as a proportion of the quarter average value. Again, in the performed regression, the coefficient of the time variable is negative and significantly significant from and zero. However, the hypothesis that the program had no impact whatsoever on purchase frequency cannot be rejected.

Figure 28  
Product B.1 - Purchase Frequency

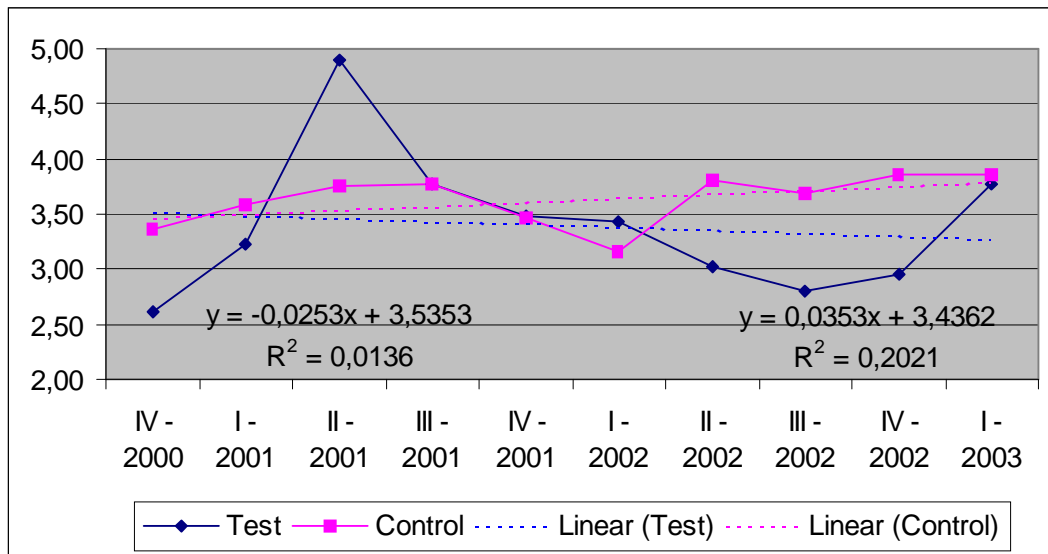


Source: Author.

### *Expense per occasion*

The performance of the test group was also unsatisfactory regarding the expense per occasion, because it fell a little while going up in the control group. In fact, we can see that the expense per occasion increased by +0.32 euros in the control group, but decreased by -0.23 euros in the test group. This means that the test group might lost -0.55 euros during the period relative to the control group, a fall of -6.70% as a proportion of the average of the period. Yet, the regression analysis suggests that the program had no impact on the expense per occasion.

Figure 29  
Product B.1 - Expense per occasion



Source: Author.

## 2.3 – Product B.2

This is a declining category. We can see that B.2 was on average only bought by 8.15% of the consumers of the control panel, and that in the test group this proportion was even lower (7.49%). B.2 is an important but not leading brand in this crowded category: its market share stood at 23.23% during the period under consideration. The expense per occasion was just 1.91 euros in the control group, and the brand was bought an average of 1.82 times per quarter. This means that, besides being a very low cost item, it is not bought very frequently either.

The low penetration rates coupled with the infrequency of purchase had the result that in a total of 6 quarters it was impossible to get minimally accurate estimates of both the purchase frequency and the expense per occasion.

Table 8  
Product B.2 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV - 2000	29.89	23.28	11.0	9.0	3.68	2.89	1.8	1.8	2.05	1.60
I - 2001	28.67	26.17	11.0	9.6	2.36	3.45	1.3	1.7	1.82	2.03
II - 2001	11.59	25.90	5.1	10.0	1.50	3.03	na	1.6	na	1.89
III - 2001	7.22	22.60	3.7	9.3	1.63	4.04	na	2.1	na	1.92
IV - 2001	10.31	27.18	3.0	9.9	1.69	3.64	na	1.9	na	1.92
I - 2002	33.64	27.70	5.7	8.6	5.25	3.75	na	1.8	na	2.08
II - 2002	30.65	20.51	11.4	6.5	3.34	3.59	1.3	1.9	2.57	1.89
III - 2002	30.24	19.88	11.8	6.2	3.21	3.63	1.3	2	2.47	1.82
IV - 2002	29.01	17.77	7.7	6.5	4.38	3.01	na	1.7	na	1.77
I - 2003	21.86	21.29	4.5	5.9	3.99	3.63	na	1.7	na	2.13
Average	23.31	23.23	7.49	8.15	3.10	3.46	1.43	1.82	na	1.91
Standard deviation	9.89	3.40	3.51	1.67	1.28	0.37	0.25	0.15	na	0.16
% sd	42.44	14.64	46.87	20.51	41.17	10.72	17.54	8.51	na	8.15

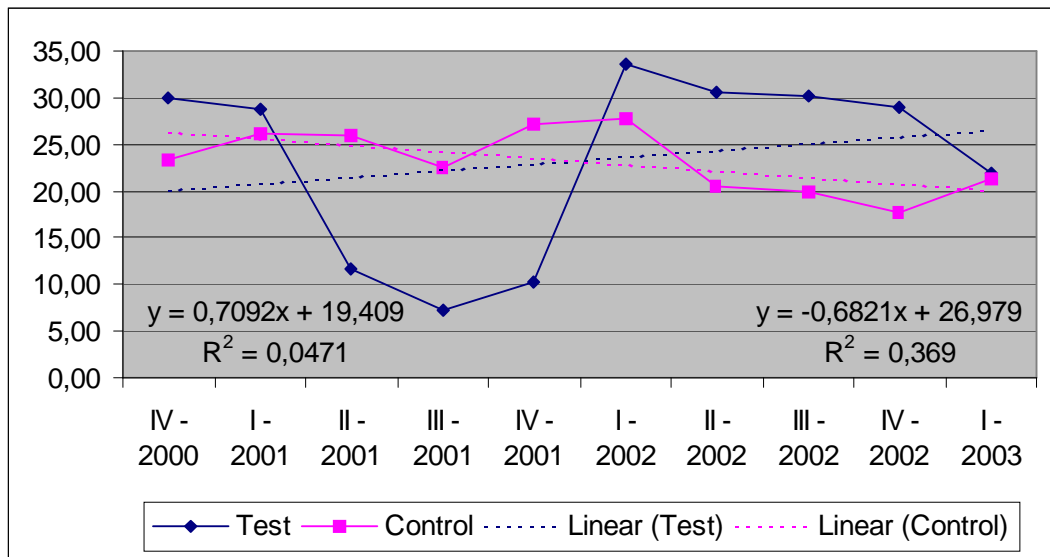
Source: TNS.



**Market share**

Figure 6.35 shows that market share has tended to fall in the control group by a total of -6.14 percent points. On the contrary, we found an upward trend in the test group. The market share fell abruptly during the first year. Then, after rising to a maximum in the first quarter of 2002, started going down again, but this time more slowly. Overall, the linear trend displays an increase of +6.38 percent points. Even if the irregularity of the data does not allow us to put much faith in the trend of the test group, its total gain during the period over the control group was an impressive +12.52 percent points. Apparently, the program had a positive impact on the sales of B.2 to the exposed consumers, with a gain of +53.71% over the average of the period. However, the regression analysis does not uphold this hypothesis.

Figure 30  
Product B.2 - Market Share



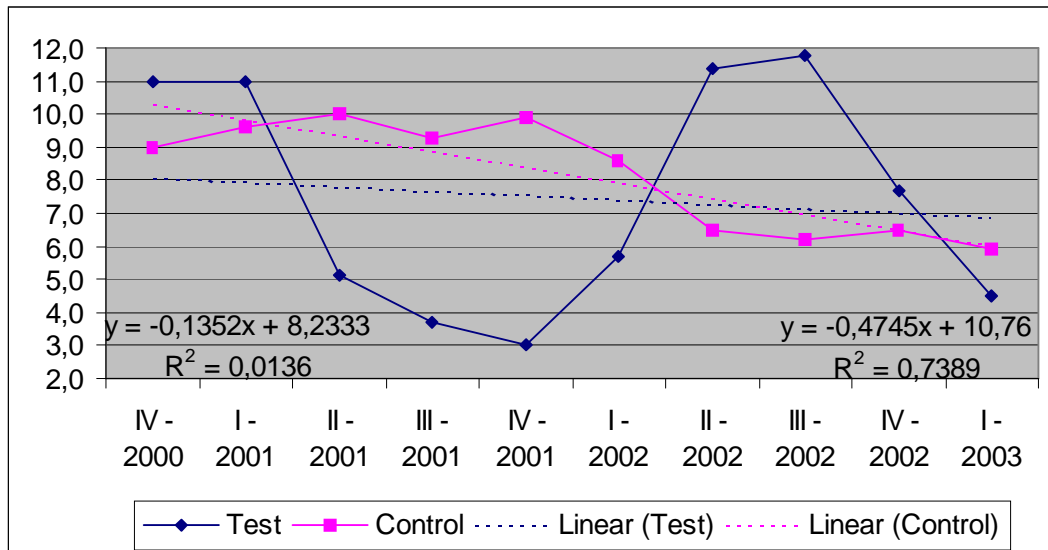
Source: Author.

**Penetration rate**

Penetration falls in both the control and the test group. The case of the control group seems very clear: the trend is easily detected by visual inspection of Figure 6.36, and the high correlation coefficient seems to confirm it. As we can see, the penetration rate decreased steadily in the control group by  $-4.27$  percent points. Things do not appear so clear in the test group. No doubt because of the small sample available the data oscillate cyclically going down in the beginning, then up, then down again. If we trust the fitted linear trend, however, it tells us that the penetration rate decreased in the test group slower than in the control group: no more than  $-1.22$  percent points over the period. This means that, by delaying the general negative trend of B.2, the program might have accounted for a net gain of  $+3.05$  percent points. As a proportion of the period average this would translate into a huge gain of  $+40.72\%$ .

A closer inspection of the data shows a wide fluctuation of the penetration rate of the test group from period to period. Such instability makes it impossible to confirm the hypothesis that the program had a positive impact on the penetration rate, as the regression analysis makes it clear.

Figure 31  
Product B.2 – Penetration

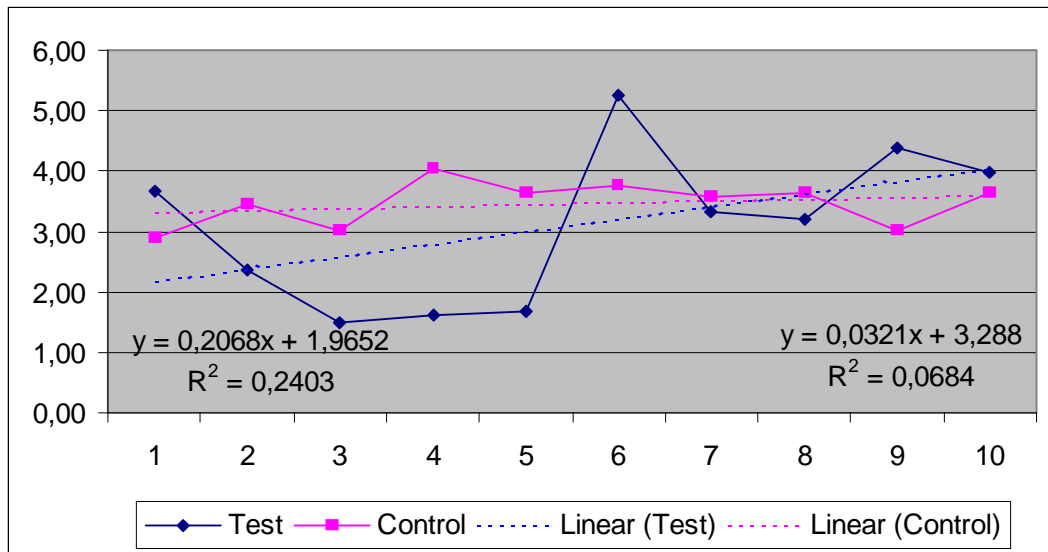


Source: Author.

### **Buying rate**

The program also appears to have had a positive impact on the buying rate. This time, however, the analyzed variable showed a favorable evolution in both groups. It increased by +0.29 euros in the control group, and even more in the test group, where the again amounted to +1.86 euros. The net gain of the exposed group is therefore estimated at 1.57 euros, an increase of +50.65% over the average buying rate of the period in the test group. This is one more case when the time variable presents a positive coefficient, while the dummy variable presents a negative one. This means that the buying rate in fact increases with time, but this increase cannot be attributed to the relationship program.

Figure 32  
Product B.2 - Buying Rate



Source: Author.

## 2.4 – Product B.3

B.3 is a distant third brand in its category, suffering also strong competition from retailer's own brands. Its penetration rate was on average a meager 6.42% during the period, meaning that as a rule no more than 13 people bought it at a given quarter. The combination of weak penetration and infrequent purchase meant that, as a consequence, we have no accurate estimate for the second quarter of 2001.

B.3's market share stood on average at 6.77% in the control group and 8.83% in the test group. The buying rate, however, is higher in the control group (2.93 euros) than in the test group (2.40 euros). Unlike most other analyzed brands, the test group seems in this case to include a smaller proportion of heavy users.

Table 9  
Product B.3 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV - 2000	8.30	5.44	6.9	6.5	3.0	2.1	1.6	1.3	1.90	1.60
I - 2001	8.42	7.64	9.2	7.3	2.3	2.8	1.2	1.4	1.89	2.02
II - 2001	10.40	8.39	9.3	7.7	2.3	2.9	na	1.3	na	2.21
III - 2001	7.44	7.55	13.2	7.9	1.8	3.2	1.2	1.5	1.48	2.13
IV - 2001	12.56	6.40	14.3	6.8	2.5	2.6	1.2	1.3	2.11	2.01
I - 2002	6.38	7.48	8.5	6.1	2.0	3.3	1.1	1.4	1.86	2.39
II - 2002	8.29	6.28	9.9	6.1	2.5	2.7	1.3	1.3	1.92	2.10
III - 2002	6.53	5.97	9.6	5.7	2.1	2.7	1.3	1.3	1.60	2.10
IV - 2002	12.05	6.38	10.8	5.2	3.0	3.3	1.6	1.2	1.88	2.76
I - 2003	7.87	6.21	8.5	4.9	2.4	3.6	1.2	1.4	2.02	2.54
Average	8.83	6.77	10.02	6.42	2.40	2.93	na	1.34	na	2.19
Standard deviation	2.15	0.93	2.23	1.02	0.40	0.43	na	0.08	na	0.32
% sd	24.35	13.67	22.26	15.81	16.75	14.85	na	6.29	na	14.64

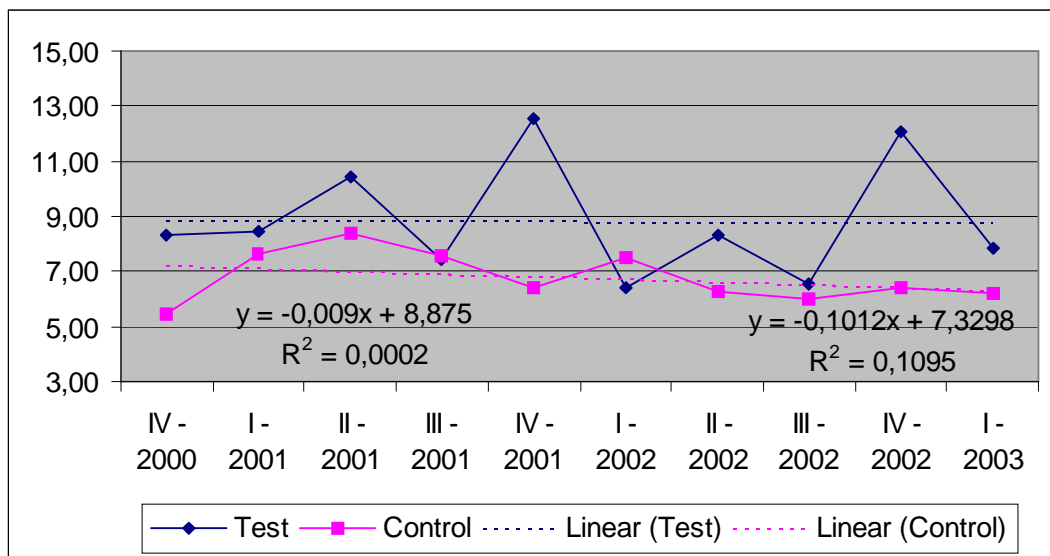
Source: Author.

**Market share**

Although moving up and down all the time, on average the market share stayed essentially flat in the test group. In the control group, however, it decreased slowly but steadily, loosing -0.91 percent points during the period. Comparing the test group with the control group, we find that the former gained +0.99 percent points over the latter. When we relate this figure to the period average, we estimate a relative gain of 11.21% in the market share of the test group.

The regression analysis does not confirm this hypothesis. Since none of the coefficients is significantly different from zero, we can safely conclude that the program had no clear impact on the market share of B.3.

Figure 33  
Product B.3 - Market Share

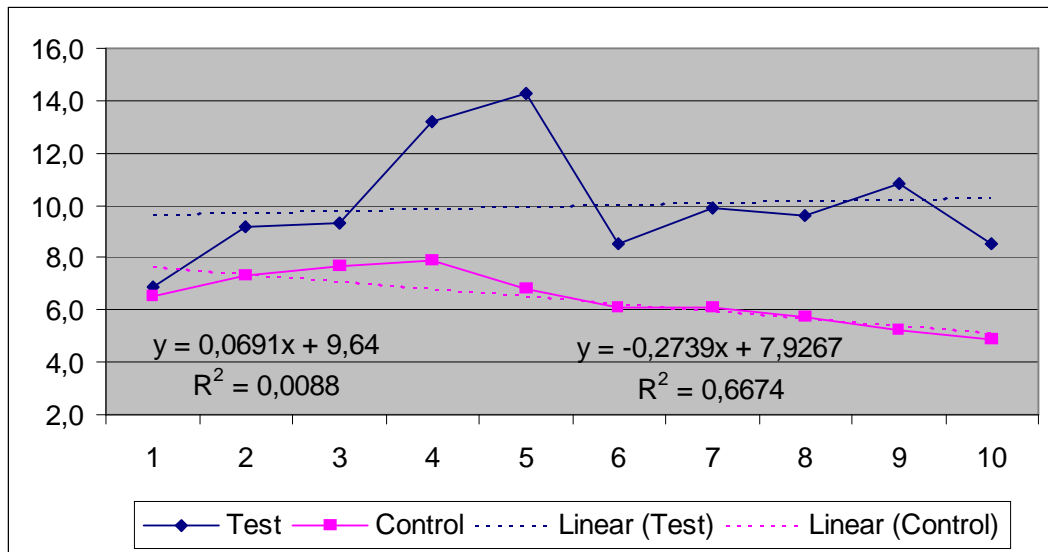


Source: Author.

### ***Penetration rate***

The gain in market share is attributable to the change in the penetration rate, since it declined in the control group and declined in the test group. Specifically, there was a loss of -2.47 percent points in the control group and a small gain of +0.62 percent points in the test group. This translates into a relative gain of the test group over the control group in the order of +3.09 percent points. Comparing the figure with the average penetration of the period in the test group, we find a significant overall increase of +30.84%. This is not, however, confirmed by the regression analysis, no doubt as a consequence of the irregularity of the data of the test group.

Figure 34  
Product B.3 – Penetration

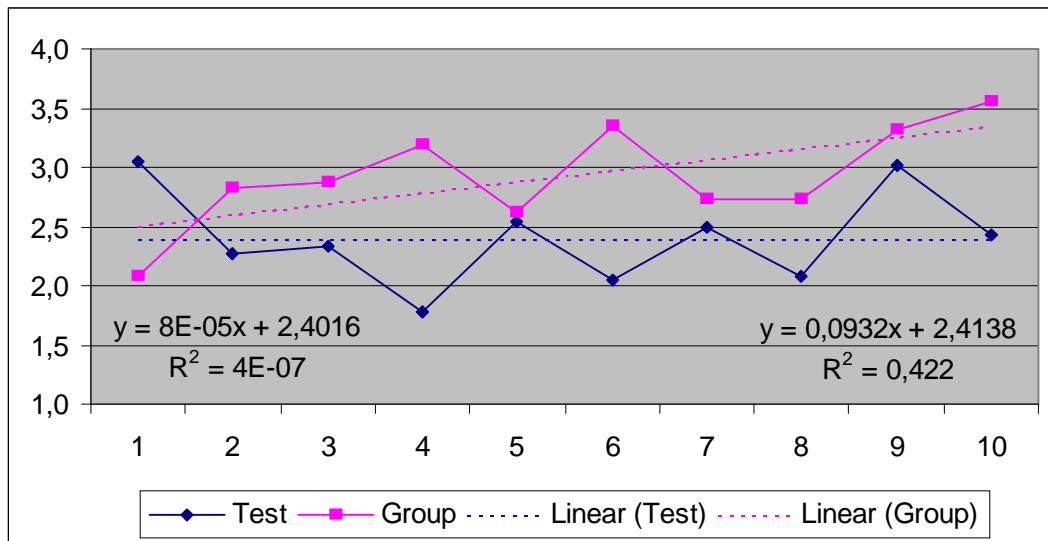


Source: Author.

### ***Buying rate***

As in the previously analyzed variables, the buying rate also remained basically unchanged in the test group. This time, however, it grew in the control group by +0.84 euros, a significant result since the average over the period in this group was just 2.93 euros. The conclusion is that the program did not manage to impact positively the loyalty of B.3 customers exposed to it. In fact, the regression analysis suggests that the program was responsible for the decrease of the buying rate.

Figure 35  
Product B.3 - Buying Rate



Source: Author.

## 2.5 – Product B.4

B.4 is not a strong brand: its market share amounted on average to no more than 16.49% in the control group and 14.85% in the test group. The brand's absolute penetration rate is also small: 5.89% in the control group and a little bit more (6.27%) in the test group. Once again, this made it impossible to compute accurate estimates of the purchase frequency and the expense per occasion in four consecutive quarters. The average buying rate is very similar in both groups: 5.56 euros in the control group and 5.47 in the test group. Stability seems to be the distinguishing feature of the brand and its market.

Table 10  
Product B.4 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	18.86	14.60	5.9	5.5	5.6	4.4	1.5	1.2	3.73	3.64
I – 2001	11.11	13.54	4.1	4.2	5.5	5.5	na	1.3	na	4.20
II – 2001	17.53	18.58	6.0	6.3	5.9	5.1	na	1.3	na	3.91
III – 2001	17.09	12.39	8.0	6.9	8.2	4.7	na	1.3	na	3.59
IV – 2001	5.05	17.12	3.2	6.4	5.3	5.2	na	1.3	na	4.03
I – 2002	19.79	19.98	7.0	6.2	3.8	6.1	1.1	1.4	3.48	4.34
II – 2002	19.86	18.13	8.4	6.2	5.2	8.7	1.5	1.3	3.43	6.68
III – 2002	19.54	19.49	9.1	6.8	5.2	5.1	1.5	1.3	3.48	3.92
IV – 2002	10.14	18.07	5.5	5.0	5.2	6.3	na	1.5	na	4.21
I – 2003	9.57	13.04	5.5	5.4	4.7	4.7	1.4	1.3	3.37	3.59
Average	14.85	16.49	6.27	5.89	5.47	5.56	na	1.32	na	4.21
Standard deviation	5.37	2.83	1.87	0.85	1.12	1.26	na	0.08	na	0.91
% sd	36.18	17.16	29.89	14.44	20.46	22.57	na	5.98	na	21.59

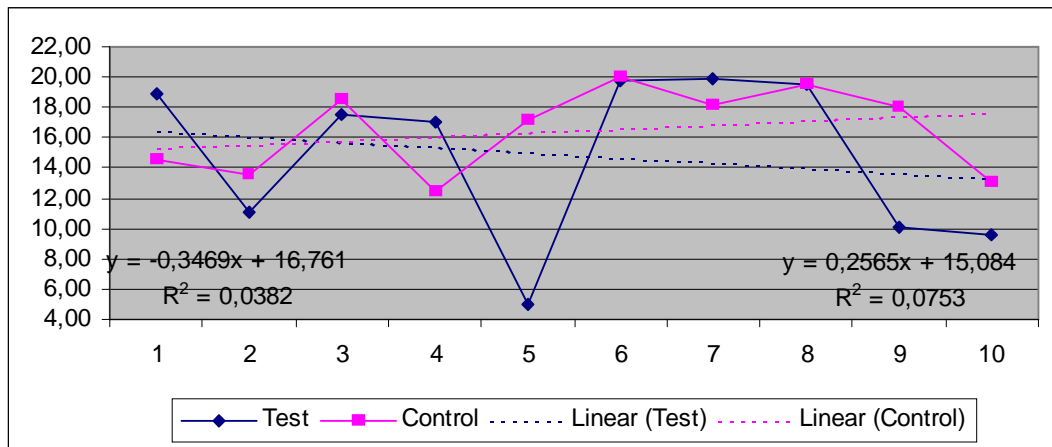
Source: TNS.



**Market share**

There is a loss of market share in the test group and a gain in the control group, but the low correlation coefficients show that the trends are not very clear. B.4's market share increased in the control group by +2.31 percent points, while decreasing in the test group by -3.12 percent points. Overall, the test group lost -5.43 percent points when compared with the control group. This is a significant loss of -36.57% over the average of the period. In fact, the regression analysis shows that the relationship program did not impact either way B.4's market share.

Figure 36  
Product B.4 - Market Share

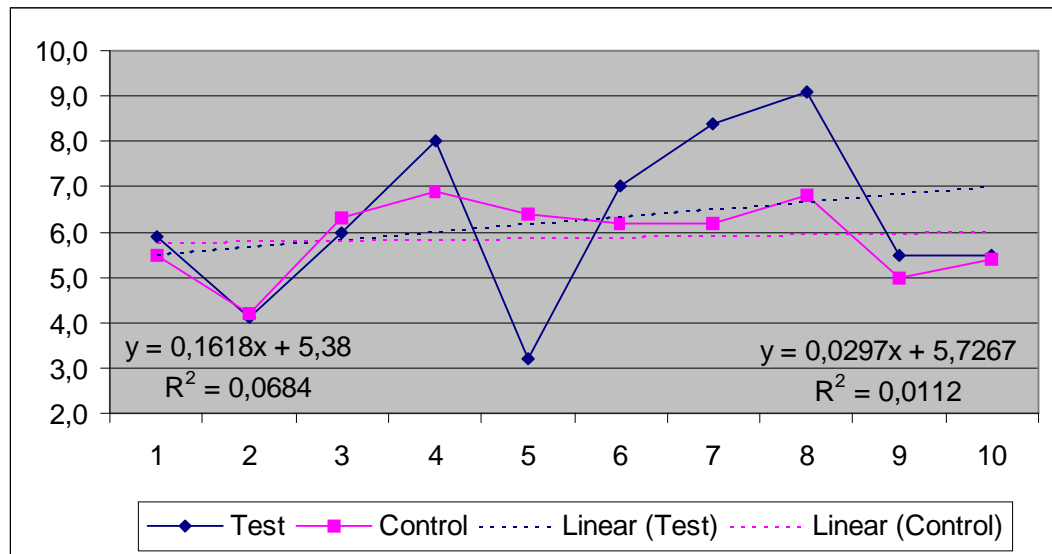


Source: Author.

### ***Penetration rate***

The correlation coefficients are again very low. In this case, however, both trends point upwards, even if the penetration rate rises faster in the test group. The increase in the control group during the period is indeed very small: just +0.27 percent points. Meanwhile, in the control group, it increased by +1.46 percent points. Therefore, the gain of the test group over the control group might have amounted to +1.19 percent points. Yet, the fact is that the regression analysis performed on the observed data was unable to confirm such effect.

Figure 37  
Product B.4 - Penetration Rate

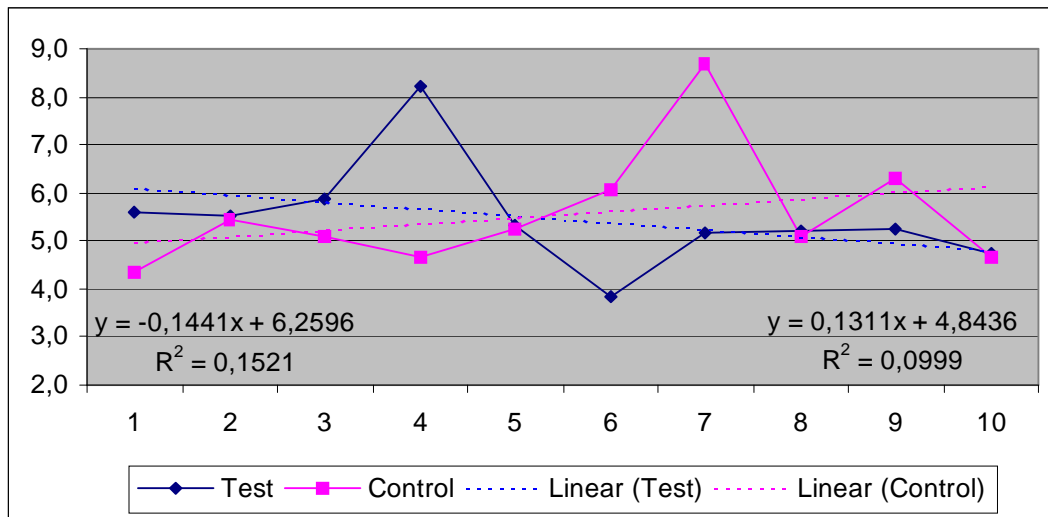


Source: Author.

### ***Buying rate***

The data appears very irregular, something clearly indicated by the low correlation coefficients. The fitted trends point in opposite directions, with the control group going up and the test group going down. We can see that the buying rate increased by +1.18 euros in the control group while decreasing by -1.30 euros in the test group. The net result was a loss of -2.48 euros in the group exposed to the program, which therefore was found to have no effect on the loyalty of B.4's customers. The regression analysis shows no positive or negative impact of the program on B.4's buying rate.

Figure 38  
Product B.4 - Buying Rate



Source: Author.

### 3 – DIVISION C

#### 3.1 – General C

C is the food division of XXX in Portugal. The main products sold by C are C.1, C.2, C.3, C.4, C.5 and C.6. C has the highest penetration rate (83.00%) of any XXX division in Portugal, thanks to some very popular brands in its portfolio. Its general market share (27.23%) is actually lower than Division A's (38.70%), but increased steadily during the period under consideration. Customers buy on average 9.67 euros of C's products per quarter. They do it an average of 3.6 times in each quarter but only spend 2.68 euros on each purchase occasion, since the unit prices are very low.

Table 11  
Division C – Evolution of Behavioral Variables

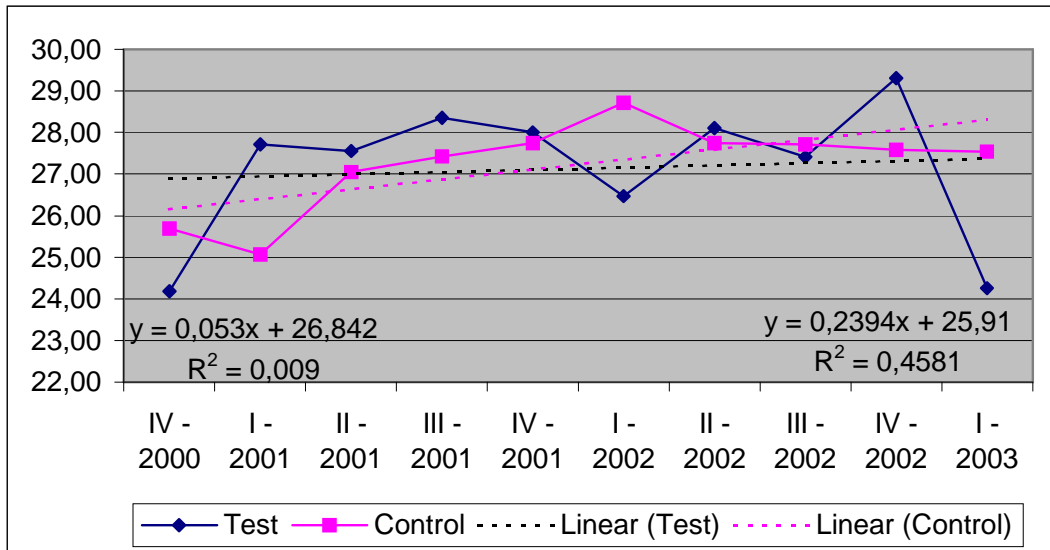
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	24.19	25.69	84.6	83.6	9.9	8.2	3.6	3.5	2.76	2.36
I – 2001	27.72	25.06	83.7	84.3	11.3	8.2	4	3.3	2.81	2.49
II – 2001	27.55	27.05	80.6	84.4	10.2	9.3	3.6	3.5	2.84	2.65
III – 2001	28.35	27.43	91.1	86.0	14.3	12.2	4.7	4.3	3.03	2.83
IV – 2001	28.00	27.75	78.8	81.5	12.9	10.1	4.1	3.6	3.16	2.80
I – 2002	26.47	28.71	85.8	80.8	9.4	9.8	3.5	3.6	2.68	2.73
II – 2002	28.10	27.74	86.9	82.9	11.1	9.8	3.9	3.7	2.86	2.66
III – 2002	27.41	27.72	86.0	82.8	11.5	9.6	4.1	3.7	2.81	2.58
IV – 2002	29.30	27.58	92.1	82.0	12.1	9.9	3.6	3.4	3.35	2.90
I – 2003	24.26	27.54	84.3	81.7	8.7	9.6	3.3	3.4	2.65	2.82
Average	27.13	27.23	85.39	83.00	11.14	9.67	3.84	3.60	2.89	2.68
Standard deviation	1.69	1.07	4.10	1.59	1.67	1.10	0.41	0.28	0.22	0.17
% sd	6.24	3.93	4.80	1.92	15.01	11.38	10.57	7.75	7.62	6.35

Source: TNS.

**Market share**

As mentioned before, the market share of Division C grew during the period by a total of 2.15 percent points in then control group. A look at Figure 6.44 suggests that the test group was also growing at approximately the same rate during the first nine quarters. However, a sudden fall in the last quarter contradicted this general trend. All in all, the test group appears to have lost –1.68 percent points when compared with the control group. The regression analysis performed on the data did not allow us to identify any impact whatsoever of the program on C’s market share.

Figure 39  
Division C - Market Share

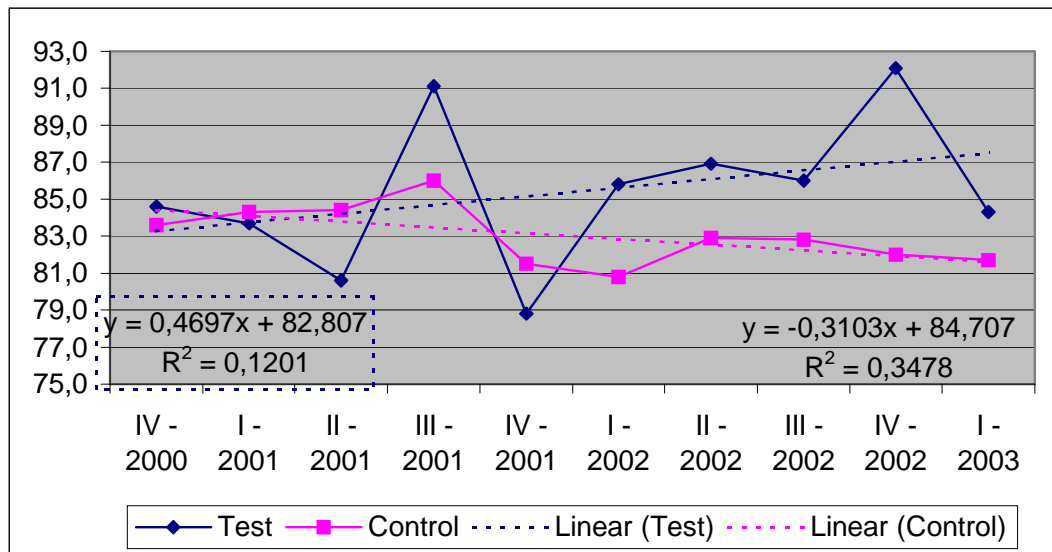


Source: Author.

**Penetration rate**

The penetration rate of the control group declined by 2.79 percent points during the period under scrutiny. On the other hand, it increased notoriously in the test group by 4.23 percent points. The combined effect of those opposed trends means that the penetration in the test group grew by 7.02 percent points when compared with the control group. The coefficient associated by the regression analysis to the dummy variable is not statistically significant, which means that we were not able to identify a positive impact of the program on the penetration rate. However, the penetration rate did increase with time.

Figure 40  
Division C - Penetration Rate

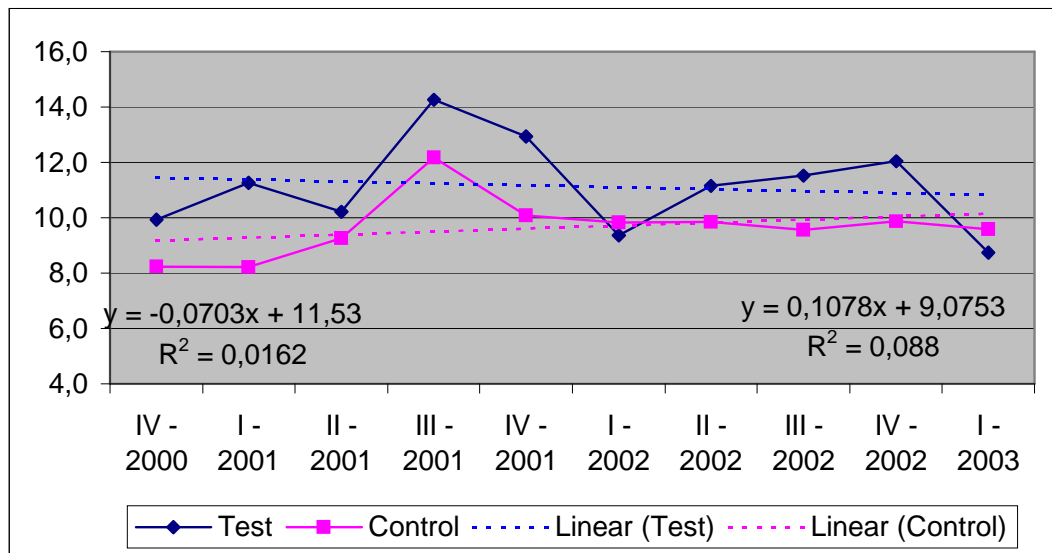


Source: Author.

### **Buying rate**

The buying rate increased in the control group, but decreased in the test group. The increase of the buying rate in the control group was strong enough to compensate for the previously mentioned loss in penetration and thus ensure an increase in market share. On the other hand, the buying rate remained more or less stationary in the test group during most of the period under analysis, but then fell suddenly in the last quarter. As noted above, this was enough to reverse the upward trend of the market share. In consequence, the average purchase per customer in the test group appears declined 1.60 euros in the period when compared with the control group. However, the regression analysis suggests that we cannot trust this result since the coefficients associated to both the dummy variable and the time variable are not statistically significant.

Figure 41  
Division C - Buying Rate (value)

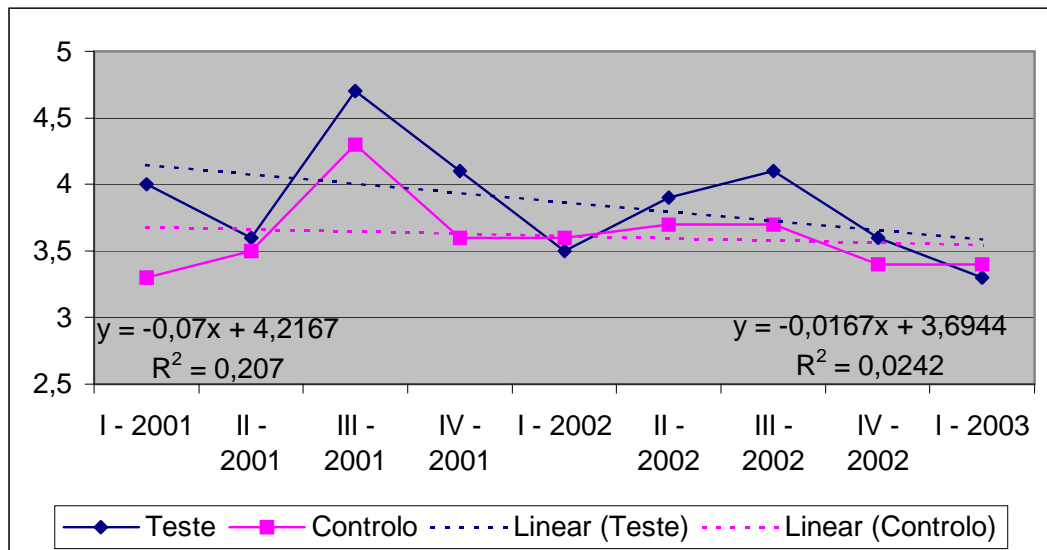


Source: Author.

### *Purchase frequency*

The purchase frequency moved downwards in both groups, but more negatively in the test group (-0.63 weeks per quarter) than in the control group (-0.15 weeks per quarter). As a result, the average in the test group was above the control group when the program started, but finished below in the last period. Therefore, the purchase frequency in the test group declined by 0.48 weeks relative to the control group. This means that no effect of the program was identified concerning this loyalty variable, a conclusion that was confirmed by the regression analysis.

Figure 42  
Division C - Purchase Frequency



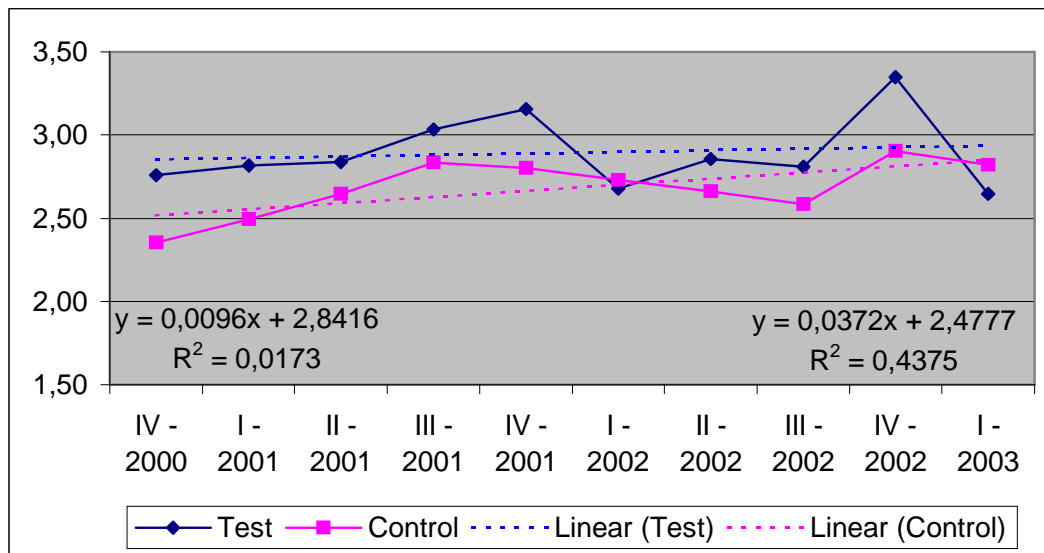
Source: Author.



### *Purchase per occasion*

The purchase per occasion increased somewhat in the control group, while remaining essentially flat in the test group. These are the relevant figures: an increase of 0.33 euros in the purchase per occasion in the control group, compared with a barely noticeable increase of 0.09 euros in the test group. Once again, no loyalty effect was found on this account, something that the regression analysis bears out.

Figure 43  
Division C - Purchase per occasion (value)



Source: Author.

### 3.2 – Product C.1

C.1 is the second best-selling brand in the XXX portfolio in Portugal after A.1. The data on Table 6.13 show that it is bought by nearly one in every three households on any given quarter. In spite of being positioned in the top segment of the market, it commands a 30% market share. It is bought on average on two occasions per quarter, and the expense on each occasion is estimated in 4.37 euros in the control group. The brand has been under strong pressure because of growing competition from lower priced brands, and especially from retailer's own brands.

Table 12  
Product C.1 – Evolution of Behavioral Variables

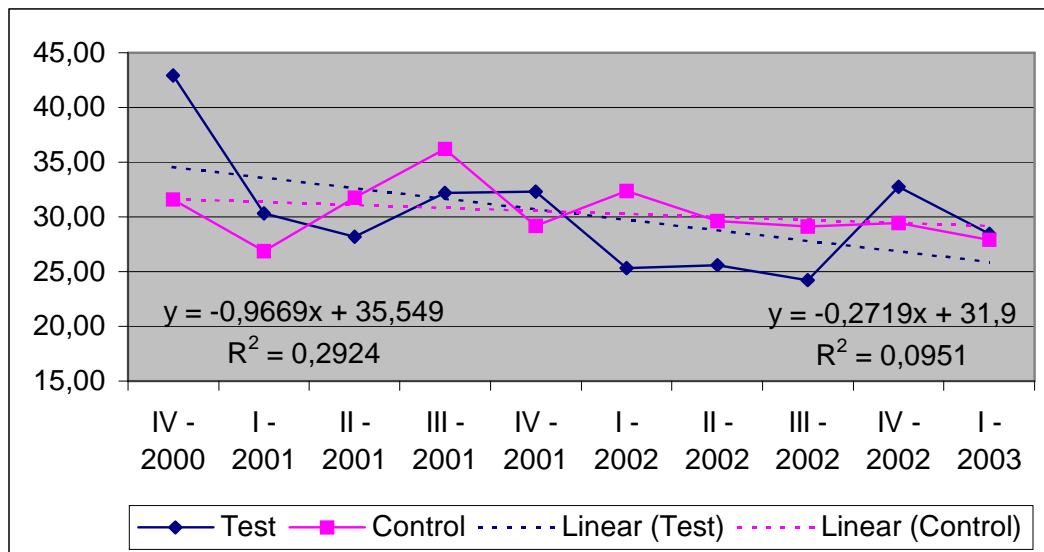
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	42.89	31.59	36.9	25.8	9.5	8.2	1.9	2	.01	4.08
<b>I – 2001</b>	30.34	26.87	35.0	27.3	9.5	7.8	2.2	2	4.30	3.90
<b>II – 2001</b>	28.21	31.76	33.9	26.6	7.2	8.9	2.1	2.1	3.42	4.22
<b>III – 2001</b>	32.19	36.19	36.2	32.7	11.9	10.9	2.9	2.4	4.09	4.56
<b>IV – 2001</b>	32.32	29.17	31.6	29.8	11.3	9.0	2.2	2	5.14	4.51
<b>I – 2002</b>	25.31	32.39	29.8	29.6	7.1	8.8	1.6	2	4.42	4.38
<b>II – 2002</b>	25.62	29.62	28.9	25.8	9.0	9.4	2	2.2	4.51	4.26
<b>III – 2002</b>	24.21	29.10	29.9	25.4	8.8	9.3	2	1.9	4.40	4.88
<b>IV – 2002</b>	32.74	29.47	38.0	31.4	11.6	8.8	2	2	5.79	4.40
<b>I – 2003</b>	28.49	27.89	32.7	29.1	7.8	8.6	1.8	1.9	4.31	4.55
<b>Average</b>	30.23	30.40	33.29	28.35	9.35	8.96	2.07	2.05	4.54	4.37
<b>Standard deviation</b>	5.41	2.67	3.22	2.55	1.77	0.84	0.34	0.15	0.65	0.28
<b>% sd</b>	17.91	8.78	9.66	8.98	18.88	9.40	16.59	7.36	14.25	6.34

Source: TNS.

**Market share**

Market share declines in both the control group and the test group, but strongly in the test group. The decrease in the control group in the whole period amounted to –2.45 percent points. It was apparently much worse in the test group, where it decreased by –8.70 percent points. There was therefore a total loss of –11.15 percent points in the test group relative to the control group. According to the data, the program would have had a negative impact on the exposed customers, a result that is very difficult to account for. The regression analysis shows a significant F-test value, and the t statistic of the dummy variable is negative and also significant. This supports the conclusion that the program did have a negative impact on C.1’s market share.

Figure 44  
Product C.1 - Market Share

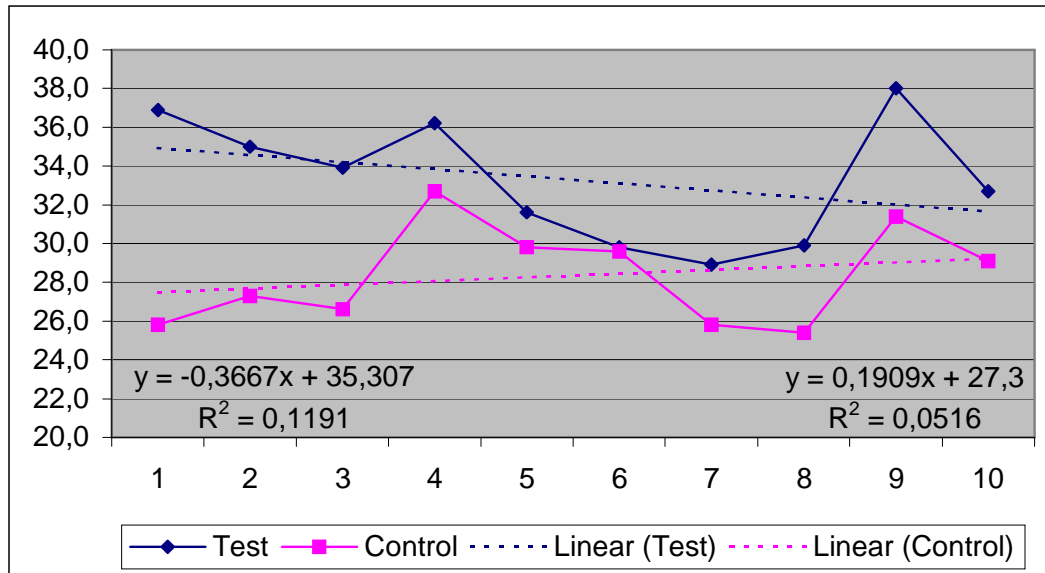


Source: Author.

**Penetration rate**

The loss in the penetration rate appears to be the main explanation for the poor performance of C.1 among the exposed customers. As we can see, it increased in the control group (+1.72 percent points) while decreasing in the test group (-3 .30 percent points), implying a total loss of the latter over the former of no less than -5.02 percent points. Taking as a reference the average penetration of the period in the test group, it fell by 17.62%. The regression analysis showed a significant F-value, but none of the t statistics supports the conclusion that any of the coefficients associated to the two variables considered is significantly different from zero.

Figure 45  
Product C.1 - Penetration

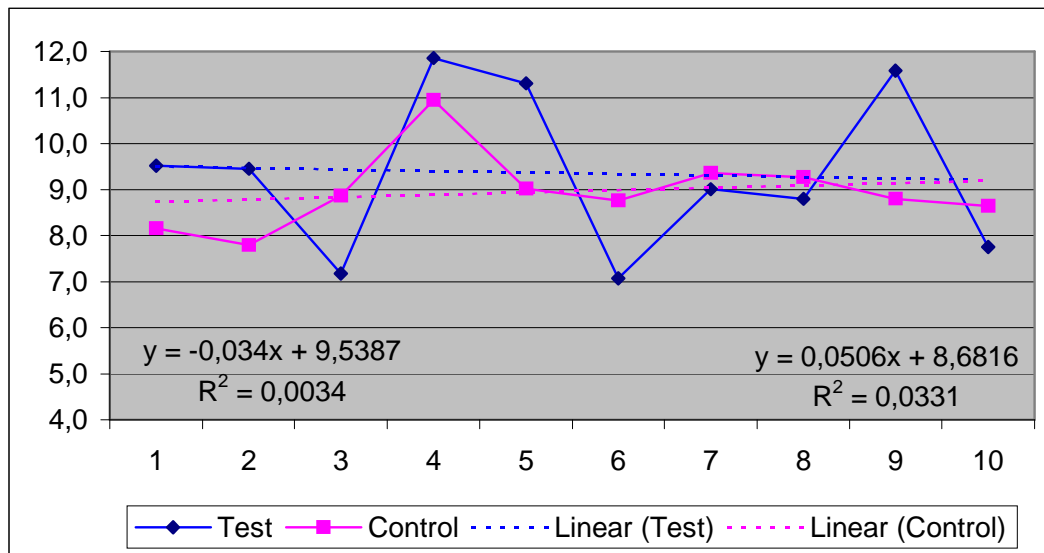


Source: Author.

### ***Buying rate***

The buying rate increased a bit in the control group and decreased a bit in the test group. The increase in the control group is estimated in +0.45 euros, while the decrease in the test group might have reached -0.31 euros. The loss of the test group when compared to the control group was -0.76 euros, a relative fall of 8.13% as a proportion of the average of the period. Thus, no loyalty gain was apparent among the exposed customers. The regression analysis confirms this impression.

Figure 46  
Product C.1 - Buying Rate

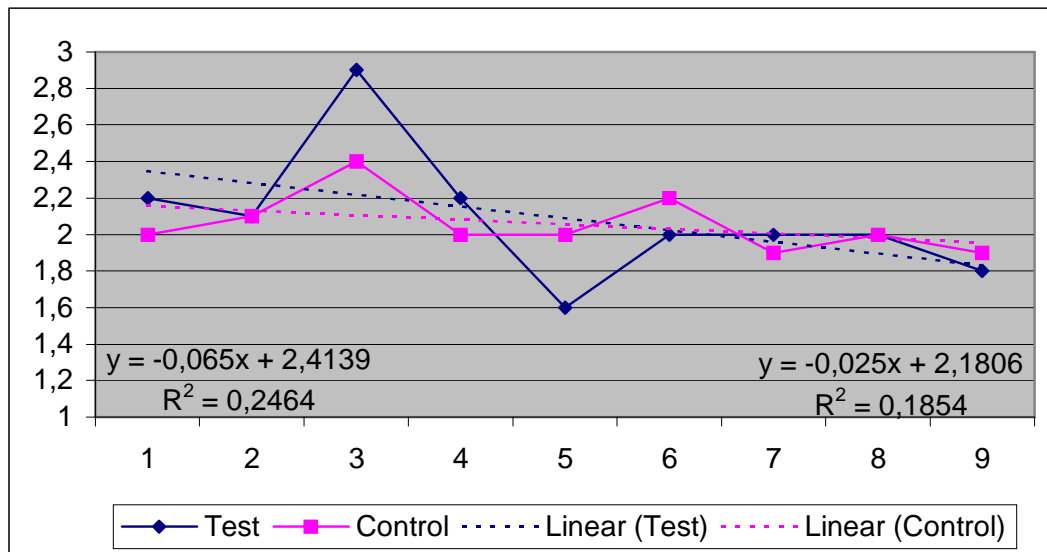


Source: Author.

### *Purchase frequency*

Purchase frequency fell in both the control and the test group, but somewhat faster in the test group. The decline in the control group was indeed very small, barely  $-0.23$  purchase occasions per quarter. The negative difference was more important in the test group, leading a loss of  $-0.59$  purchase occasion. Relative to the control group, the total decline in the test group appears to have stood at  $-0.36$  purchase occasions. However, the regression analysis does not support the existence of any kind of positive or negative impact of the program on purchase frequency.

Figure 47  
Product C.1 - Purchase Frequency

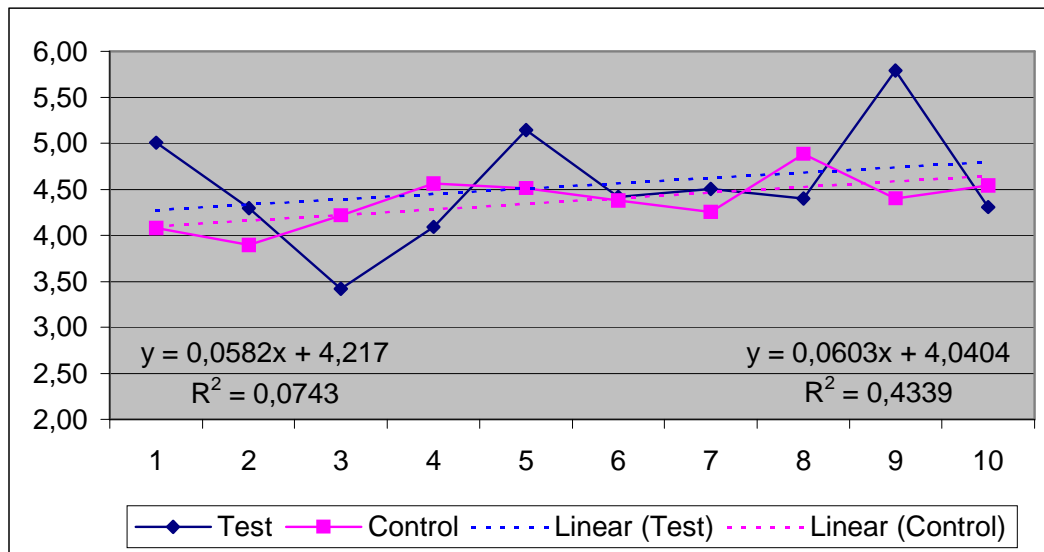


Source: Author.

### *Expense per occasion*

The expense per occasion followed parallel trends in both groups. As the increase in the control group (+0.54 euros) was only slightly stronger than in the test group (+0.52 euros), the difference among them was in fact minimal (-0.02 euros). Once again no impact of the program was detected, a conclusion borne out by the regression analysis.

Figure 48  
Product C.1 - Expense per occasion



Source: Author.

### 3.3 – Product C.2

C.2 one of the oldest brands in the XXX’s portfolio and also one of the strongest. It is bought by more than one in every three households on any given quarter, and its market share reached an average of 61.82% in the control group during the period under analysis. The buying rate was however, only 2.13 euros in the control group, since this product is a low cost item bought on average twice in a quarter.

Like many other XXX brands, C.2 has lately been suffering increasing competition from retailer’s own brands. As a consequence, it has lost penetration and market share.

Table 13  
Product C.2 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	41.87	70.16	33.0	35.3	1.85	1.93	2.1	2	0.88	0.97
<b>I – 2001</b>	52.31	64.21	31.7	36.9	2.30	2.14	2.1	2	1.09	1.07
<b>II – 2001</b>	50.94	61.64	26.7	35.5	2.48	2.05	2	1.9	1.24	1.08
<b>III – 2001</b>	54.03	60.90	44.2	36.2	2.55	2.37	2	2.3	1.28	1.03
<b>IV – 2001</b>	47.80	60.87	32.5	37.3	3.00	2.29	2.6	2.1	1.15	1.09
<b>I – 2002</b>	59.13	61.40	30.7	33.3	2.34	2.18	2.1	2.1	1.12	1.04
<b>II – 2002</b>	68.92	58.73	38.5	33.3	2.14	2.03	2.1	2	1.02	1.01
<b>III – 2002</b>	66.77	58.11	37.4	32.0	2.10	2.01	2.2	2	0.96	1.01
<b>IV – 2002</b>	68.75	62.57	35.0	33.2	3.01	2.12	2.4	2	1.25	1.06
<b>I – 2003</b>	50.28	59.56	33.5	29.8	2.09	2.15	2.1	2.1	0.99	1.02
<b>Average</b>	56.08	61.82	34.32	34.28	2.39	2.13	2.17	2.05	1.10	1.04
<b>Standard deviation</b>	9.42	3.44	4.82	2.37	0.38	0.13	0.19	0.11	0.14	0.04
<b>% sd</b>	16.79	5.56	14.03	6.91	16.11	6.22	8.70	5.27	12.34	3.69

Source: Author.

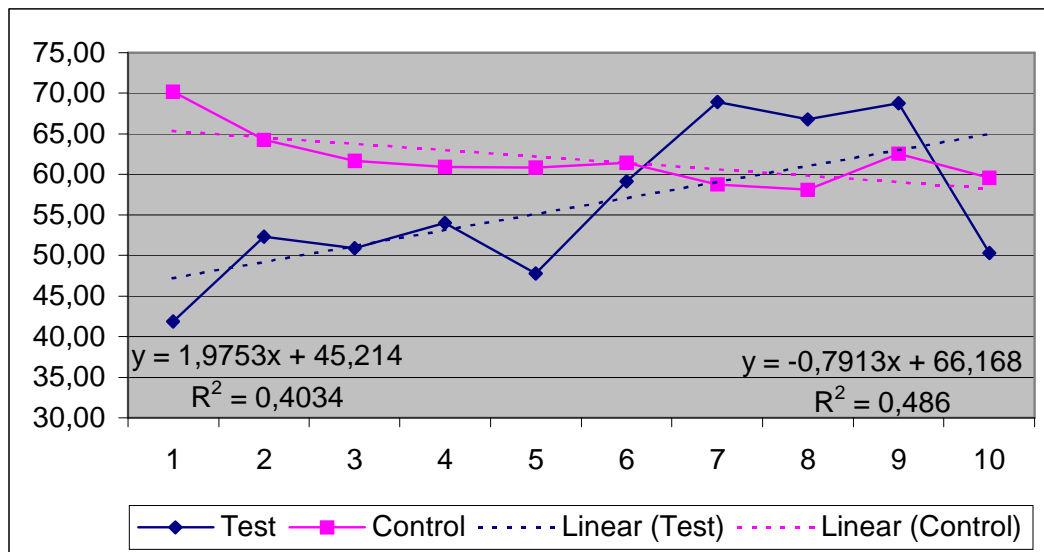


### Market share

The trend toward a declining market share in the control group seems to have been effectively countered by the program, since a clear improvement is apparent in the test group. In fact the market share decreased in the control group by  $-7.12$  percent points while at the same time increasing by  $+17.78$  percent points in the test group. The relatively significant correlation coefficients make us more confident in these results. We thus found a strong gain of  $+24.90$  percent points in the test group over the control group, translating into a relative growth of  $+44.40\%$  when we take as a reference the average of the period in the test group.

The regression analysis launches does not confirm this idea. Although the F statistic is significant, the t statistics associated to both variables are not. This is possibly a result of the sudden fall of market share in the test group during the last quarter under consideration, a factor that was in itself strong enough to disturb the fit of the equation to the data.

Figure 49  
Product C.2 - Market Share

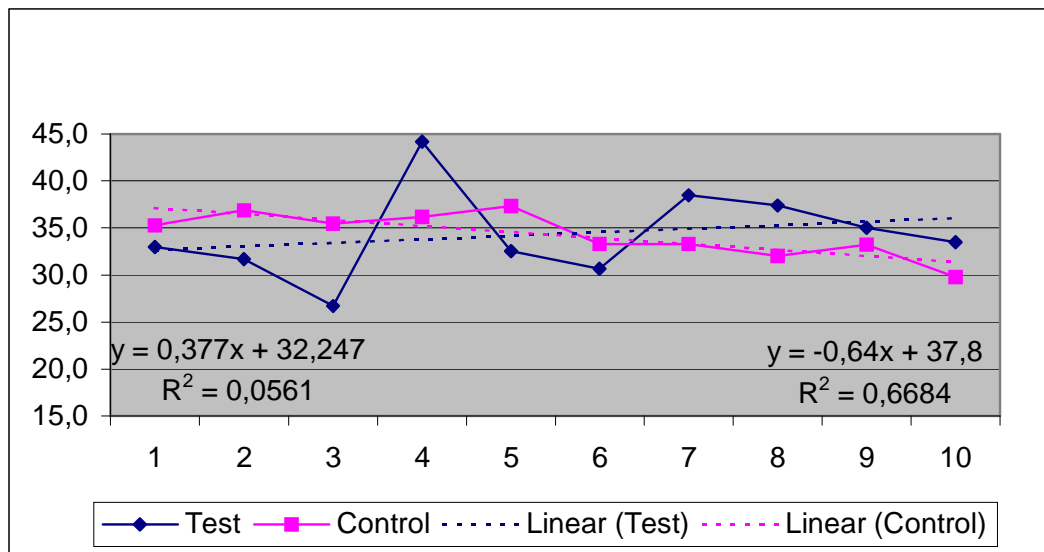


Source: Author.

### ***Penetration rate***

The penetration rate started lower in the test group than in the control group but finished higher. This inversion signals a positive trend in the former that contrasts with a negative one in the latter. The penetration rate in fact decreased by  $-5.76$  percent points in the control group while increasing in the same period by  $+3.39$  percent points in the test group. The net gain of the test group over the control group reached  $+9.15$  percent points, signaling a growth of  $+26.66\%$  relative to the average penetration of the period in the test group. At first sight, the program thus seems to have strongly impacted the penetration among the exposed customers. However, as a consequence of the irregular component of the available data, the regression analysis does not support this hypothesis.

Figure 50  
Product C.2 - Penetration Rate



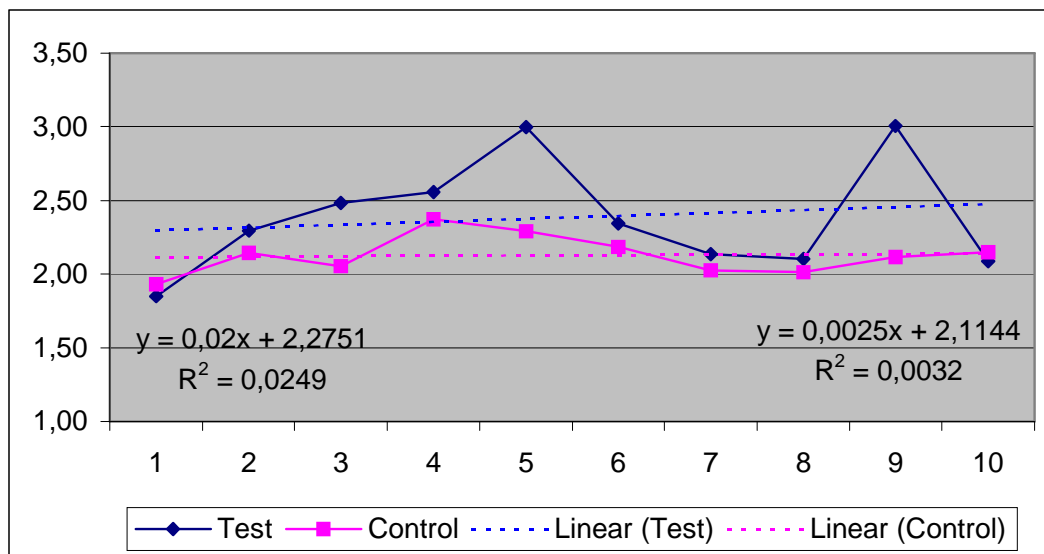
Source: Author.

### ***Buying rate***

The buying rate shows no definite trend in the control group. Besides the correlation coefficient being extremely low, the slope of the fitted equation indicates that the increase in the buying rate has not exceeded +0.02 euros. The correlation coefficient is also very low in the test group, but the increase in the buying rate might have been +0.18 euros. The gain if the test group over the control group is therefore estimated at +0.16 euros. This appears to have translated into a growth of 6.69% over the average value of the period.

After fitting our chosen equation to the data, however, we found no proof of any impact of the program on the buying rate.

Figure 51  
Product C.2 - Buying Rate

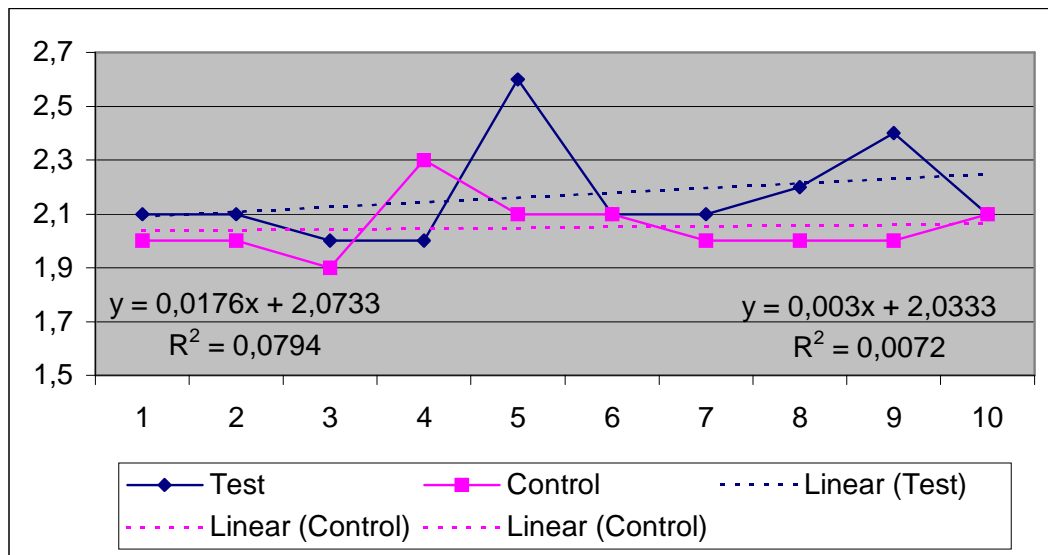


Source: Author.

### *Purchase frequency*

Once again we find very low correlation coefficients in both groups. The purchase frequency appears steady in the control group, since it increased by a mere +0.03 occasions per quarter. On the other hand, it progressed somewhat (+0.16) in the control group. The net gain of the test group over the control group appears to have equaled +0.13 occasions, that is, 6.0% more than the average of the period. But this conclusion is not supported by the regression analysis.

Figure 52  
Product C.2 - Purchase Frequency

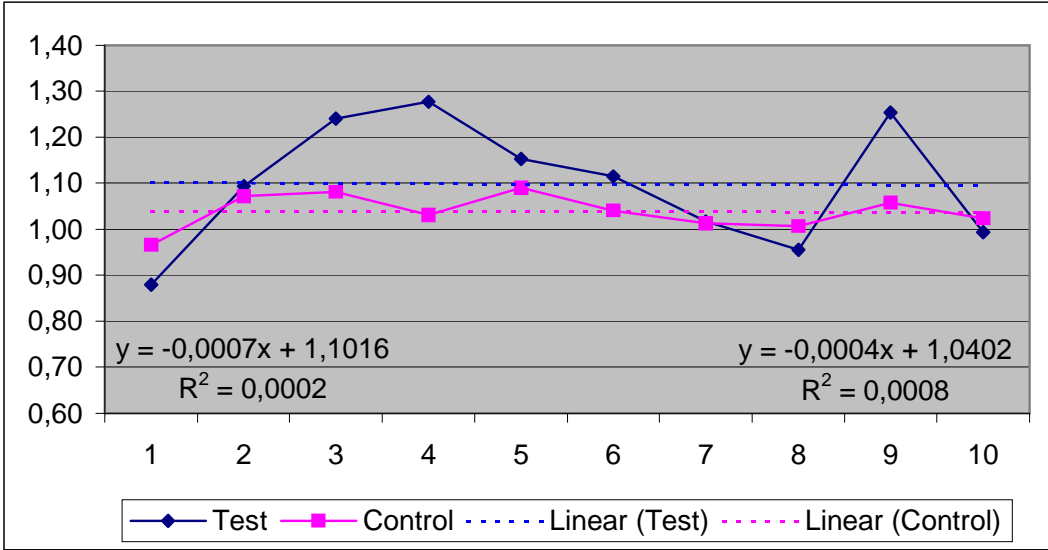


Source: Author.

**Expense per occasion**

Extremely low correlation coefficients and nearly zero slopes of the trend equations confirm that the expense per occasion remained stationary in both groups in spite of some random variation in the observed data. We can conclude that the program was ineffective regarding the expense per occasion, something that the regression analysis confirmed.

Figure 53  
Product C.2 - Expense per occasion



Source: Author.

### 3.4 – Product C.3

C.3 and C.4 are two different products sold under the same brand. C.3 is the less important of them. Absolute penetration is very low (on average 5.79% in the control group), and so is market share (12.45% in the same group). It is also an infrequently bought and low-priced item. As a consequence, the buying rate is on average a mere 2.63 euros per quarter. The combination of low penetration and infrequent purchase made it impossible to obtain trustworthy estimates of purchase frequency and expense per occasion on six different quarters.

Table 14  
Product C.3 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	36.17	11.21	10.5	4.8	5.02	2.27	1.8	1.6	2.79	1.42
I – 2001	24.14	11.87	13.0	7.4	2.58	1.97	1.5	1.3	1.72	1.52
II – 2001	30.87	13.47	9.1	6.9	4.41	2.31	na	1.6	na	1.44
III – 2001	28.05	15.53	13.7	8.3	4.28	2.64	na	1.8	na	1.47
IV – 2001	30.46	12.31	15.3	7.4	4.06	2.33	na	1.5	na	1.56
I – 2002	5.86	13.08	4.5	5.6	1.58	2.77	na	1.7	na	1.63
II – 2002	7.08	12.11	5.6	4.5	1.51	3.09	1.1	1.9	1.37	1.63
III – 2002	7.12	12.21	5.5	4.4	1.52	3.08	1.2	1.8	1.27	1.71
IV – 2002	13.64	11.85	9.0	4.1	2.32	3.24	na	1.7	na	1.91
I – 2003	5.27	10.84	4.0	4.5	1.83	2.59	na	1.5	na	1.73
Average	18.86	12.45	9.02	5.79	2.91	2.63	na	1.64	na	1.60
Standard deviation	12.24	1.33	4.07	1.56	1.38	0.42	na	0.18	na	0.15
% sd	64.88	10.69	45.12	26.91	47.41	15.83	na	10.83	na	9.50

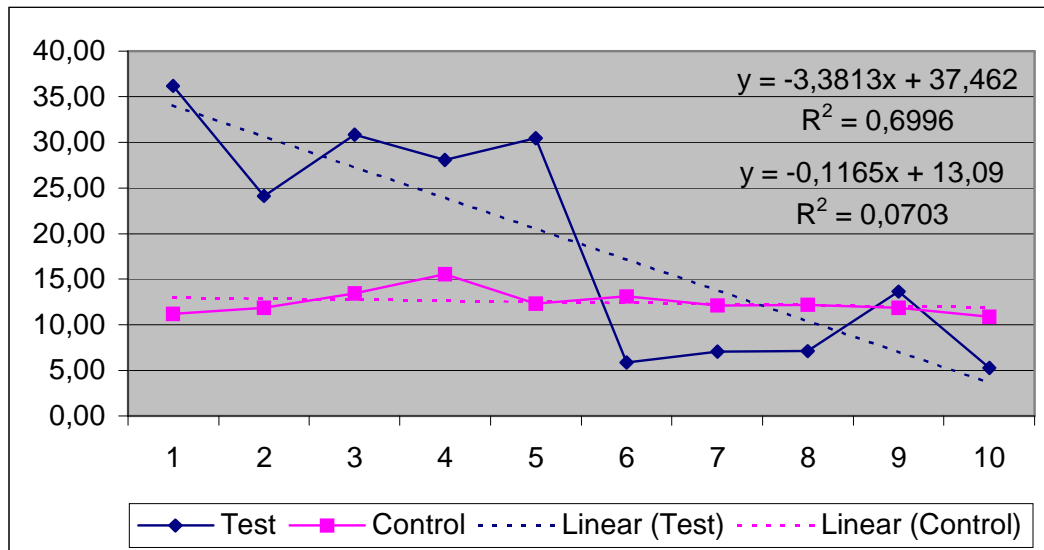
Source: TNS.

### Market share

Market share has fallen somewhat in the control group (-1.05 percent points), although the very low correlation coefficient raises suspicions on the reality of the fitted trend. As to the test group, we can see that the market share started above the control, but ended clearly below. There was apparently a strong decrease of -30.43 percent points during the period. The loss of the test group relative to the control group reached -29.38 percent points, a change whose magnitude is best understood by comparing it with the average market share of just 18.86% in the test group. It is very difficult to understand what might be the explanation for such a strong variation, except as a sampling error caused by its very small size. In fact, in some quarters only 4 or 5 consumer households represented in the test group bought C.3.

The regression analysis confirms that the time variable had a negative impact on market share, but not that the program was in any way responsible for its downward trend.

Figure 54  
Product C.3 - Market share

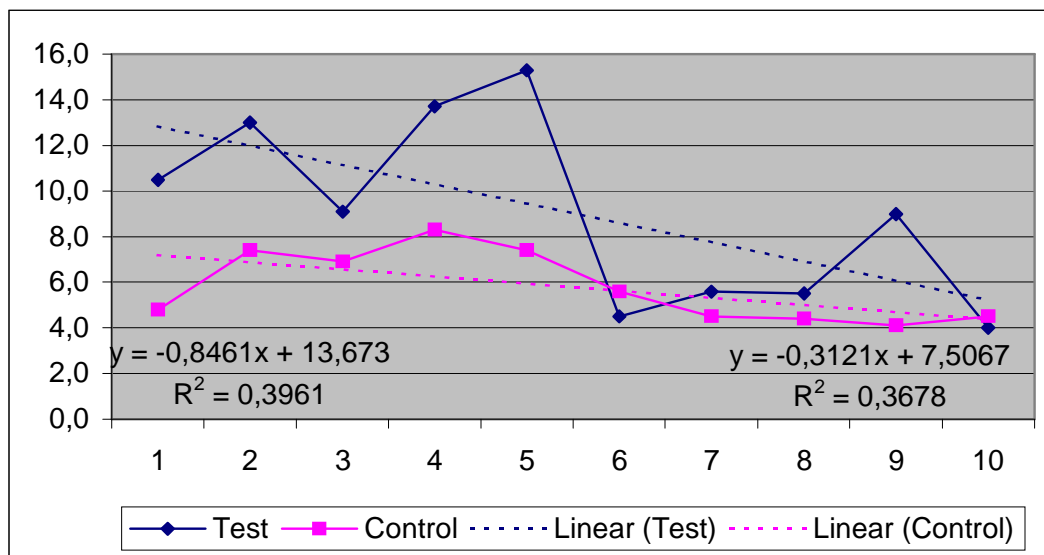


Source: Author.

### Penetration rate

There is a fall in the penetration rate in both groups. However, this fall is relatively moderate in the control group (-2.81 percent points) and abrupt in the test group (-7.61 percent points). The combined effect of those trends meant that the net loss of the test group over the control group appears to have reached -4.80 percent points. The correlation coefficients would seem to give some credence to this estimate, but then the regression analysis does not confirm this.

Figure 55  
Product C.3 - Penetration Rate



Source: Author.

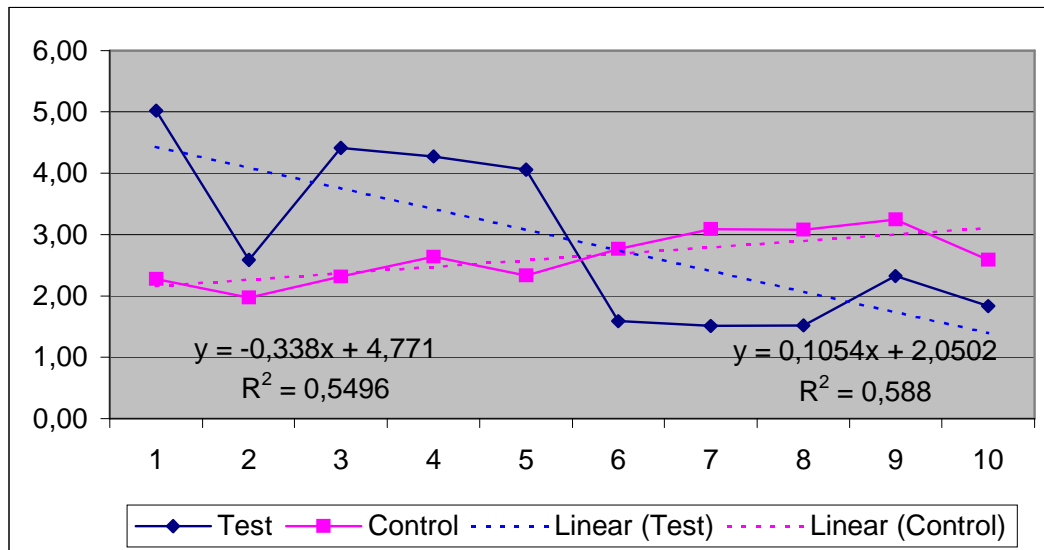


### **Buying rate**

The buying rate increased steadily in the control group by +0.95 euros during the period under analysis. We find an opposite trend in the test group, since the buying rate decreased consistently by -3.04 euros. The net loss of the test group when compared to the control group was therefore -3.99 euros, a very significant change since the average buying rate in the test group during the period was just 2.91 euros. If we are to believe in the data, this means that loyalty actually decreased in the exposed group as a consequence of its participation in the XXX's relationship program.

The regression analysis shows a significant F statistic and also a significant t test statistic associated to the time variable. But the negative trend cannot be attributed to the program, since the coefficient associated to the dummy variable is not significantly different from zero.

Figure 56  
Product C.3 - Buying Rate



Source: Author.

### 3.5 – Product C.4

C.4 is one of the strongest products in the XXX portfolio. Penetration and market share both tend to grow as a consequence of favorable trends in its marketing environment. We can see that on average the absolute penetration was 26.02% while the buying rate stood at 4.68 euros per quarter.

Table 15  
Product C.4 – Evolution of Behavioral Variables

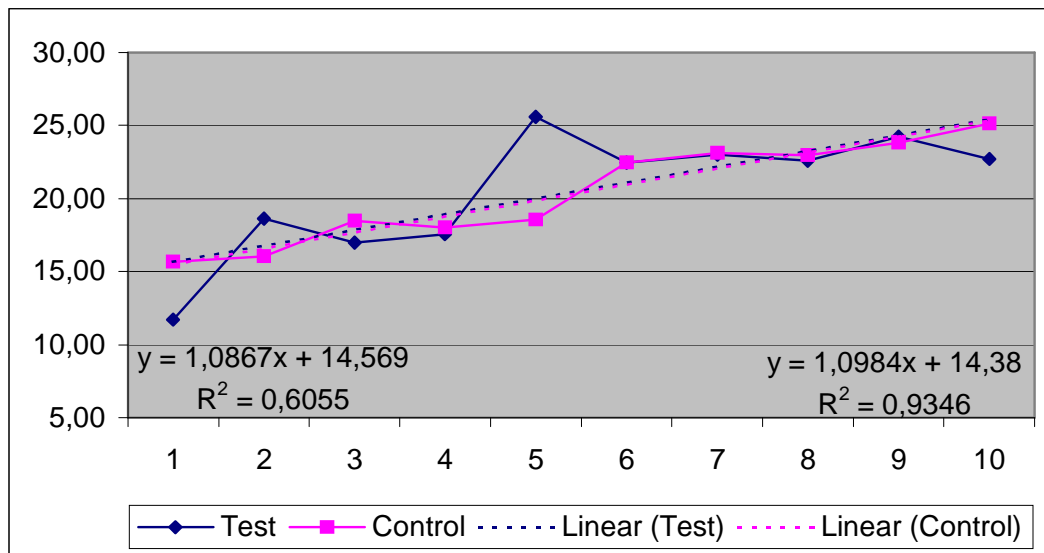
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	11.71	15.67	18.9	24.5	4.03	3.35	2.6	2.3	1.55	1.46
I – 2001	18.63	16.02	24.7	25.8	5.31	3.78	2.7	2.3	1.97	1.64
II – 2001	16.99	18.49	24.3	25.5	3.79	4.24	2.2	2.3	1.72	1.84
III – 2001	17.56	18.00	30.0	26.4	4.62	4.99	2.3	2.8	2.01	1.78
IV – 2001	25.60	18.57	26.7	24.4	7.20	4.61	3.1	2.5	2.32	1.84
I – 2002	22.45	22.47	27.3	26.8	5.29	4.74	2.5	2.4	2.12	1.98
II – 2002	22.99	23.11	33.9	26.2	4.34	5.20	2.2	2.6	1.97	2.00
III – 2002	22.58	22.96	33.4	25.5	4.41	5.22	2.3	2.6	1.92	2.01
IV – 2002	24.23	23.80	32.2	26.1	5.35	5.31	2.2	2.4	2.43	2.21
I – 2003	22.71	25.13	27.1	29.0	5.26	5.38	2.3	2.4	2.29	2.24
<b>Average</b>	11.71	15.67	27.85	26.02	4.96	4.68	2.44	2.46	2.03	1.90
<b>Standard deviation</b>	11.71	15.67	4.66	1.30	0.97	0.69	0.29	0.16	0.27	0.24
<b>% sd</b>	11.71	15.67	16.75	4.99	19.65	14.83	11.94	6.69	13.40	12.72

Source: TNS.

### Market share

The market share increased steadily and in parallel in both groups. It grew by +9.89 percent points in the control group and by +9.78 percent points in the test group. There was therefore no significant overall difference between the buying behavior of the exposed and the non-exposed consumers. The program had no visible impact at this level, a conclusion that the regression analysis confirmed.

Figure 57  
Product C.4 - Market Share

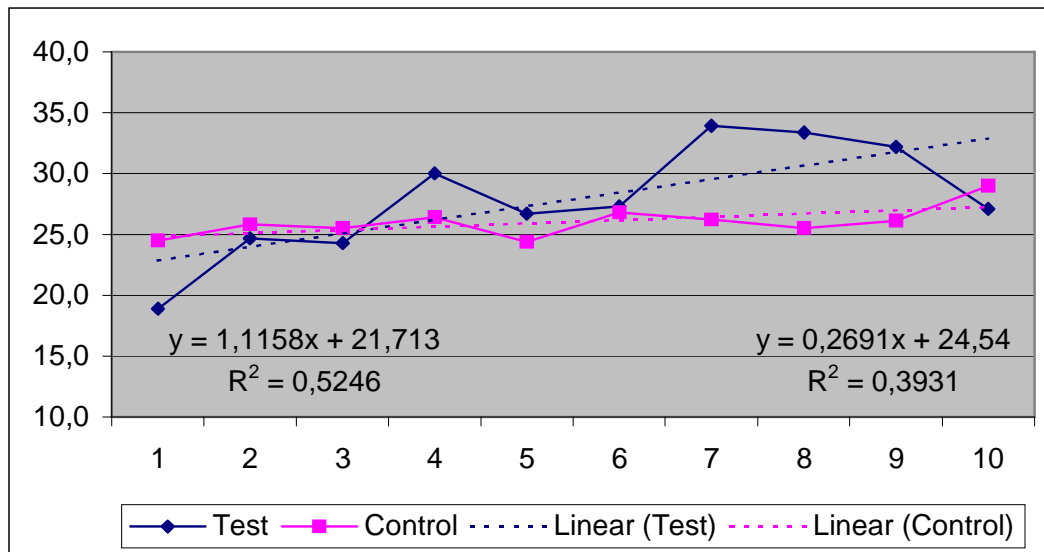


Source: Author.

### ***Penetration rate***

The penetration rate moved upwards in both groups, but much more strongly in the test group, as can be seen in the Graphic below. In the control group it improved by just +2.42 percent points, while in the test group it progressed by as much as +10.04 percent points. The new gain of the latter over the former thus amounted to +7.62, a change of +27.36% over the average of the period in the exposed group. Thus, although nothing happened at the market share level, the program seemed to improve the penetration rate among the participating customers. However, this hypothesis is not confirmed by the regression analysis.

Figure 58  
Product C.4 - Penetration Rate

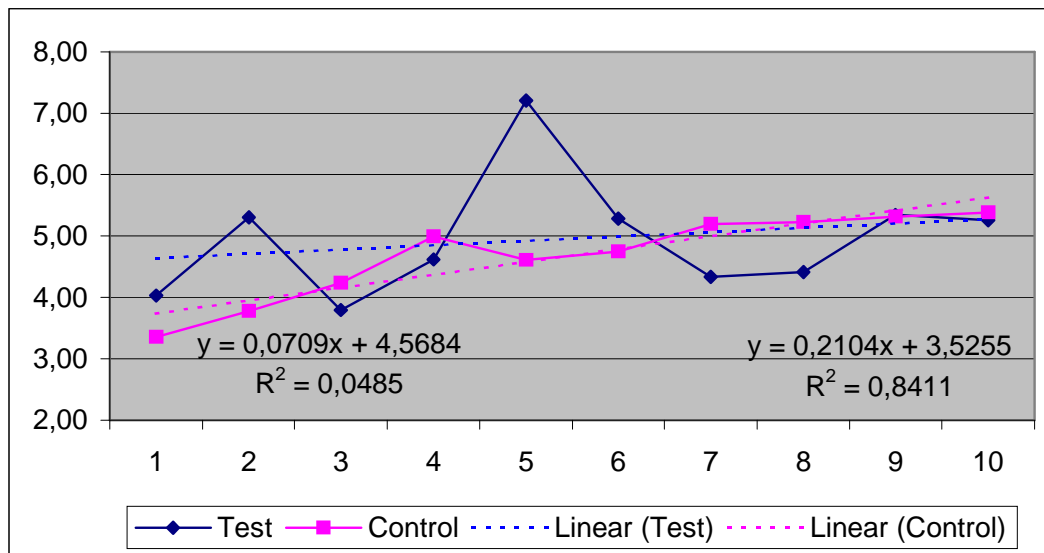


Source: Author.

### **Buying rate**

The favorable evolution of the penetration rate in the test group was countered by a negative one regarding the buying rate. In fact, this time the test group grew much less (+0.64 euros) than the control group (+1.89 euros), which means that it lost in comparison -1.25 euros. Thus, the program would seem to have had a negative impact on this account, but the regression analysis does not confirm it.

Figure 59  
Product C.4 - Buying Rate

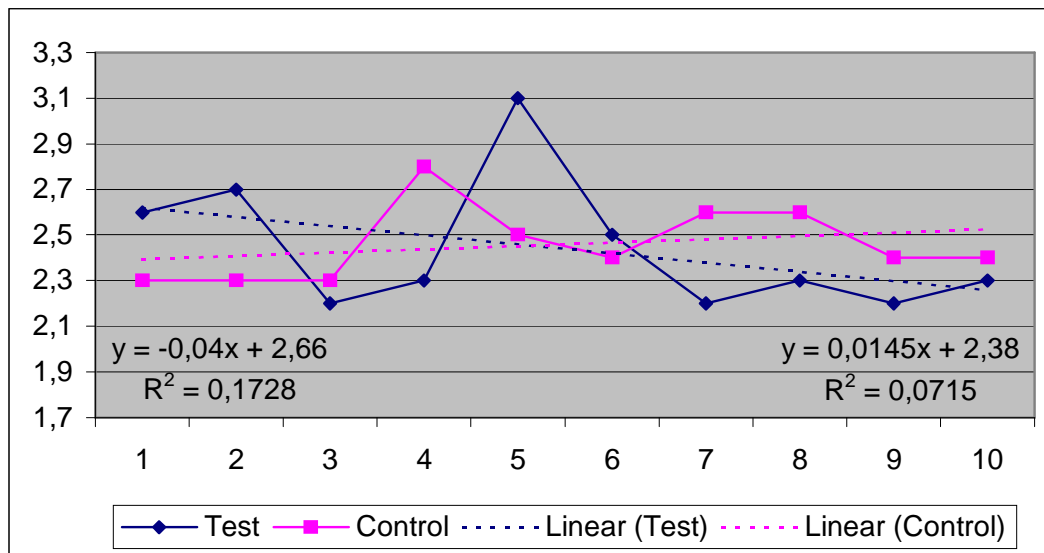


Source: Author.

### *Purchase frequency*

The decrease in the buying rate was caused by a fall in the purchase frequency. The data show that, while it increased by +0.13 buying occasions per quarter in the control group, it decreased by -0.36 occasions in the test group. The net effect apparently was a decline of -0.49 occasions when the test group compared with the control group. The regression analysis, however does not confirm this.

Figure 60  
Product C.4 - Purchase Frequency

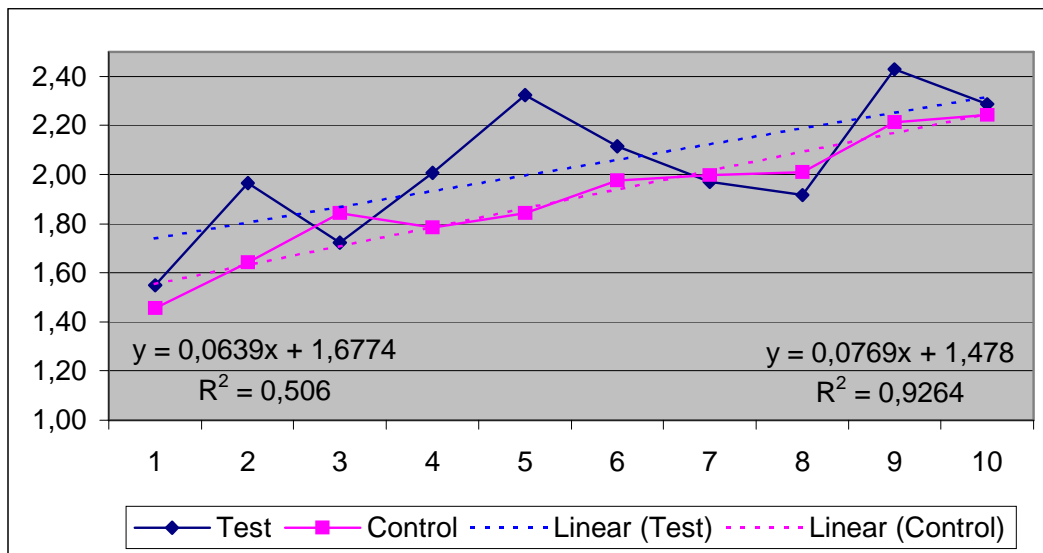


Source: Author.

### *Expense per occasion*

Both groups showed a similar trend regarding the expense per occasion, even if the test group grew slightly less. Thus, we see the control group growing by +0.69 euros and the test group growing by +0.57 euros, a difference of just -0.12 euros between one and the other. The program did not have a significant impact on this account, a conclusion that the regression analysis supports.

Figure 61  
Product C.4 - Expense per Occasion



Source: Author.

### 3.6 – Product C.5

C.5 is mainly consumed out of home, a segment of the demand not covered by the consumer panel data, which registers only goods bought in all kinds of retail shops for consumption at home.

Average absolute penetration stayed at around 20% during the period. The market share fluctuated widely around the average 9.23% in the control group. The brand was purchased 2.38 times in each given quarter and the average expense per occasion was 2.41 euros, generating a buying rate of 5.73 euros.

Table 16  
Product C.5 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	7.07	10.47	22.6	24.2	5.52	5.78	2.4	2.4	2.30	2.41
I – 2001	9.84	6.53	15.5	16.2	8.83	4.78	3.6	2.1	2.45	2.28
II – 2001	12.03	9.43	31.5	24.0	5.30	5.40	2.2	2.3	2.41	2.35
III – 2001	9.09	11.06	37.6	29.2	5.07	7.06	2.1	2.6	2.41	2.71
IV – 2001	7.40	8.36	14.9	21.0	7.53	4.93	2.6	2.2	2.90	2.24
I – 2002	9.07	8.44	13.2	16.6	9.46	6.22	2.6	2.6	3.64	2.39
II – 2002	10.68	10.15	19.0	24.0	8.96	5.69	2.1	2.5	4.27	2.28
III – 2002	9.92	10.20	18.6	23.3	9.01	5.61	2.1	2.5	4.29	2.24
IV – 2002	5.62	9.96	15.4	20.5	5.45	6.06	1.5	2.4	3.63	2.53
I – 2003	4.89	7.69	13.6	15.2	4.66	5.82	1.4	2.2	3.33	2.64
Average	8.56	9.23	20.19	21.42	6.98	5.73	2.26	2.38	3.16	2.41
Standard deviation	2.26	1.42	8.21	4.41	1.95	0.65	0.62	0.18	0.78	0.17
% sd	26.45	15.44	40.64	20.60	27.95	11.31	27.37	7.36	24.52	7.01

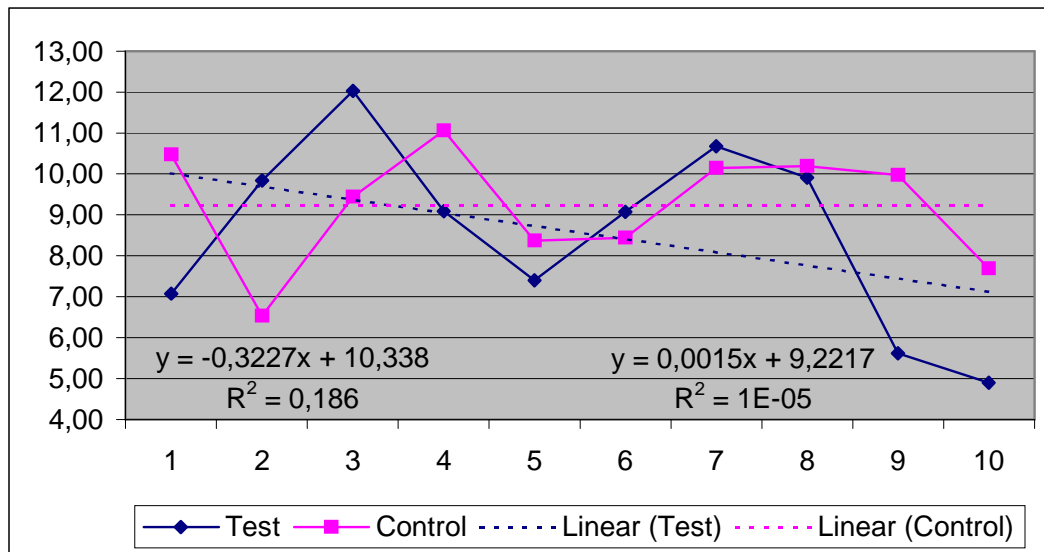
Source: TNS.



### Market share

The evolution of the market share in the control group appears very irregular. For this reason, the correlation coefficient associated with the essentially flat linear trend is practically nil. On the contrary, the market share declined by  $-2.90$  percent points in the test group. The overall picture is rather but, interestingly, the regression analysis helps make things much clearer. The F statistic is significant, as well as both t statistics associated to the dummy variable and the time variable. Time had a negative impact on C.5's market share in the test group, although the program in itself seems to have had a positive impact. Once again, it is not very easy to make sense from these results.

Figure 62  
Product C.5 - Market Share

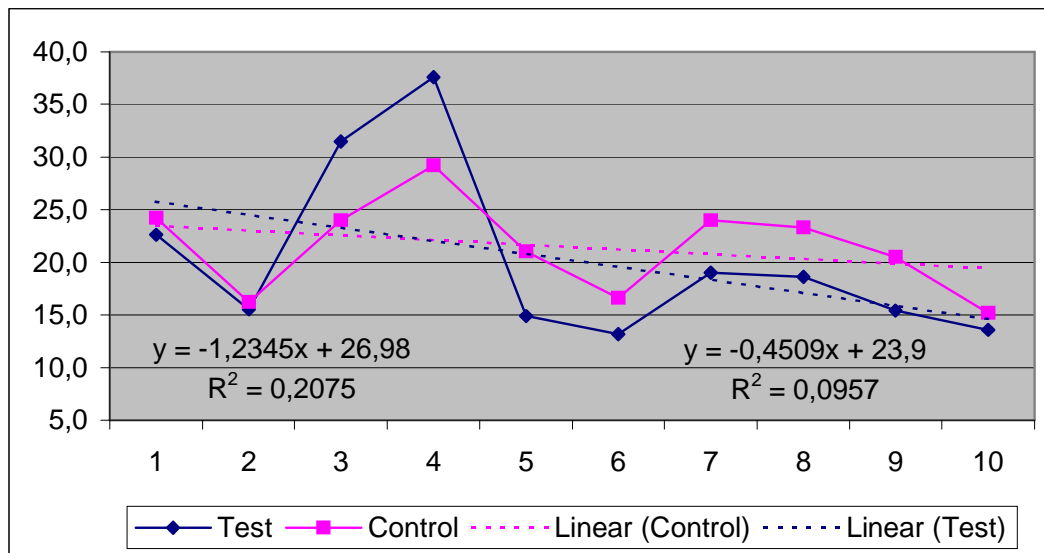


Source: Author.

### ***Penetration rate***

The penetration rate fell in both groups, but more in the test group. The decline was  $-4.06$  percent points in the control group and  $-11.11$  percent points in the test group. As a result there was a net loss of  $-7.05$  percent points when we compare the latter with the former. In proportion to the average penetration during the period, this would represent a very significant  $-34.92\%$  fall, but the regression analysis does not confirm it.

Figure 63  
Product C.5 - Penetration Rate

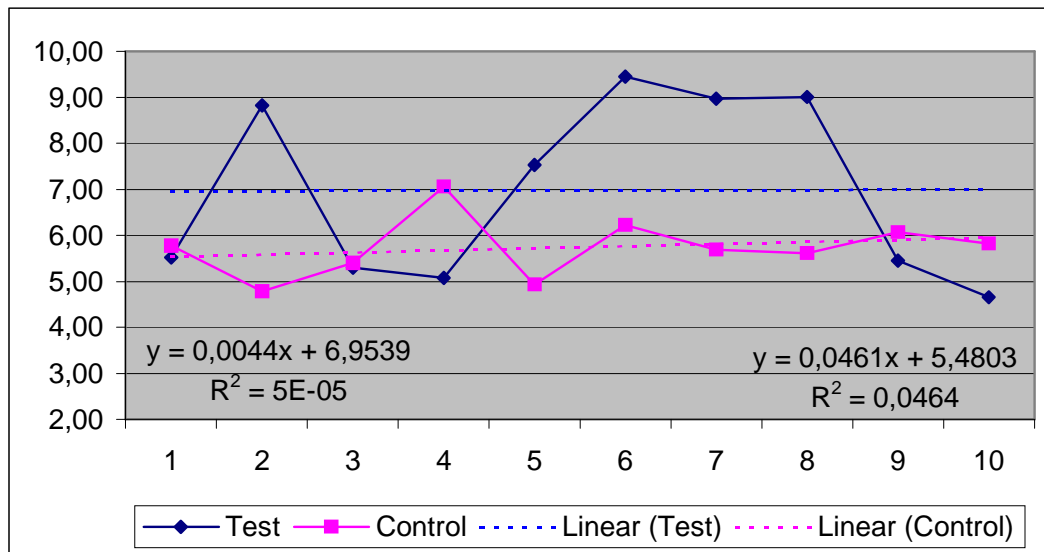


Source: Author.

### **Buying rate**

The buying rate did not change at all in the test group, but it did increase by +0.41 euros in the control group. In relative terms, this would represent a loss of -5.87% in the test group relative to the period's average. Once more, this was not borne out by our regression analysis.

Figure 64  
Product C.5 - Buying Rate

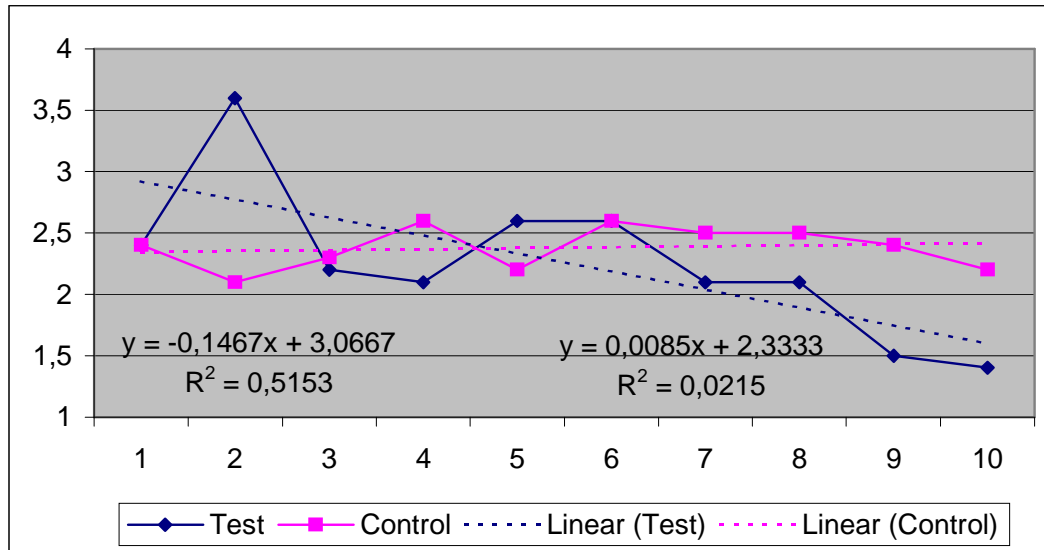


Source: Author.

### *Purchase frequency*

The purchase frequency remained practically unchanged in the control group, but declined by  $-1.32$  purchase occasions in the test group, a relative fall of  $-58.42\%$  when we take the average value of the period as a reference. The F-test was significant, and we also found that the regression coefficient associated to the time variable was negative and significantly different from zero.

Figure 65  
Product C.5 - Purchase Frequency

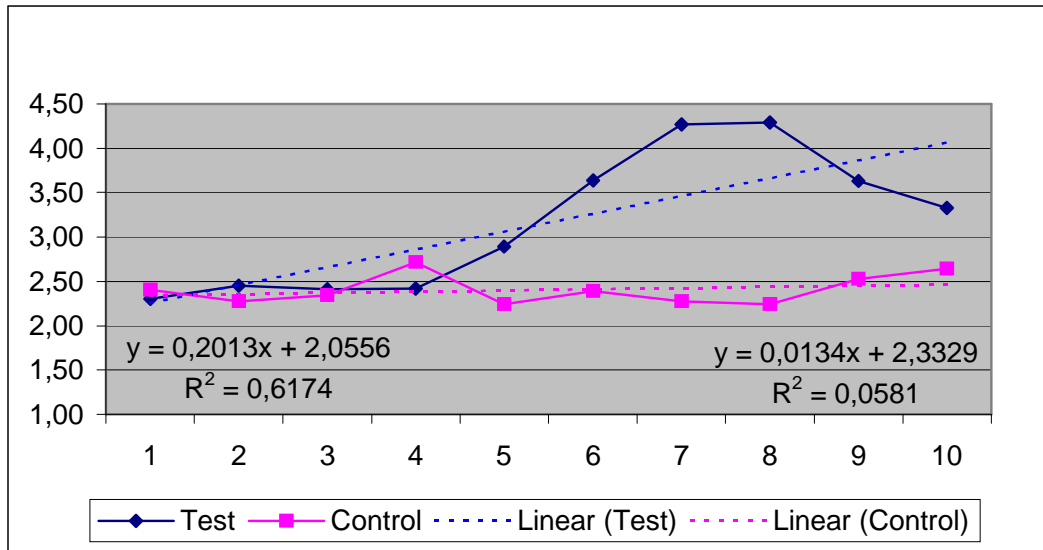


Source: Author.

### *Expense per occasion*

Regarding the expense per occasion, the test group performed much better than the control group, something that reveals itself immediately through a visual inspection of the Graphic below. As we can see, in the control group the expense barely increased by +0.12 euros, while it grew by +1.81 euros in the test group. The net gain of the test group thus reached +1.69 euros, in relative terms an improvement of +53.48% over the period's average. Although the equation adjustment did not pass the F-test, there was definitely a positive effect of the time variable on the expense per occasion. No direct impact of the program was found.

Figure 66  
Product C.5 - Expense per Occasion



Source: Author.

### 3.7 – Product C.6

After XXX sold a brand that competed in this category, until then the market leader in Portugal, C.6 took its place and started a steady ascent with the purpose of becoming number one. The market share in the control group averaged 35.44%, and the absolute penetration stood at 8.09%. This product is purchased rather infrequently (1.33 occasions per quarter), and the expense per occasion is low (3.39 euros). The low penetration rates mean that in some quarters it was bought by no more than 13 households in the test group. The combination of the low sample with the low number of purchases precluded the estimation of the purchase frequency and the expense per occasion in two quarters of the period (first and fourth quarter of 2001).

Table 17  
Product C.6 – Evolution of Behavioral Variables

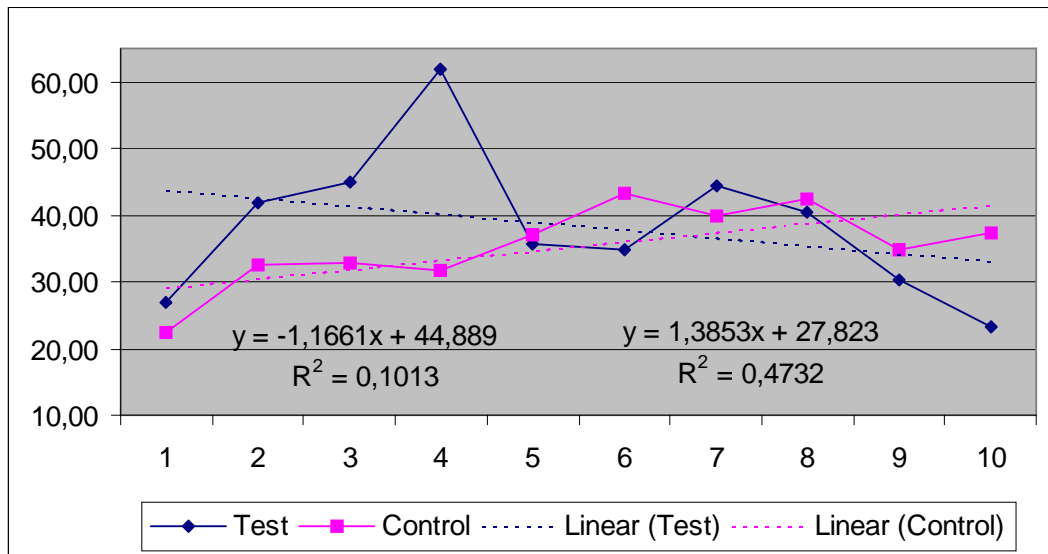
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	26.89	22.42	10.0	5.2	1.60	4.31	1.3	1.4	1.23	3.08
I – 2001	41.98	32.66	10.0	6.2	2.36	5.27	NS	1.2	na	4.39
II – 2001	45.11	32.77	12.5	8.2	1.44	4.00	1	1.4	1.44	2.85
III – 2001	61.99	31.76	24.2	10.4	2.94	3.05	2.2	1.4	1.34	2.18
IV – 2001	35.56	37.03	6.7	7.9	1.27	4.69	NS	1.2	na	3.91
I – 2002	34.90	43.22	9.5	8.8	1.67	4.91	1.6	1.2	1.05	4.09
II – 2002	44.51	39.92	15.1	9.8	1.40	4.07	1.1	1.3	1.27	3.13
III – 2002	40.40	42.47	14.8	10.0	1.42	4.25	1.1	1.4	1.29	3.03
IV – 2002	30.30	34.80	8.1	6.3	2.06	5.52	1.3	1.4	1.59	3.95
I – 2003	23.12	37.36	9.6	8.1	1.37	4.61	1.1	1.4	1.25	3.29
Average	38.48	35.44	12.05	8.09	1.75	4.47	1.34	1.33	na	3.39
Standard deviation	11.09	6.10	5.05	1.75	0.54	0.70	0.40	0.09	na	0.68
% sd	28.83	17.20	41.94	21.64	30.73	15.77	29.62	7.13	na	19.93

Source: TNS.

### Market share

The market share of the control group showed a very positive evolution of +12.47 percent points. However, it went the opposite way in the test group, where it decreased by as much as -10.49 percent points. Thus the net loss of the test group when compared with the control group was -22.96 percent points, which should be compared with an average 38.48% market share during the period. This means there was a -59.67% relative fall. According to the regression analysis performed on the data, this decrease is not attributable to the program itself.

Figure 67  
Product C.6 - Market Share

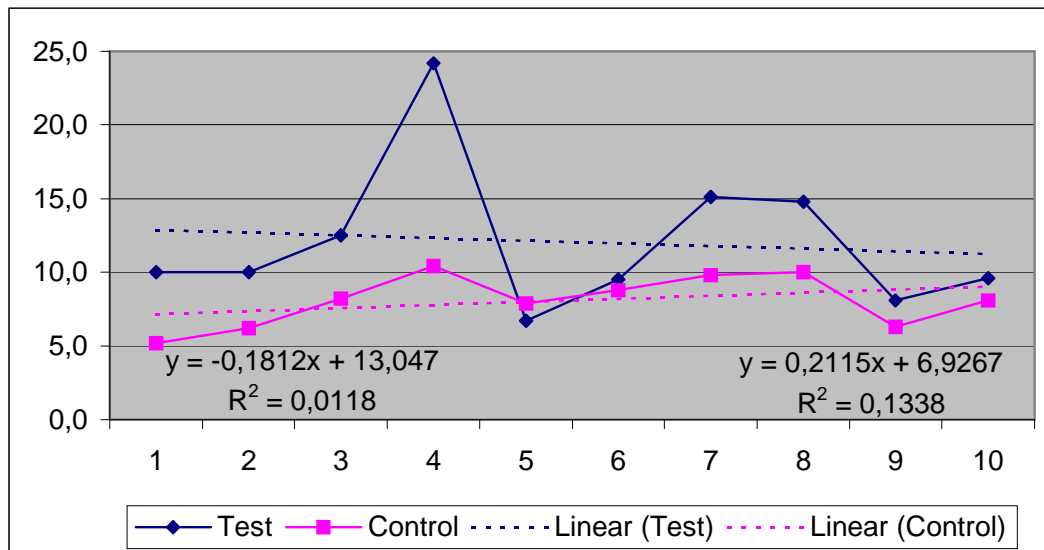


Source: Author.

### ***Penetration rate***

We can see in the Figure below that growing penetration, which progressed by +1.90 percent points during the period, mainly drove the increase of market share in the control group. On the other hand, it declined by -1.63 percent points in the test group. It must however be noticed that the correlation coefficients are very low. The net loss in the test group was estimated to be -3.53 percent points, that is -29.29% of the average penetration rate doing the period. But the regression analysis did not identify any impact, whether positive or negative.

Figure 68  
Product C.6 - Penetration Rate



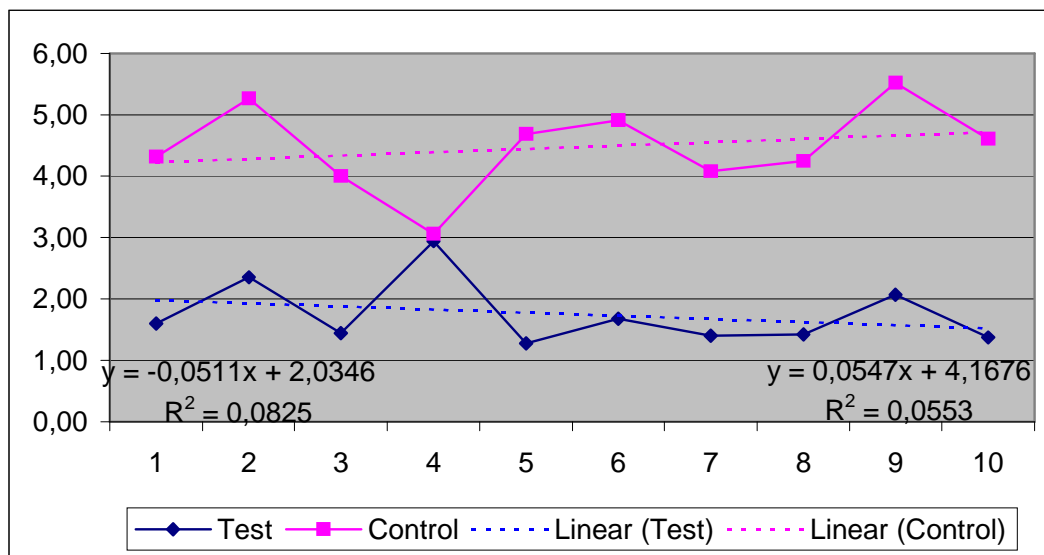
Source: Author.



### ***Buying rate***

Once again, the test group shows a worse performance than the control group regarding the buying rate. In fact, the former declined by -0.45 euros while the latter improved by +0.48 euros. If the correlation coefficients were found to be significant, this would translate into a net loss of +0.93 euros in the test group relative to the control group. As it is, our conclusion is that no significant change could be detected either in the test or in the control group. The regression analysis pointed in the same direction.

Figure 69  
Product C.6 - Buying Rate



Source: Author.

### 3.8 – Product C.7

C.7 is the best-selling brand in its category in the Portuguese market. We can see that the competition has not hurt it much, since C.7 not only commanded an average market share of 44.61% as managed to increase it even further. However the absolute penetration is so low that in the third quarter of 2001 only 2 persons in the sample representing the test group bought it. Since the brand is purchased rather infrequently (1.25 times per quarter on average during the period) no estimates are available regarding purchase frequency and expense per occasion in the test group in four successive quarters. As can be seen in the Table 6.19 below, this is also a low priced item.

Table 18  
Product C.7 – Evolution of Behavioral Variables

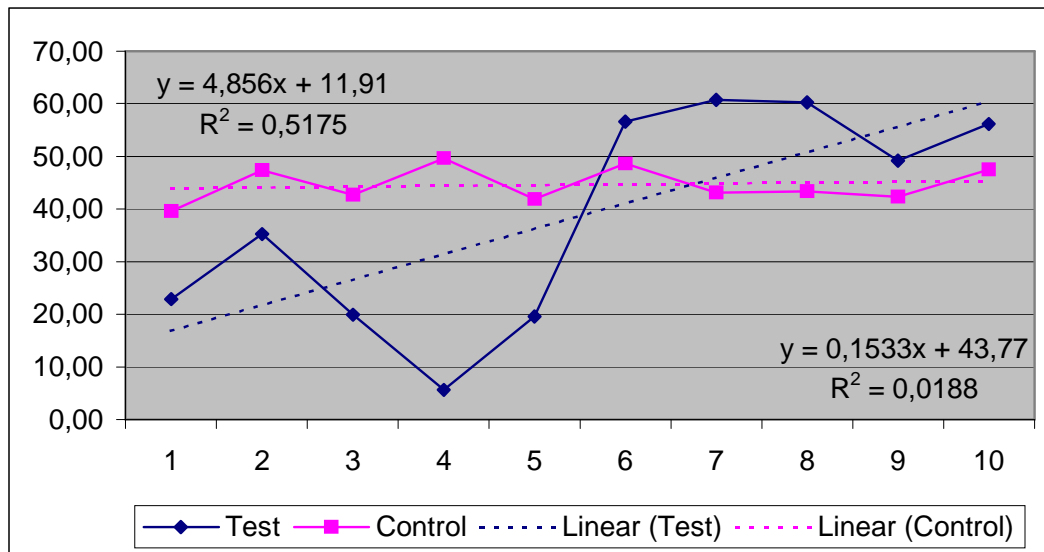
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	22.90	39.62	3.3	5.2	1.82	1.62	1.6	1.2	1.14	1.35
<b>I – 2001</b>	35.20	47.40	5.2	7.7	1.34	1.52	na	1.2	na	1.27
<b>II – 2001</b>	19.92	42.69	5.5	6.1	1.01	1.80	na	1.2	na	1.50
<b>III – 2001</b>	5.64	49.69	0.9	7.0	2.48	2.32	na	1.5	na	1.54
<b>IV – 2001</b>	19.58	41.86	6.3	5.9	1.27	1.63	na	1.3	na	1.25
<b>I – 2002</b>	56.59	48.60	6.5	7.7	1.66	1.55	1.3	1.2	1.28	1.30
<b>II – 2002</b>	60.78	43.13	10.7	7.9	1.72	1.56	1.1	1.2	1.56	1.30
<b>III – 2002</b>	60.25	43.38	12.5	7.4	1.75	1.56	1.1	1.2	1.59	1.30
<b>IV – 2002</b>	49.15	42.27	11.0	6.2	1.41	1.38	1.1	1.2	1.28	1.15
<b>I – 2003</b>	56.18	47.48	8.6	6.6	1.87	1.77	1.4	1.3	1.34	1.36
<b>Average</b>	38.62	44.61	7.05	6.77	1.63	1.67	na	1.25	na	1.33
<b>Standard deviation</b>	20.44	3.38	3.65	0.91	0.41	0.26	na	0.10	na	0.12
<b>% sd</b>	52.92	7.59	51.71	13.47	24.94	15.38	na	7.77	na	8.74

Source: TNS.

### Market share

The market share grew in the control group (+1.38 percent points), and even more so in the test group (+4.37 percent points). The correlation coefficient is very low in the control group, but not in the test group. The net gain of the test group over the control group amounted to +2.99 percent points, an increase of +7.74% over the average market share in the test group in the period under analysis. The F-test shows that the regression is meaningful, but the positive variation of the market share must be attributed to the time variable. The t-statistics associated to the dummy variable is too low; therefore the program seems to have had no significant impact on the brand's market share.

Figure 70  
Product C.7 - Market Share

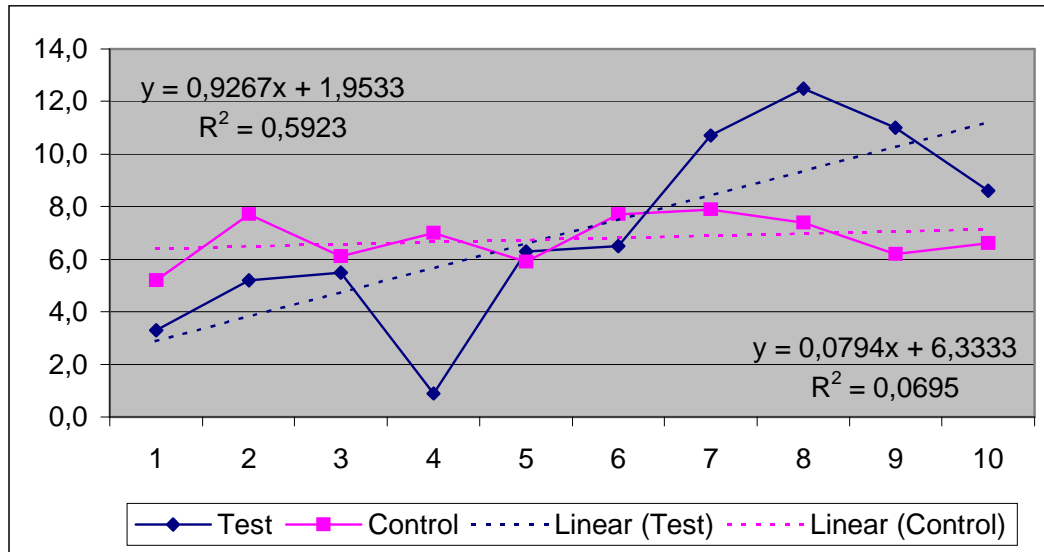


Source: Author.

### ***Penetration rate***

The penetration rate rose in both groups, but specially in the test group. In fact, the growth was very moderated (+0.71 percent points) in the control group, and explosive (+8.34 percent points) in the test group. Besides, the correlation coefficient is much more meaningful in the test group than in the control group. The net gain of the penetration rate in the test group over the control group reached +9.05 percent points. In relative terms, this represents a growth of +107.06% relative to the average penetration in the period. Once again, the regression analysis shows that this variation cannot be attributed to the program. In fact, the F-test is significant, but the t-statistic associated to the dummy variable is not. Therefore, although the improvement of the penetration rate is correlated with the time variable, it bears no relation to the relationship program itself.

Figure 71  
Product C.7 - Penetration Rate

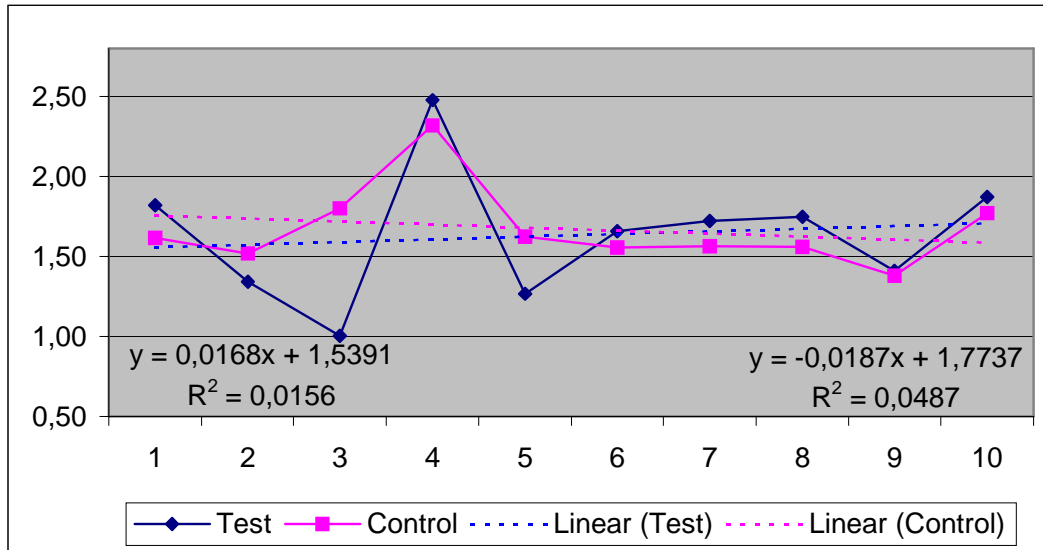


Source: Author.

### *Buying rate*

The linear trend of the buying rate appears essentially flat in both groups. Given the extraordinarily low correlation coefficients, we conclude that there were no changes during the period either in the test or in the control group. The regression analysis confirms this.

Figure 72  
Product C.7 - Buying Rate



Source: Author.

## 4 – DIVISION D

### 4.1. – D general

D is the only division of XXX serving markets that on the whole are not stationary. On the contrary, most of its products and brands have been growing very fast, as they have the potential to simultaneously penetrate more households and increase the average buying rate per consuming household. There is however a very clear tendency to a strong and continuous loss of market share of Division D during this period, following closely the decline of the relative penetration of its brands. These products have relatively high prices in comparison to other divisions. For this reason, the average expense per purchase occasion for the whole period was 9.26 euros in the control group. On the other hand, these are not very frequently purchased items, as they were only bought on average 2.34 times in each quarter.

Table 19  
Division D – Evolution of Behavioral Variables

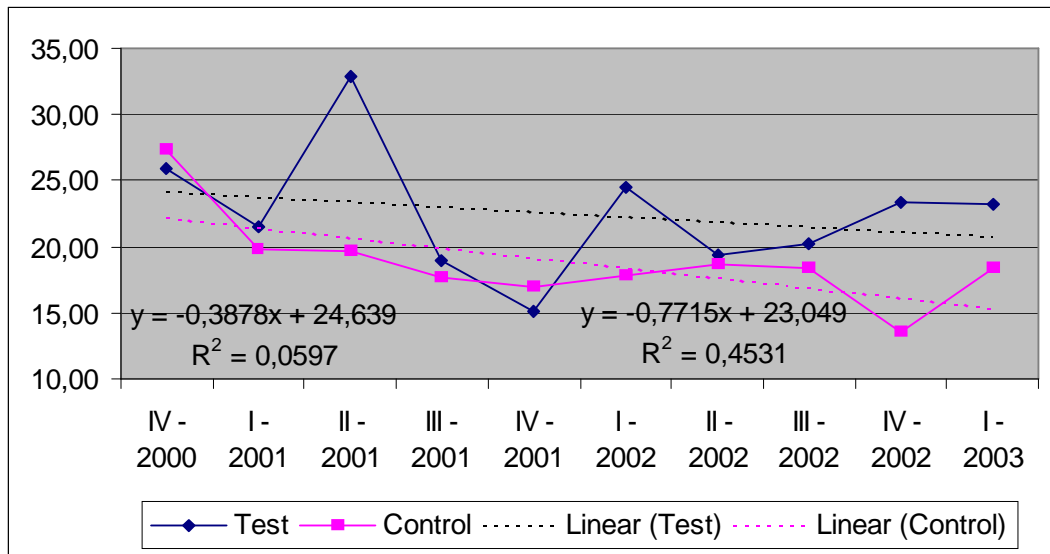
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	25.84	27.34	58.2	49.8	11.4	10.3	2.9	2.4	3.91	4.27
I – 2001	21.51	19.84	41.8	36.3	14.9	11.5	2.5	2.5	5.97	4.61
II – 2001	32.94	19.63	45.9	35.9	24.2	14.8	2.3	2.4	10.53	6.15
III – 2001	18.99	17.60	44.8	36.0	22.5	29.1	2.8	2.6	8.05	11.19
IV – 2001	15.12	17.01	39.2	33.5	16.8	24.5	2.4	2.2	6.99	11.15
I – 2002	24.50	17.76	31.5	30.1	25.5	26.4	2.7	2.3	9.45	11.47
II – 2002	19.39	18.60	32.7	30.9	17.5	26.4	2.5	2.3	7.00	11.48
III – 2002	20.24	18.35	34.9	29.9	28.4	15.4	2.6	2.3	10.92	6.70
IV – 2002	23.36	13.55	42.8	28.8	14.4	28.1	2	2.2	7.20	12.78
I – 2003	23.17	18.38	36.8	27.8	20.0	28.2	2.5	2.2	8.00	12.80
Average	22.51	18.81	40.86	33.90	19.57	21.46	2.52	2.34	7.80	9.26
Standard deviation	4.81	3.47	7.85	6.41	5.50	7.54	0.26	0.13	2.11	3.41
% sd	21.35	18.45	19.22	18.91	28.09	35.11	10.21	5.77	27.06	36.83

Source: TNS.

**Market share**

D's market share has been falling at a fast pace in the last years, as can be seen in the control group, where a dramatic reduction of -6.94 percent points was found in a short time period of two years and a half. This decline in market share was concentrated in the first year, after which it tended to stabilize. Market share also decreased in the test group (-3.49 percent points), but half as slowly as in the control group. At first sight, this appears to suggest the relationship program had an overall positive effect, as the market share in the test group grew by +3.45 percent points when compared with the control group. However, the regression analysis does not uphold this conclusion.

Figure 73  
Division D - Market Share

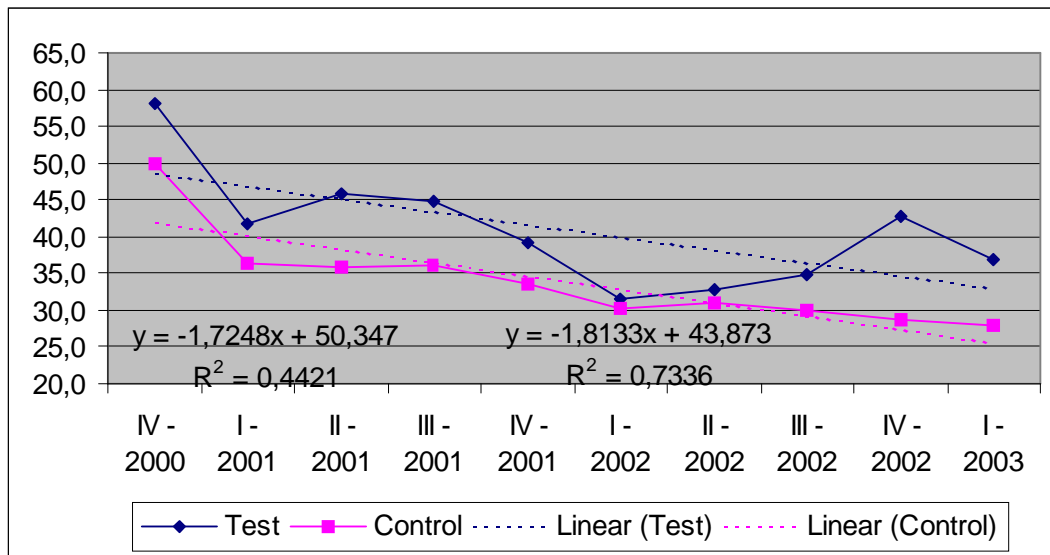


Source: Author.

**Penetration rate**

The penetration rate followed parallel and strongly declining trends in both the control and the test group. The fall of penetration in the control group was -16.29 percent points, while in the test group it mounted to a barely smaller negative change of -15.52 percent points. As the regression analysis confirms, the program had no measurable impact on the division's penetration.

Figure 74  
Division D - Penetration Rate



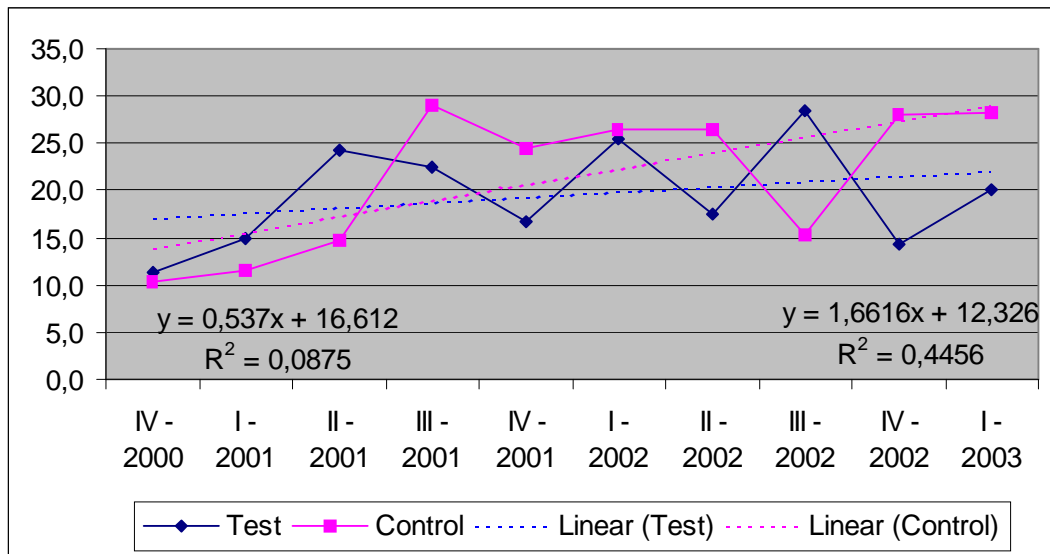
Source: Author.



**Buying rate**

The buying rate per household has increased significantly, reflecting the fact that most product categories served by D are still at an early stage of its life cycle. In the control group, it increased by 14.95 euros during period, three times as much as in the test group, where the corresponding increase did not exceed 4.83 euros. Thus, overall, no loyalty effect is apparent in the available data on the behavior of the customers recruited to participate in XXX's relationship marketing program, an impression that was confirmed by the regression analysis.

Figure 75  
Division D - Buying Rate (value)

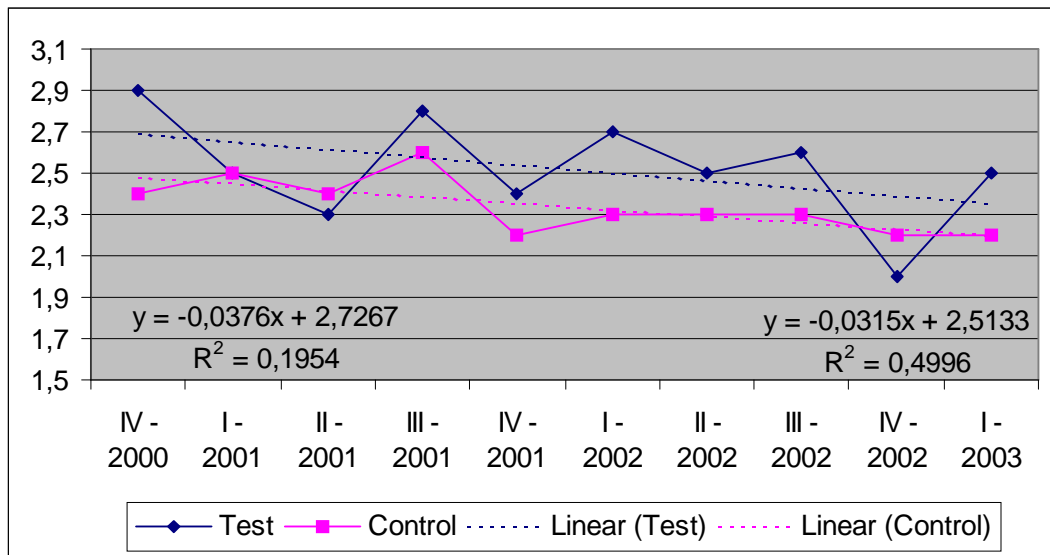


Source: Author.

**Purchase frequency**

Once again, purchase frequency rates followed very similar and declining trends in both the control and the test group. The purchase frequency decreased by  $-0.28$  purchase occasions per quarter in the control group and  $-0.34$  purchase occasions per quarter in the test group. After performing the regression analysis, it becomes clearer that the program had no impact on this account.

Figure 76  
Division D - Purchase Frequency

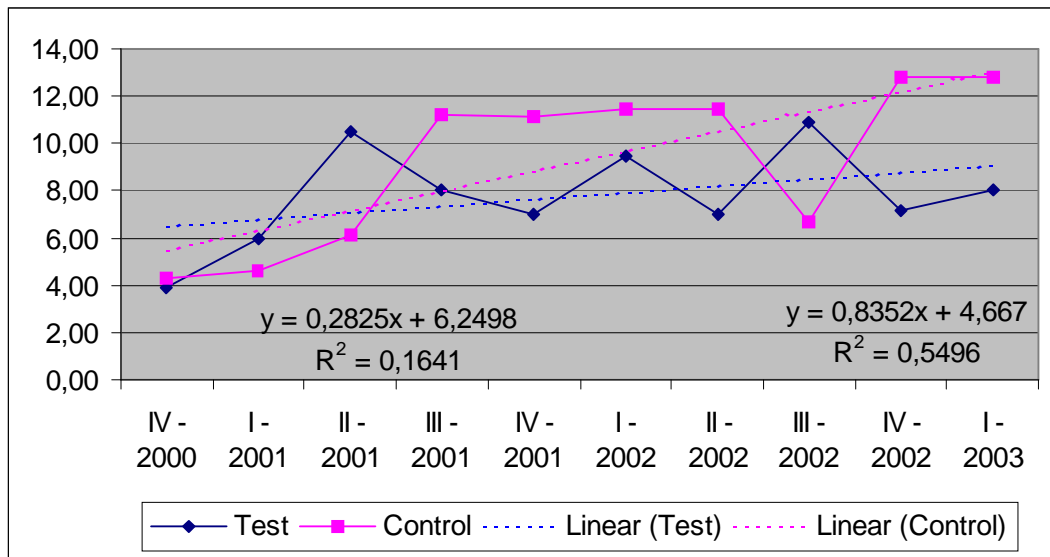


Source: Author.

**Purchase per occasion**

The purchase per occasion increased on both groups, but significantly more so in the control group. In the control group the value purchase per occasion improved by 7.52 euros, while in the test group the gain stood at 2.54 euros. We conclude therefore that the customers participating in the program performed poorly than those not participating in it, a result that is hard to understand. However, the regression analysis shows that we have no grounds to attribute the change to the program.

Figure 77  
Division D - Purchase per occasion (value)



Source: Author.

## 4.2 – Product D.1

D.1 is not a market leader, since its share stood on average only at 14.41% during the period while the absolute penetration rate was 12.37%. This category is still in its growth stage, inducing a continuing increase in the buying rate, which reached 8.58 euros. The product was bought rather infrequently, on average just 1.68 times in a quarter. For that reason, it was impossible to get an estimate of the purchase frequency and the expense per occasion in the fourth quarter of 2001.

Table 20  
Product D.1 – Evolution of Behavioral Variables

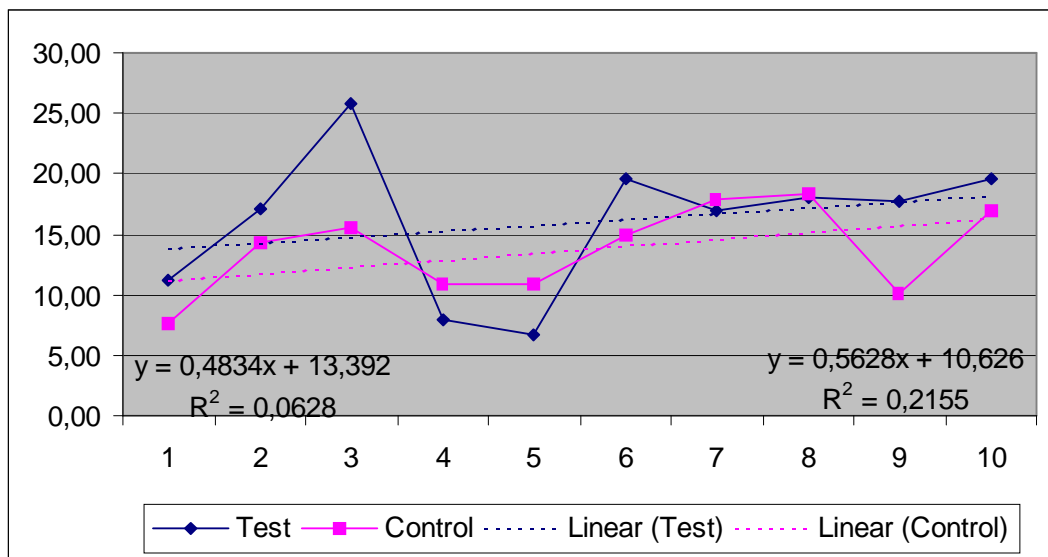
	Market share		Penetration		Buying rate (share)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	11.19	7.56	13.8	7.2	7.41	6.11	1.4	1.4	5.30	4.37
<b>I – 2001</b>	17.10	14.32	14.7	12.5	12.29	8.39	1.8	1.5	6.83	5.59
<b>II – 2001</b>	25.88	15.58	12.5	11.2	16.30	9.14	1.4	1.7	11.64	5.38
<b>III – 2001</b>	7.89	10.82	13.8	11.3	8.08	8.87	1.5	1.9	5.39	4.67
<b>IV – 2001</b>	6.71	10.93	13.2	12.8	6.42	7.34	na	1.6	na	4.59
<b>I – 2002</b>	19.58	14.87	12.9	13.8	10.49	8.49	1.9	1.6	5.52	5.31
<b>II – 2002</b>	16.99	17.90	16.2	13.2	7.71	8.81	1.6	1.7	4.82	5.18
<b>III – 2002</b>	17.95	18.28	18.3	13.4	7.60	8.82	1.6	1.7	4.75	5.19
<b>IV – 2002</b>	17.70	10.04	12.9	11.4	11.71	7.84	1.9	1.7	6.16	4.61
<b>I – 2003</b>	19.52	16.91	16.0	11.7	10.84	9.53	2.1	1.7	5.16	5.60
<b>Average</b>	16.05	14.41	14.50	12.37	10.16	8.58	na	1.68	na	5.11
<b>Standard deviation</b>	5.84	3.15	1.97	0.99	3.08	0.66	na	0.11	na	6.08
<b>% sd</b>	36.39	21.83	13.56	8.04	30.33	7.74	na	6.51	na	1.19

Source: TNS.

### Market share

The market share showed a parallel upward trend in both groups. It increased by +5.07 percent points in the control group and somewhat less (+4.35 percent points) in the test group. The correlation coefficient of the trend equation is however insignificant in the test group owing to the variation of the quarterly data. Overall, no significant change in market share emerged as a result of the program. The regression analysis confirms this conclusion.

Figure 78  
Product D.1 - Market Share

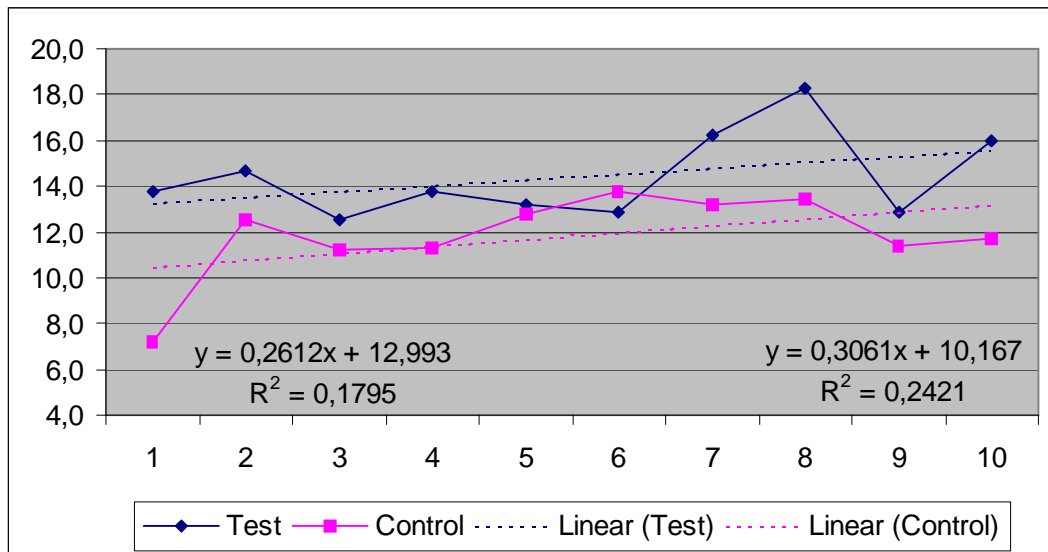


Source: Author.

### ***Penetration rate***

Regarding penetration, there is a much more clear trend in the test group than the one found when we analyzed the evolution of the market share. We see that, once again, both groups followed a similar positive trend. Likewise, the increase was also stronger in the control group (+2.75 percent points) than in the test group (+2.35 percent points). So there might have been a net loss of -0.40 percent points in the test group relative to the control group. The regression analysis attributes this negative variation entirely to the dummy variable, that is, to the program itself, a conclusion that it is hard to account for.

Figure 79  
Product D.1 - Penetration Rate

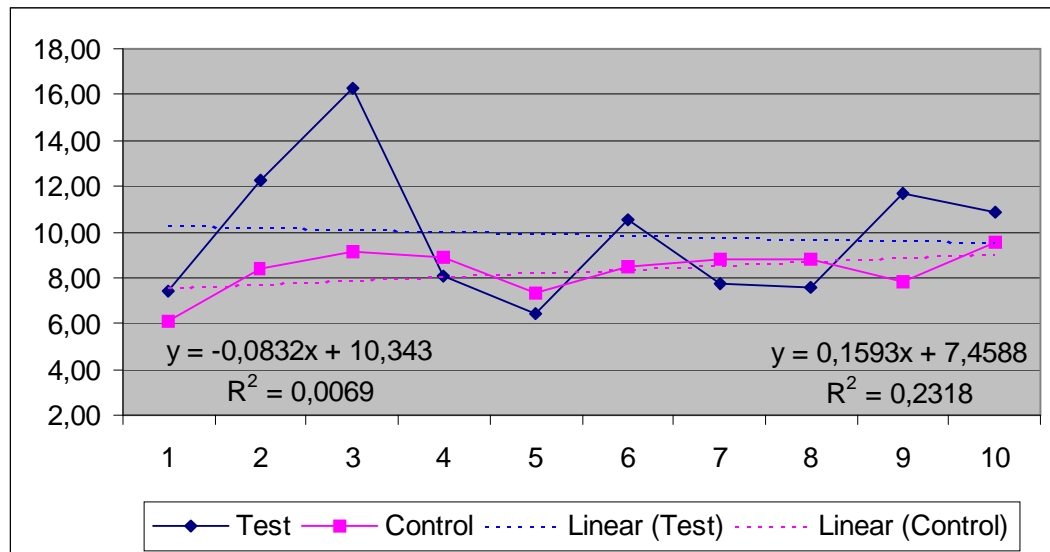


Source: Author.

### ***Buying rate***

As previously indicated, the buying rate tended to grow in the control group, but not in the test group. Thus we find an increase of +1.43 euros in the former and a decrease of -0.75 euros. Note, however, that the correlation coefficient is practically zero in the test group. The net loss of the test group in comparison with the control group reached -2.18 euros. Relative to the average of the period, this is a fall of 21.46%. However, the coefficients of the regression analysis performed on the data are not significant, which means that the program had no impact, whether positive or negative.

Figure 80  
Product D.1 - Buying Rate



Source: Author.

### 4.3 – Product D.2

D.2 commands a 19.81% market share and a 7.16% absolute penetration rate in the control group. The position of the brand has been deteriorating at a very fast rate, as can be seen by inspecting the data in the Table below. The purchasing rate is very low, a mere 1.37 occasions per quarter on average during the period. For this reason, the number of purchase occasions in the fourth quarter of 2001 was low to allow reliable estimates of the purchase frequency and the expense per occasion.

Table 21  
Product D.2 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	22.04	27.10	11.9	8.4	3.56	5.26	1.1	1.4	3.24	3.76
I – 2001	21.56	20.73	10.6	8.7	5.19	4.68	1.4	1.4	3.71	3.34
II – 2001	47.97	19.42	18.0	8.2	9.62	5.14	1.7	1.3	5.66	3.96
III – 2001	38.52	21.79	20.6	9.5	7.73	6.00	2.3	1.4	3.36	4.28
IV – 2001	35.87	20.53	12.3	6.5	8.40	5.24	na	1.3	na	4.03
I – 2002	24.83	22.76	9.7	5.6	5.64	7.02	1.8	1.7	3.13	4.13
II – 2002	17.27	18.97	7.9	7.3	4.78	4.30	1.6	1.3	2.99	3.31
III – 2002	16.84	19.86	8.4	7.7	4.87	4.28	1.6	1.3	3.04	3.29
IV – 2002	17.99	13.49	9.0	5.1	4.63	4.64	1.5	1.3	3.09	3.57
I – 2003	20.51	13.45	8.2	4.6	5.99	4.79	2.1	1.3	2.85	3.68
Average	26.34	19.81	11.66	7.16	6.04	5.14	na	1.37	na	3.75
Standard deviation	10.68	4.06	4.34	1.65	1.92	0.84	na	0.13	na	6.69
% sd	40.56	20.50	37.20	23.02	31.78	16.31	na	9.14	na	1.79

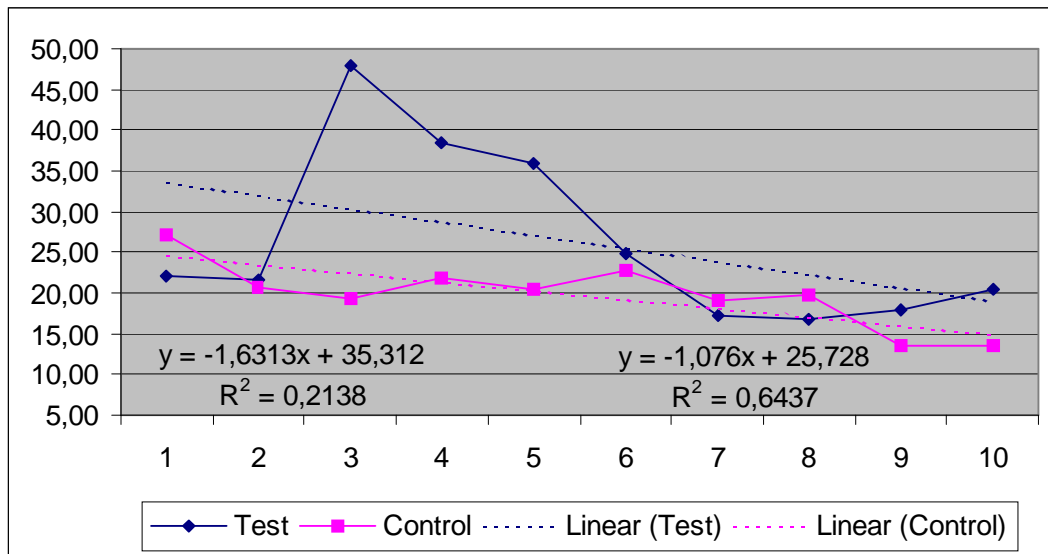
Source: TNS.



### Market share

The market share decreased very clearly in both groups. In the control group, it declined by  $-9.68$  percent points. In the test group, the declining trend was even steeper, implying a fall of  $-14.68$  percent points. The net loss of market share in the test group relative to the control group thus reached  $-5.00$  percent points. As a proportion of the average market share of the period, this means a fall of  $-18.98\%$ . Therefore, no positive overall impact of the program on the market share of D.2 in this category was identified, a conclusion that the regression analysis confirmed.

Figure 81  
Product D.2 - Market Share

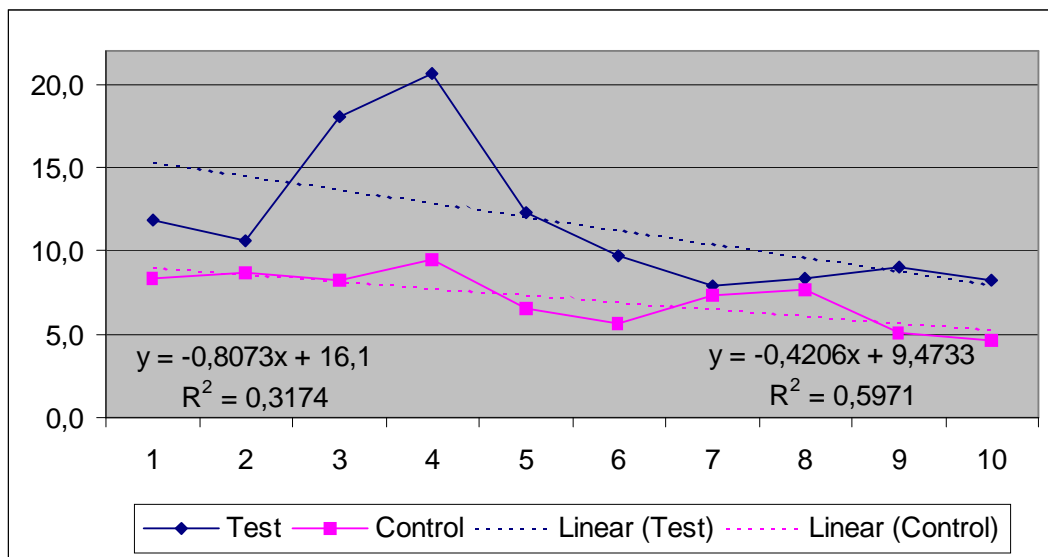


Source: Author.

### ***Penetration rate***

The decline of the penetration rate in both groups is apparent through a simple visual inspection of Figure 6.87. This decline was even stronger in the test group (-7.27 percent points) than in the control group (-3.79 percent points). The net loss of the test group relative to the control group would then have reached -3.48, a fall of -29.85% as a proportion of the average of the period. However, the regression analysis does not confirm this.

Figure 82  
Product D.2 - Penetration Rate

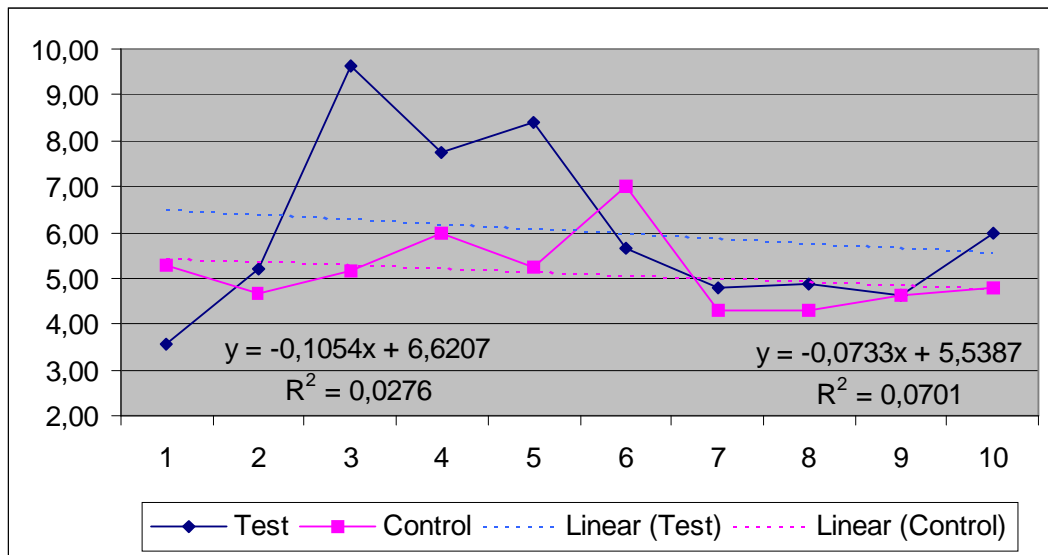


Source: Author.

### ***Buying rate***

The buying rate shows declining rates in both groups, although the correlation coefficients are practically zero. Therefore the impact of the program on this behavior variable seems to have either negative or non-existing. The coefficients estimated by the regression analysis are all non significant, which means that the program had no impact on the buying rate.

Figure 83  
Product D.2 - Buying Rate



Source: Author.

#### 4.4 – Product D.3

D.3 commands a large market share in the category (31.13% on average), although its absolute penetration rate is still very small (3.39% on average). D.3's position in this market appears essentially stable, although its buying rate tended to fall. The combination of a very low penetration rate (in some quarters, only 6 members of the sample representing the test group bought the brand) with a low purchase frequency prevented adequate estimates of the purchase frequency and of the expense per occasion in all quarters of the period.

Table 22  
Product D.3 – Evolution of Behavioral Variables

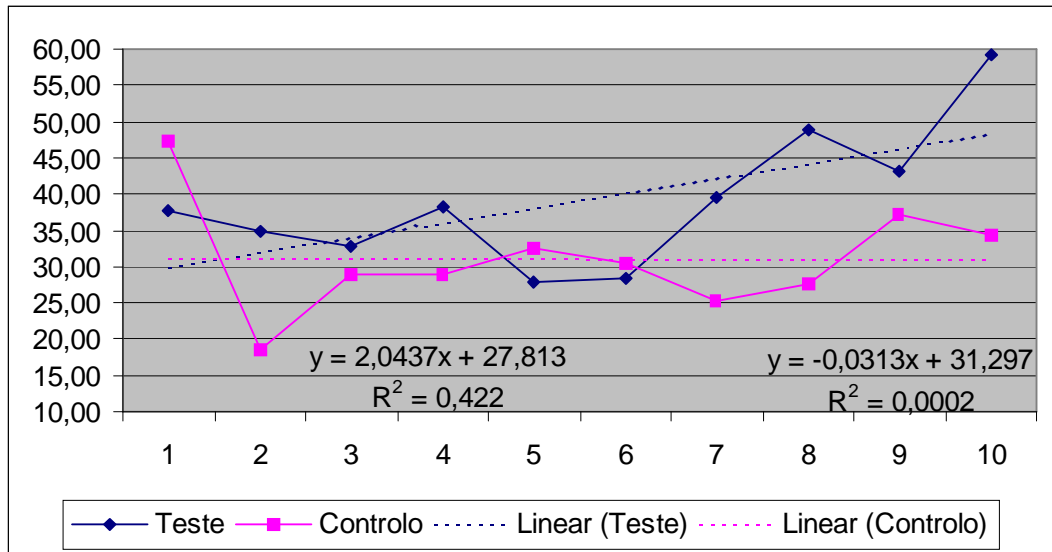
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	37.64	47.25	4.6	5.7	9.37	9.04	3.1	1.8	3.02	5.02
I – 2001	34.88	18.61	3.9	2.1	13.27	7.70	na	2.1	na	3.66
II – 2001	32.68	29.00	3.8	1.5	6.36	17.33	na	2.5	na	6.93
III – 2001	38.30	28.82	3.0	3.5	10.21	7.17	na	1.5	na	4.78
IV – 2001	27.83	32.62	3.3	3.7	5.69	5.32	na	1.4	na	3.80
I – 2002	28.45	30.49	3.3	3.7	7.83	6.35	na	1.4	na	4.53
II – 2002	39.48	25.29	2.8	2.7	7.51	5.66	na	1.5	na	3.78
III – 2002	48.84	27.55	3.4	2.8	8.25	5.89	na	1.4	na	4.21
IV – 2002	43.26	37.19	6.5	4.2	4.97	5.52	na	1.3	na	4.25
I – 2003	59.15	34.44	8.8	4.0	9.78	6.34	na	1.4	na	4.53
Average	39.05	31.13	4.34	3.39	8.32	7.63	na	1.63	na	4.68
Standard deviation	9.53	7.63	1.90	1.18	2.45	3.59	na	0.39	na	9.24
% sd	24.39	24.51	43.67	34.94	29.48	47.08	na	23.86	na	1.97

Source: TNS.

### Market share

The market share remained basically unchanged in the control group, but increased significantly in the test group. In fact, the data show a mere increase of +0.28 percent points that compares with a steep improvement of +18.39 percent points in the test group. Thus, we found a net gain of +18.11 percent points in the test group over the control group. In relative terms, this is an increase of +46.38% taking as a reference the average of the period. We would therefore tend to conclude based on this information that the program appears to have had a very positive impact on this category, but the fact is that the regression analysis suggests otherwise, since the F and t-tests showed that the coefficients associated to the variables are not significantly different from zero.

Figure 84  
Product D.3 - Market Share

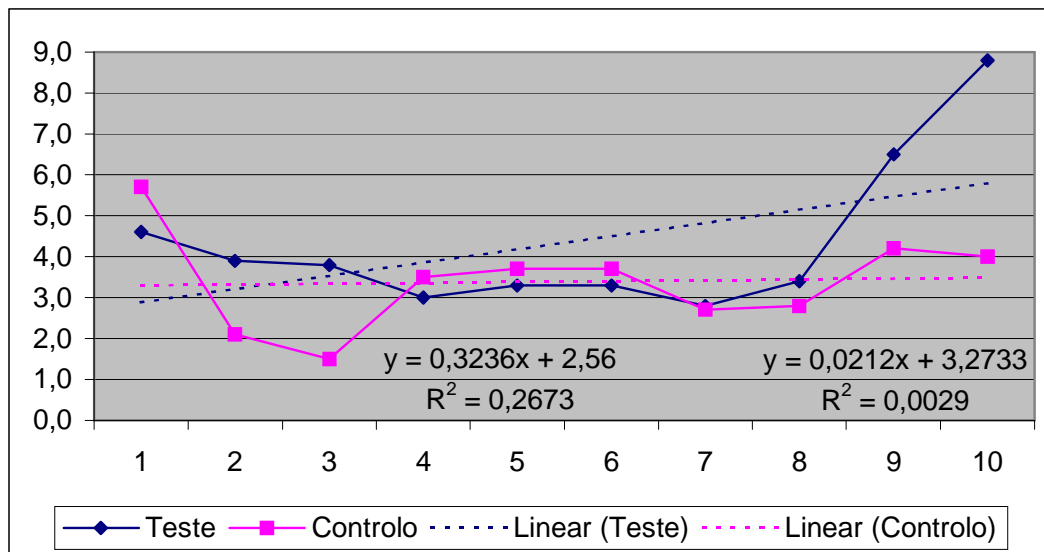


Source: Author.

### ***Penetration rate***

The previously noted gain of market share in the test group was mainly caused by an improvement in penetration. This behavioral variable improved in both groups. However, the growth in the control group was very small (+0.19 percent points) and the correlation coefficient associated to the equation trend is insignificant, while the increase in the test group was large (+2.91 percent points) and the correlation coefficient is clearly higher. The gain of the test group over the control group reached in this case +2.72 percent points. This translates into an increase of +62.67% relative to the average of the period, but the fact is that the regression analysis found no significant coefficients attached to both explanatory variables under consideration.

Figure 85  
Product D.3 - Penetration Rate

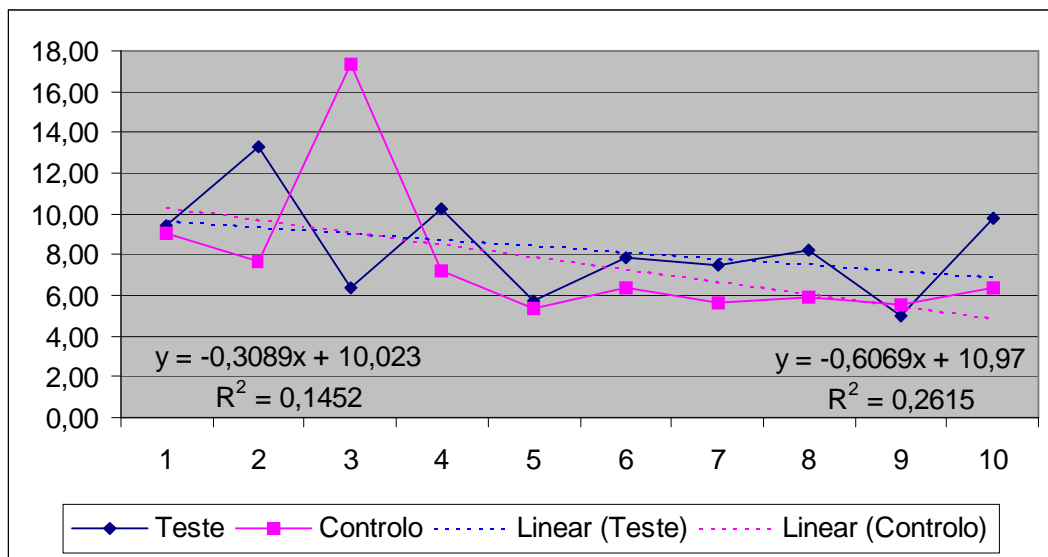


Source: Author.

### **Buying rate**

The buying rate decreased in both groups, but less so in the test group. We thus found a decline of -5.46 euros in the control group and -2.78 euros in the test group. This means that the test group in fact performed better than the control group, and that this translated into a gain of +2.68 euros. Relative to the average of the group, this variable would have improved +32.21%. Once again, however, the regression analysis does not confirm the existence of any kind of impact of the regression on the brand's buying rate.

Figure 86  
Product D.3 - Buying Rate



Source: Author.

#### 4.5 – Product D.4

D.4 is the best-selling product of the brand under which name it is marketed. Its absolute penetration rate reached on average 15.98% in the control group and the brand commended a 30.24% market share. The brand was bought 1.87 times a quarter, and given that the expense per occasion was a mere 2.24 euros, the buying rate did not exceed 4.20 euros per quarter. The share of D.4 appears stationary, but beneath its surface we find contradictory movements, since penetration decreases while the buying rate simultaneously increases.

Table 23  
Product D.4 – Evolution of Behavioral Variables

	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	39.97	24.65	25.0	16.5	4.18	2.76	2.1	1.5	1.99	1.84
<b>I – 2001</b>	31.92	34.01	20.1	19.7	4.43	4.68	2.2	2.2	2.01	2.13
<b>II – 2001</b>	37.12	30.80	26.7	20.3	4.28	3.94	1.7	1.9	2.52	2.08
<b>III – 2001</b>	34.32	29.74	21.1	18.3	3.62	4.09	2.3	2	1.58	2.04
<b>IV – 2001</b>	32.92	30.72	20.9	16.0	3.90	3.97	2	1.9	1.95	2.09
<b>I – 2002</b>	36.85	29.78	14.9	13.8	5.63	4.15	2.4	1.8	2.35	2.30
<b>II – 2002</b>	34.46	30.45	17.9	14.3	3.55	4.10	2.2	1.8	1.61	2.28
<b>III – 2002</b>	35.32	31.21	19.1	14.1	3.45	4.30	2.2	1.9	1.57	2.26
<b>IV – 2002</b>	38.94	29.56	21.7	14.3	4.52	4.12	1.7	1.8	2.66	2.29
<b>I – 2003</b>	35.67	31.44	16.6	12.5	4.69	5.92	1.9	1.9	2.47	3.12
<b>Average</b>	35.75	30.24	20.40	15.98	4.23	4.20	2.07	1.87	2.07	2.24
<b>Standard deviation</b>	2.53	2.34	3.59	2.67	0.65	0.78	0.24	0.18	0.41	0.34
<b>% sd</b>	7.08	7.74	17.60	16.71	15.48	18.51	11.62	9.45	19.82	15.19

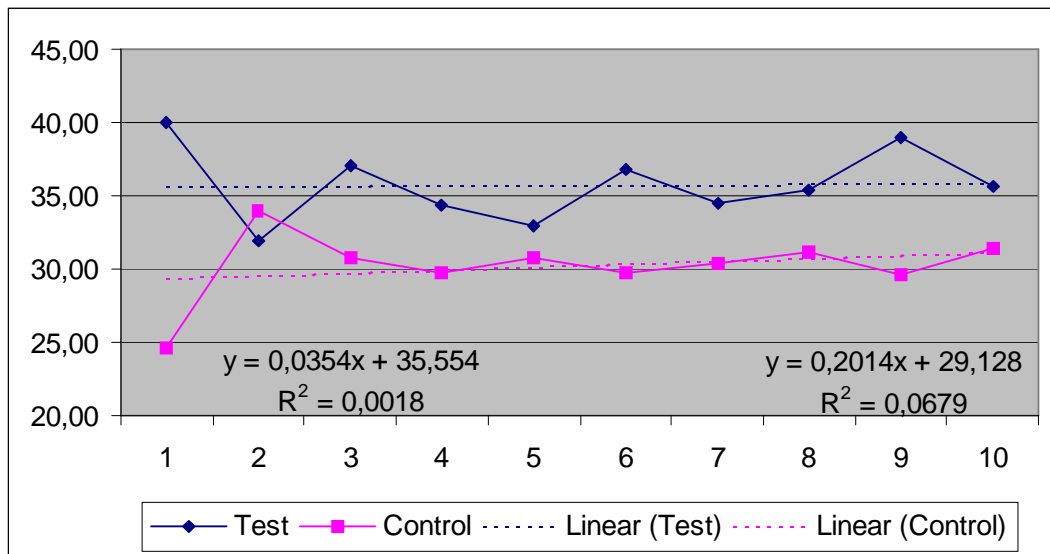
Source: TNS.



### Market share

The slopes of the equations indicate that the market share might have increased by +1.81 percent points in the control group, and a bit less (+0.32 percent points) in the test group. This would imply a relative fall of -1.49 percent points in the test group when compared to the control group, a decline of -4.17% as a proportion of the period average. However, the correlation coefficients are very low on both the control and the test groups, suggesting that not much changed during the period as a consequence of the program. Nevertheless, no doubt as a consequence of the very low value of the market share of the control group in the zero period, the regression identifies a negative impact of the program on the brand's market share.

Figure 87  
Product D.4 - Market Share

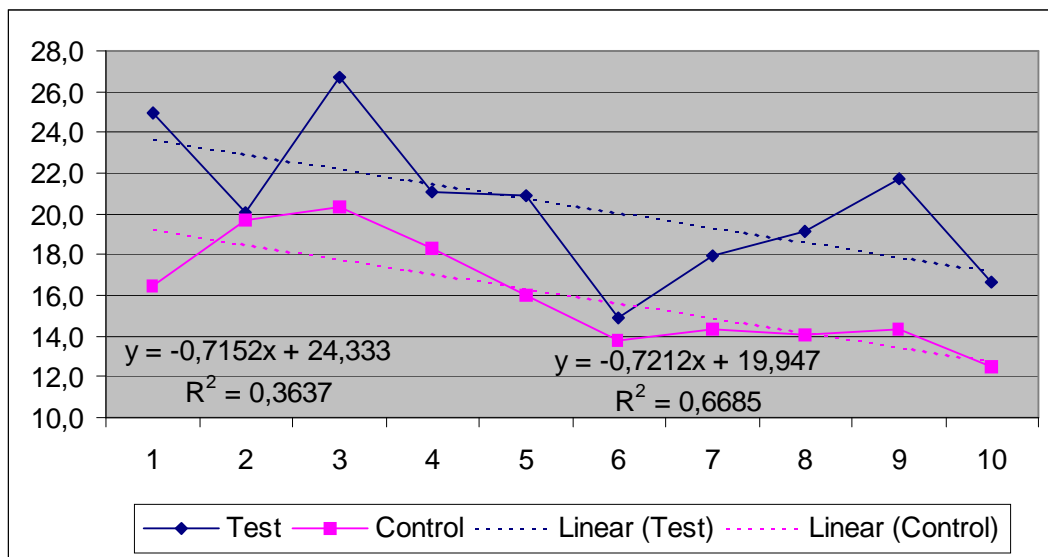


Source: Author.

### Penetration rate

The penetration rate fell simultaneously and in parallel in both groups. The decline amounted to  $-6.49$  percent points in the control group and  $-6.44$  percent points, practically the same, in the test group. Once again, the anomalous value of the control group in the period zero caused a negative and significant coefficient associated to the dummy variable, something that would lead us to conclude that the program was responsible for a fall of the brand's penetration rate.

Figure 88  
Product D.4 - Penetration Rate

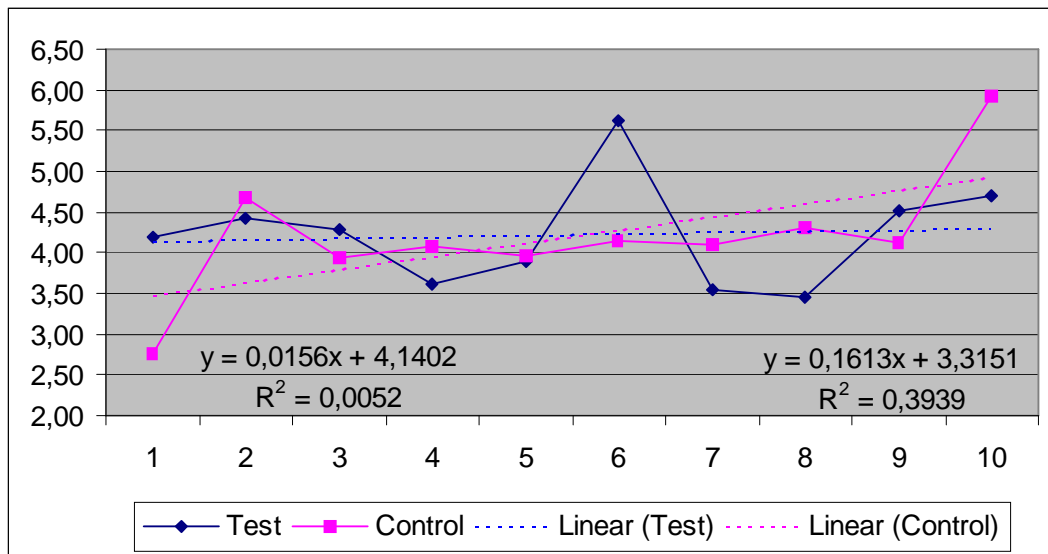


Source: Author.

### ***Buying rate***

The first and the last observations in the control group clearly stand out from the rest. The first one is much lower than the average while the last one is much higher. As a consequence, the trend equation is tilted upwards, showing an increase of +1.45 euros in the buying rate in the period. On the contrary, the test group remains stationary, as suggested by the very low correlation coefficient and the nearly zero equation slope, according to which the increase could at most have been +0.14 euros. Thus the net loss in the test group relative to the control group stood at -1.31 euros, showing a decline in the synthetic loyalty indicator. However, the coefficients estimated by the regression analysis are not significantly different from zero.

Figure 89  
Product D.4 - Buying Rate

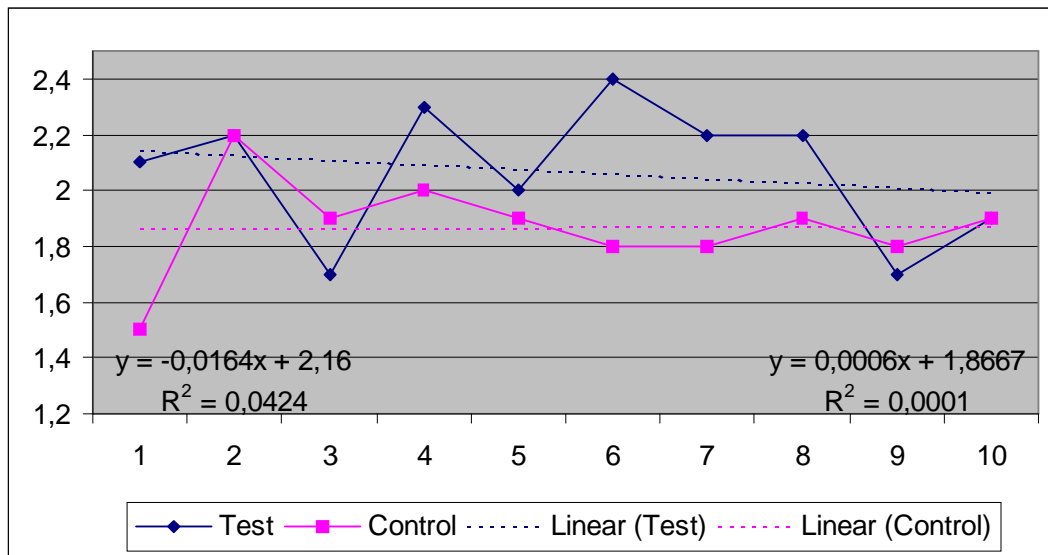


Source: Author.

### *Purchase frequency*

The purchase frequency showed no definite trend either in the control or the test group. In the control group it started very low, then moved suddenly up and afterwards started a slow down movement. In the test group the data appear very irregular and do not seem to move up or down. We find therefore that the purchase frequency remained unaffected by the program, a conclusion that the regression analysis bears out.

Figure 90  
Product D.4 - Purchase Frequency

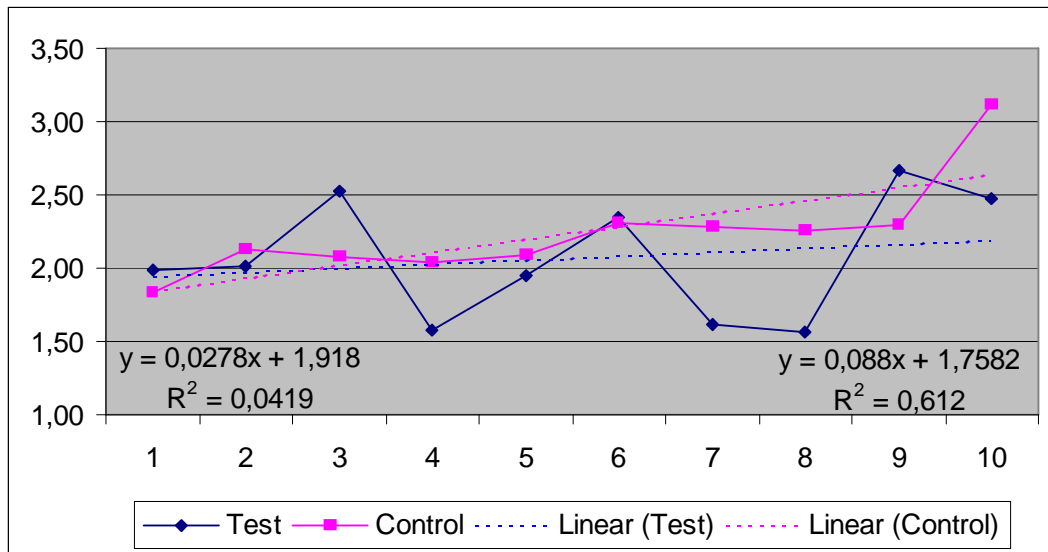


Source: Author.

### *Expense per occasion*

The expense per occasion increased in the control group by a total of +0.79 euros, but most of this variation was concentrated in the observed quarter. In the test group the data appear very irregular, but the expense per occasion also seem to move up in the last two quarters. As a occasion, the slope of the equation suggests an increase, although minimal, of +0.25 euros in the quarter. Confronting both groups, we see a net decline – 0.54 euros in the test group relative to the control group. As a consequence, no positive effect of the program was found regarding the expense per occasion. Once again, the regression analysis supports this finding.

Figure 91  
Product D.4 - Expense per Occasion



Source: Author.

#### 4.6 – Product D.5

This product category is still at a growing stage: absolute penetration is low (7.90 % on average) and the buying rate tends to increase. D.5 holds a strong position in this market, which translates into a 35.87% share. This product category is on average bought very infrequently, no more than 1.54 occasions per quarter. For this reason, it was impossible to obtain an estimate of the purchase frequency and the expense per occasion in the fourth quarter of 2001.

Table 24  
Product D.5 – Evolution of Behavioral Variables

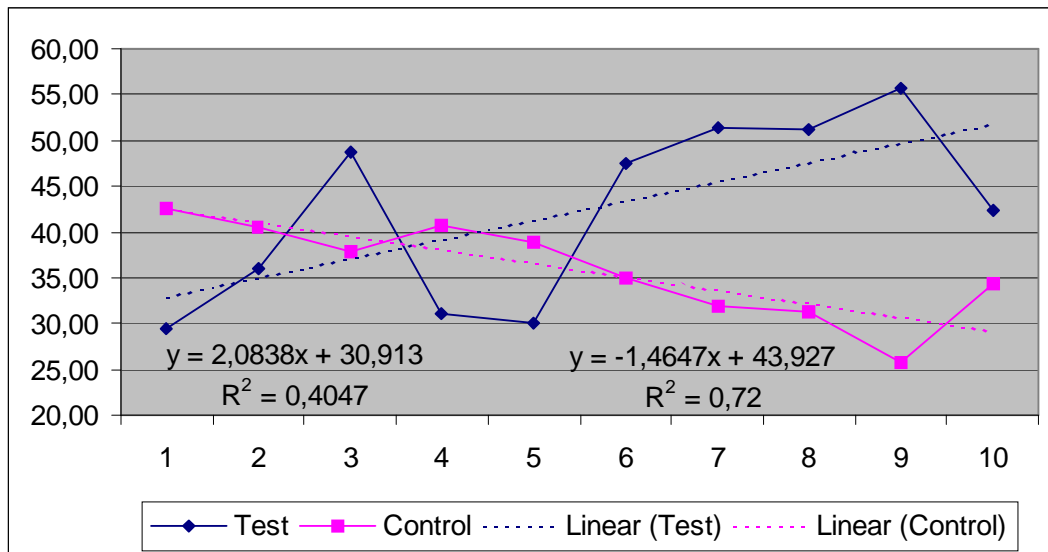
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	29.47	42.60	14.6	8.6	4.09	5.42	1.5	1.4	2.73	3.87
I – 2001	36.06	40.51	15.1	8.5	5.11	7.43	1.4	1.6	3.65	4.64
II – 2001	48.77	37.91	20.0	9.1	10.77	5.67	1.7	1.6	6.33	3.54
III – 2001	31.18	40.67	19.1	12.1	5.09	5.43	1.1	1.5	4.63	3.62
IV – 2001	30.11	38.80	11.0	9.2	11.91	6.44	na	1.6	na	4.03
I – 2002	47.51	35.00	11.8	7.6	6.69	6.30	1.4	1.5	4.78	4.20
II – 2002	51.34	31.94	8.0	6.1	8.63	7.25	1.8	1.6	4.80	4.53
III – 2002	51.28	31.36	8.4	5.7	9.07	7.35	1.9	1.6	4.78	4.59
IV – 2002	55.64	25.67	14.2	5.7	7.99	6.08	1.4	1.5	5.71	4.05
I – 2003	42.39	34.26	7.4	6.4	9.91	7.56	1.5	1.5	6.61	5.04
Average	42.37	35.87	12.96	7.90	7.93	6.49	na	1.54	na	4.21
Standard deviation	9.92	5.23	4.44	2.02	2.62	0.85	na	0.07	na	0.48
% sd	23.40	14.57	34.27	25.62	33.07	13.09	na	4.54	na	11.45

Source: Author.

### Market share

Market share moved in opposite directions in the two groups. While it fell in the control group by -13.18 percent points, it increased by +18.75 percent points in the test group. This means that the net gain in the test group when compared to the control group was as large as +31.93 percent points. Relative to the average of the period, the market share thus grew by +75.36%. Nevertheless, the regression analysis suggests that this cannot be attributed to the program, since the t-test shows that the coefficient associated to the dummy variable is not significantly different from zero.

Figure 92  
Product D.5 - Market Share

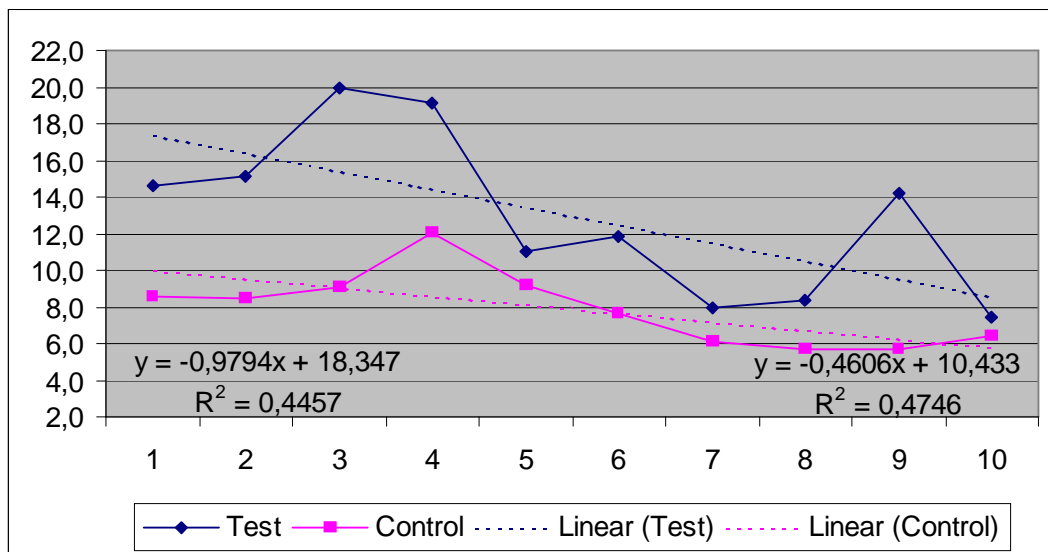


Source: Author.

### Penetration rate

In this case, the gain of market share was not induced by a gain in penetration. On the contrary, since, while decreasing by  $-4.15$  percent points in the control group, the penetration rate decreased even faster in the test group by as much as  $-8.81$  percent points. This amounts to a net decreased of  $-4.66$  percent points in the test group in relation to the control group, a proportional loss of  $-35.96\%$  when compared to the average of the period. In spite of this strong variation, the regression analysis leads us to conclude that it cannot be attributed to the relationship program.

Figure 93  
Product D.5 - Penetration Rate



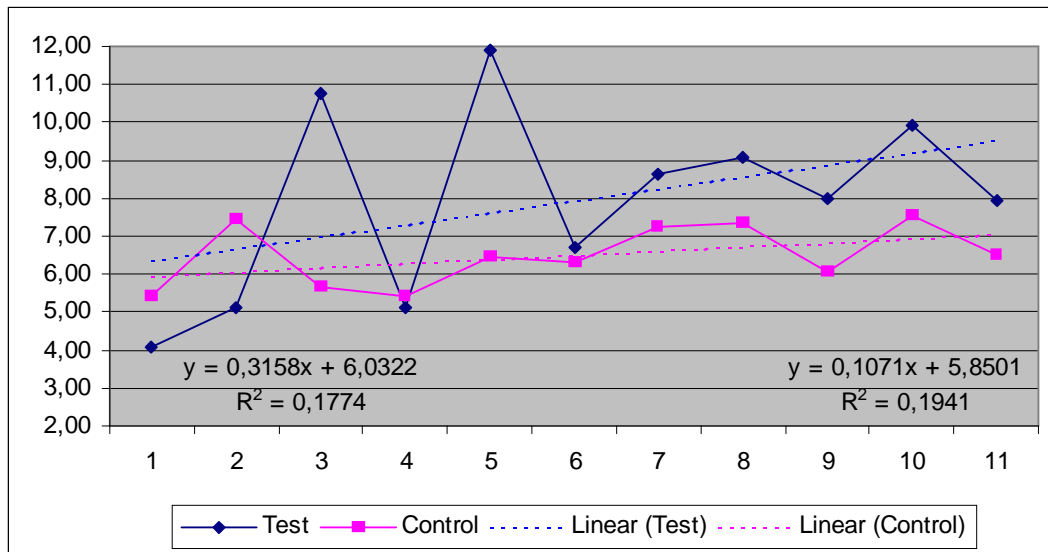
Source: Author.



### ***Buying rate***

We found upward trends in both the control and the test group, in spite of low correlation coefficients. The equation slope indicates that the buying rate grew by +0.96 euros in the control group. The increase was however, even stronger in the test group: +2.84 euros, which means that the net gain over the control group reached +1.88 euros. All in all, this would imply an increase of 23.70% over the period average. However, the regression analysis shows that neither the F nor the t-tests identified coefficients significantly different from zero. As a consequence, we can safely infer that the program had no impact whatsoever on the brand's buying rate.

Figure 94  
Product D.5 - Buying Rate



Source: Author.

#### 4.7 – Product D.6

D has been losing market position in this category. On average, its share stood at 13.31% in the period, but a look at Table 6.26 below instantly reveals that it has been falling steadily. The penetration of the category is very low, and so is of course the absolute penetration of D.6: in fact, no more than 2.44% on average. In one quarter, only three members of the sample of the test group bought it and, since the purchase frequency is generally so small, no estimates of the purchase frequency and the expense per occasion could be obtained for the entire period.

Table 25  
Product D.6 – Evolution of Behavioral Variables

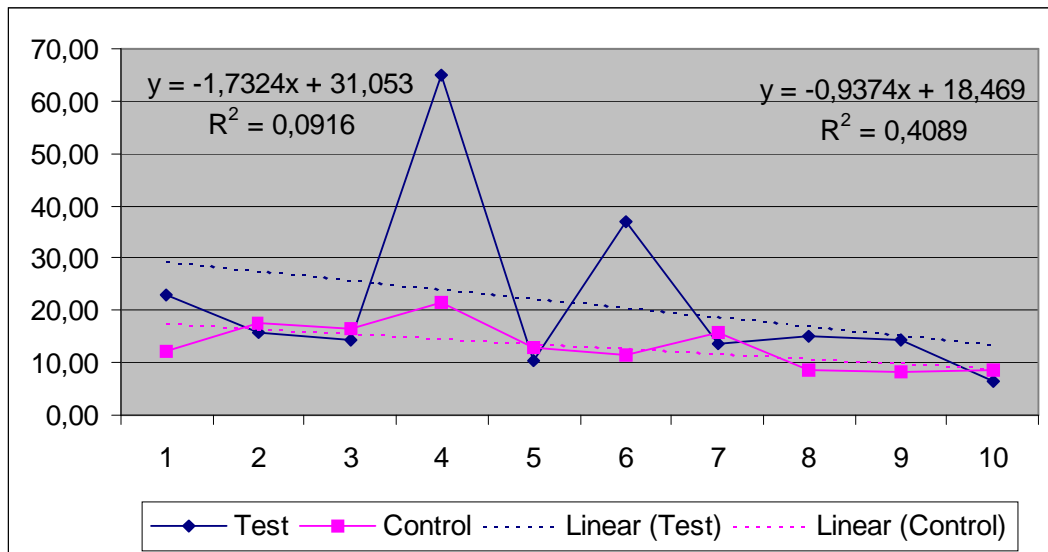
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
<b>IV – 2000</b>	23.12	12.18	2.9	2.6	8.38	4.77	2.5	1.3	3.35	3.67
<b>I – 2001</b>	15.93	17.42	4.5	4.2	4.22	4.67	na	1.3	na	3.59
<b>II – 2001</b>	14.41	16.38	3.8	3.1	2.17	5.34	na	1.6	na	3.34
<b>III – 2001</b>	64.84	21.63	4.1	4.7	4.28	6.99	na	1.7	na	4.11
<b>IV – 2001</b>	10.51	12.83	4.3	1.7	4.34	6.38	na	1.5	na	4.25
<b>I – 2002</b>	36.95	11.55	4.2	2.2	10.07	5.60	na	1.5	na	3.73
<b>II – 2002</b>	13.75	15.78	2.9	1.7	5.33	10.35	na	1.9	na	5.45
<b>III – 2002</b>	15.16	8.50	3.4	1.5	5.26	6.11	na	1.6	na	3.82
<b>IV – 2002</b>	14.19	8.24	1.4	1.2	13.12	6.23	na	1.4	na	4.45
<b>I – 2003</b>	6.38	8.61	2.0	1.5	3.19	4.05	na	1.3	na	3.12
<b>Average</b>	21.53	13.31	3.35	2.44	6.04	6.05	na	1.51	na	3.95
<b>Standard deviation</b>	17.33	4.69	1.09	1.28	3.52	1.80	na	0.19	na	0.69
<b>% sd</b>	80.53	35.22	32.56	52.44	58.37	29.78	na	12.82	na	17.57

Source: TNS.

### Market share

D lost market share in the control group during the period: a total of -8.44 percent points. The trend equation suggests that it might have felt even faster in the test group (-15.59 percent points) but the correlation coefficient is so low, that this figure is in fact meaningless. We can see that, in fact, two quarters display outliers that seem to bear no relationship to the other observed values. As such, we conclude that there was no significant effect of the program on the overall market share in this category. The regression analysis confirmed this impression.

Figure 95  
Product D.6 - Market Share

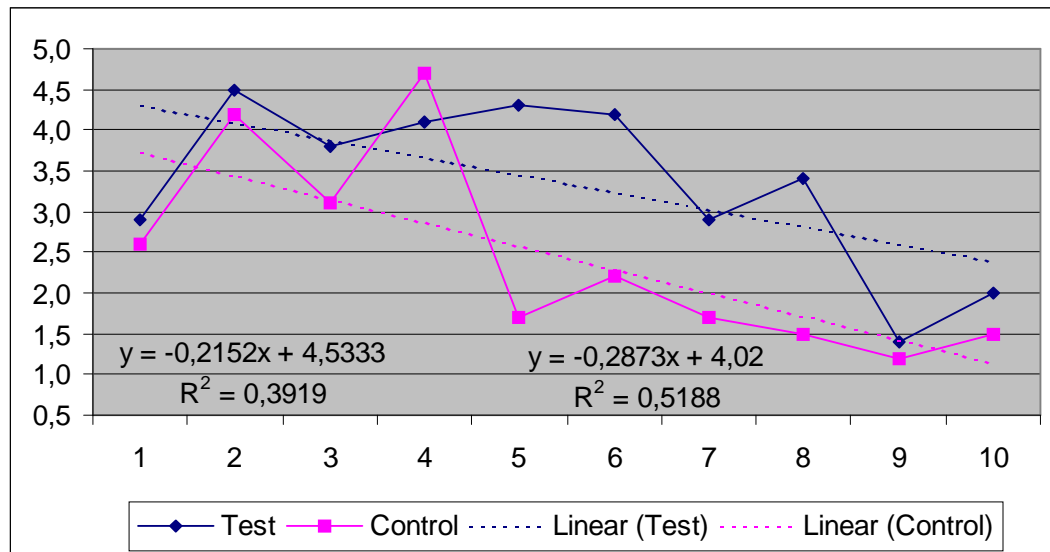


Source: Author.

### Penetration rate

The penetration rate fell simultaneously in both groups, but faster in the control group. Furthermore, the correlation coefficients suggest some consistency in the trends. As the penetration rate declined by  $-2.59$  percent points in the control group and by  $-1.94$  percent points in the test group, the net gain of the former over the latter reached  $+0.65$  percent points, a significant increase of  $+19.40\%$  relative to the average of the period. However, the regression analysis does not confirm the existence of an impact of the program on the penetration rate of the test group.

Figure 96  
Product D.6 - Penetration Rate

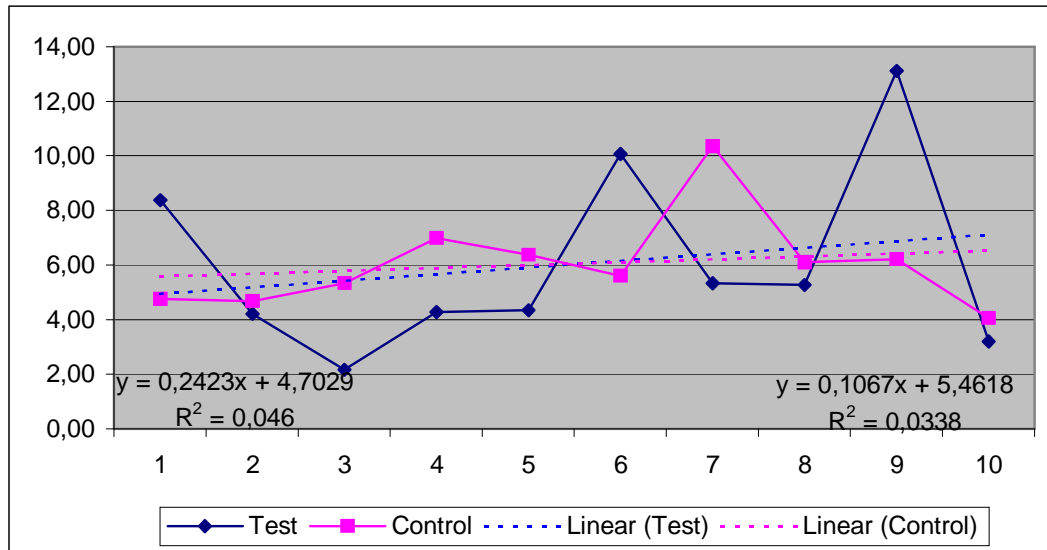


Source: Author.

### *Buying rate*

In spite of some irregular movements in the data the test and the control group did not move either way, as the very low correlation coefficients testify. No impact could be found of the program on the synthetic loyalty indicator, a finding that the regression analysis supports.

Figure 97  
Product D.6 - Buying Rate



Source: Author.

#### 4.8 – Product D.7

D.7 leads its category with an average 56.49% market share, which looks quite steady. The penetration fluctuates widely due to seasonal factors, declining to very low levels during the autumn and winter quarters. In the fourth quarter of 2001, the number of purchases was too small to allow estimates of purchase frequency and expense per occasion in the test group.

Table 26  
Product D.7 – Evolution of Behavioral Variables

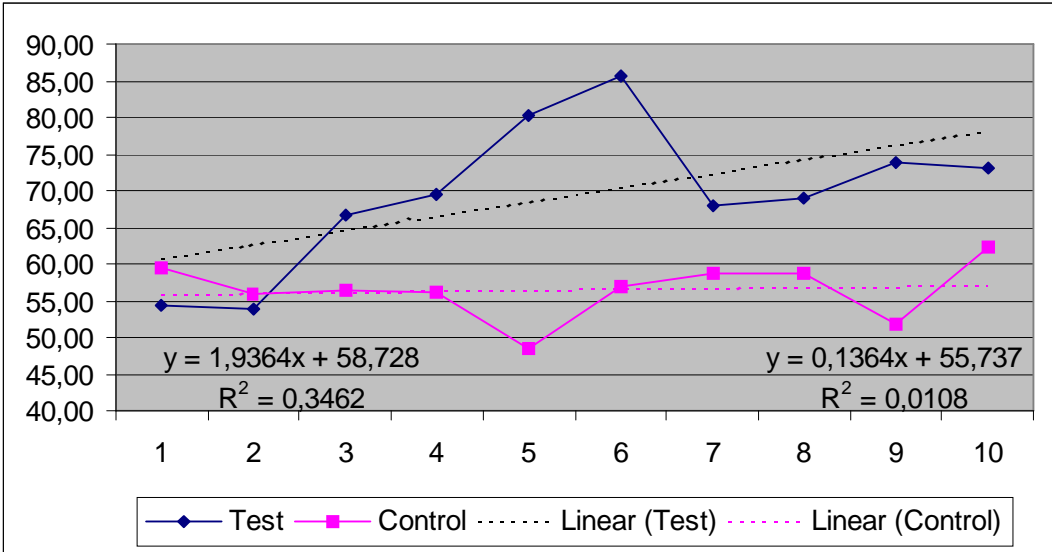
	Market share		Penetration		Buying rate (value)		Purchase frequency		Expense per occasion (value)	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
IV – 2000	54.35	59.61	32.7	29.6	8.49	7.69	2.1	1.9	4.04	4.05
I – 2001	53.76	56.00	18.6	11.4	6.05	5.06	1.5	1.5	4.03	3.37
II – 2001	66.73	56.29	37.1	26.3	9.26	7.27	2.1	1.8	4.41	4.04
III – 2001	69.48	56.27	42.4	37.1	11.18	10.02	2.5	2.3	4.47	4.35
IV – 2001	80.30	48.34	11.3	11.3	18.59	6.76	na	1.7	na	3.98
I – 2002	85.59	56.91	15.2	10.7	8.67	6.06	2.1	1.5	4.13	4.04
II – 2002	67.85	58.72	22.8	22.2	10.49	7.83	2.4	2	4.37	3.91
III – 2002	68.98	58.60	24.4	21.4	10.92	7.86	2.5	2	4.37	3.93
IV – 2002	73.74	51.82	17.5	10.9	8.13	6.62	2.1	1.8	3.87	3.68
I – 2003	73.01	62.31	13.9	8.4	6.19	7.68	1.6	1.8	3.87	4.27
Average	69.38	56.49	23.59	18.93	9.80	7.29	na	1.83	na	3.96
Standard deviation	9.96	3.97	10.53	9.85	3.56	1.32	na	0.24	na	0.28
% sd	14.36	7.02	44.64	52.03	36.35	18.05	na	13.15	na	7.02

Source: TNS.

**Market share**

Market share increases in both groups, but the upward slope is steeper in the test group. According to our data, market share increased by +1.23 percent points in the control group. On the other hand it went up by +17.43 percent points in the test group, translating into a very significant differential gain of +16.20 percent points. Apparently, the program had a very positive impact on D.7.

Figure 98  
Product D.7 - Market Share

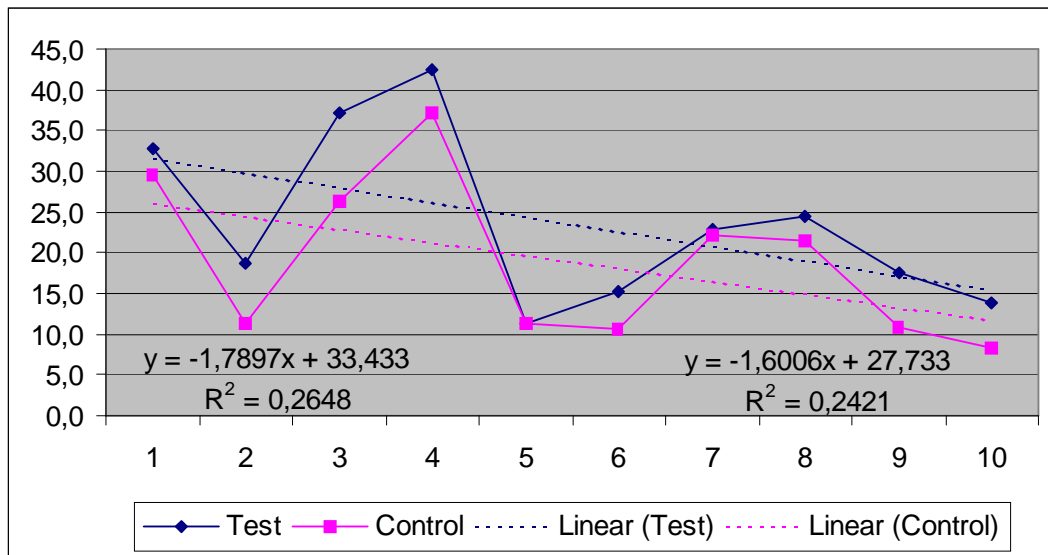


Source: Author.

### Penetration rate

The penetration rate follows a similar declining trend in both groups. It falls by –14.40 percent points in the control group and by –16.11 percent points in the test group. This translates into a differential loss of –1.71 percent points in the test group, a –7.25% decrease as a proportion of the average penetration of the period. Therefore, the increased market share in the test group is not explained in this case by growing penetration.

Figure 99  
Product D.7 - Penetration Rate



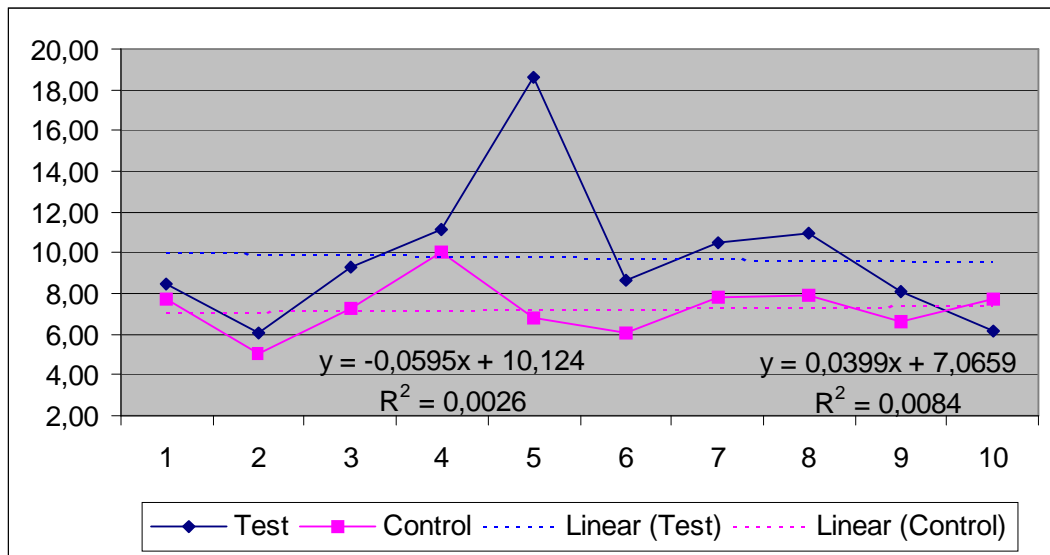
Source: Author.



### *Buying rate*

The correlation coefficients associated to the trend equations are virtually zero. This means that we have no grounds to identify either an increase or a decrease of the buying rate in any of the two groups under analysis. For this reason, the increased market share in the test group remains unexplained since no impact of the program on the exposed group of consumers was found.

Figure 100  
Product D.7 - Buying Rate



Source: Author.



## APPENDIX 2

Corporation  
XXX

SUMMARY OUTPUT - MARKET  
SHARE

<i>Regression Statistics</i>	
Multiple R	0,444770318
R Square	0,197820636
Adjusted R Square	-0,031373468
Standard Error	1,423443176
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3,497666667	1,748833333	0,863114	0,462328003
Residual	7	14,18333333	2,026190476		
Total	9	17,681			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1	1,423443176	0,702521897	0,505038	-2,365905848	4,36590585	-2,365905848	4,365905848
Dummy	1,883333333	1,759422855	1,070426775	0,319941	-2,277037642	6,04370431	-2,277037642	6,043704309
Time	0,016666667	0,183765724	0,090695187	0,930275	-0,41786991	0,45120324	-0,41786991	0,451203243

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,609542822
R Square	0,371542452
Adjusted R Square	0,191983153
Standard Error	2,67167387
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	29,53911111	14,76955556	2,069191	0,196773139
Residual	7	49,96488889	7,13784127		
Total	9	79,504			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,1	2,67167387	0,4117269	0,692854	-5,217500307	7,41750031	-5,217500307	7,417500307
Dummy	-2,255555556	3,302277286	-0,683030333	0,516549	-10,06419493	5,55308381	-10,06419493	5,553083814
Time	0,686666667	0,344911614	1,990848205	0,086783	-0,128919116	1,50225245	-0,128919116	1,502252449

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,26535616
R Square	0,070413892
Adjusted R Square	-0,195182139
Standard Error	2,338764088
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,900277778	1,450138889	0,265117	0,774486207
Residual	7	38,28872222	5,46981746		
Total	9	41,189			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	5,5	2,338764088	2,351669426	0,050962	-0,030294325	11,0302943	-0,030294325	11,03029433
Dummy	1,919444444	2,890789782	0,663986173	0,527956	-4,916182291	8,75507118	-4,916182291	8,755071179
Time	-0,181666667	0,301933145	-0,601678449	0,566357	-0,895624594	0,53229126	-0,895624594	0,532291261

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,253210848
R Square	0,064115734
Adjusted R Square	-0,203279771
Standard Error	0,29456721
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,041611111	0,020805556	0,239779	0,793007896
Residual	7	0,607388889	0,086769841		
Total	9	0,649			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,7	0,29456721	2,376367688	0,049144	0,00345973	1,39654027	0,00345973	1,39654027
Dummy	-0,236111111	0,364094816	-0,648487978	0,537354	-1,097057928	0,62483571	-1,097057928	0,624835706
Time	0,005	0,038028463	0,131480464	0,899094	-0,084922962	0,09492296	-0,084922962	0,094922962

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,319833623
R Square	0,102293546
Adjusted R Square	-0,154194012
Standard Error	0,511497611
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,208688802	0,104344401	0,398825	0,685441217
Residual	7	1,831408641	0,261629806		
Total	9	2,040097443			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,46877193	0,511497611	0,916469442	0,389902	-0,74072686	1,67827072	-0,74072686	1,67827072
Dummy	0,559717836	0,632227968	0,885310149	0,405372	-0,93526268	2,05469835	-0,93526268	2,054698352
Time	-0,037163448	0,066034058	-0,562792134	0,591137	-0,193309071	0,11898217	-0,193309071	0,118982174



## Division A

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,465498446
R Square	0,216688803
Adjusted R Square	-0,007114396
Standard Error	3,939616915
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	30,05440703	15,02720351	0,9682114	0,425373245
Residual	7	108,64407	15,52058143		
Total	9	138,6984771			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	5,844407944	3,939616915	1,48349651	0,1815109	-3,47129909	15,16011498	-3,47129909	15,160115
Dummy	-5,77373825	4,869496834	-1,185695041	0,2744263	-17,2882603	5,740783819	-17,2882603	5,74078382
Time	0,630860683	0,508602357	1,240380966	0,2547948	-0,57179192	1,833513289	-0,57179192	1,83351329

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,324093818
R Square	0,105036803
Adjusted R Square	-0,150666968
Standard Error	5,01264433
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	20,64277778	10,32138889	0,4107753	0,678138058
Residual	7	175,8862222	25,12660317		
Total	9	196,529			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	6,9	5,01264433	1,376518968	0,2110759	-4,95301187	18,75301187	-4,95301187	18,7530119
Dummy	-3,877777778	6,195794216	-0,625872591	0,5512515	-18,5284926	10,772937	-18,5284926	10,772937
Time	0,573333333	0,6471296	0,885963697	0,4050433	-0,95688392	2,103550585	-0,95688392	2,10355059

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,353555641
R Square	0,125001591
Adjusted R Square	-0,124997954
Standard Error	1,842241553
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3,393903314	1,696951657	0,5000073	0,626650545
Residual	7	23,75697758	3,39385394		
Total	9	27,1508809			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	2,578530608	1,842241553	1,399670202	0,2043357	-1,77767533	6,934736545	-1,77767533	6,93473655
Dummy	-1,170409776	2,277071503	-0,513997814	0,6230769	-6,55482442	4,214004872	-6,55482442	4,21400487
Time	0,237823058	0,237832362	0,99996088	0,3506343	-0,32456071	0,800206826	-0,32456071	0,80020683

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,450622878
R Square	0,203060979
Adjusted R Square	-0,024635885
Standard Error	0,229094144
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,093611111	0,046805556	0,891804	0,451843275
Residual	7	0,367388889	0,052484127		
Total	9	0,461			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,4	0,229094144	1,746007088	0,124315	-0,14172118	0,941721182	-0,14172118	0,94172118
Dummy	-0,269444444	0,283167941	-0,951535839	0,373023	-0,93902975	0,400140857	-0,93902975	0,40014086
Time	0,038333333	0,029575927	1,296099139	0,2360354	-0,03160257	0,108269237	-0,03160257	0,10826924

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,204891831
R Square	0,041980663
Adjusted R Square	-0,231739148
Standard Error	0,433787205
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,057720027	0,028860014	0,1533709	0,860617085
Residual	7	1,317199373	0,188171339		
Total	9	1,3749194			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,109622633	0,433787205	0,252710619	0,8077521	-0,91612038	1,135365643	-0,91612038	1,13536564
Dummy	0,135229727	0,536175335	0,252211764	0,8081226	-1,13262257	1,403082021	-1,13262257	1,40308202
Time	-0,030925034	0,056001687	-0,552216106	0,5979813	-0,16334789	0,10149782	-0,16334789	0,10149782

## Product A.1

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,495202285
R Square	0,245225303
Adjusted R Square	0,029575389
Standard Error	4,37158665
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	43,4634473	21,73172365	1,137145	0,37356026
Residual	7	133,7753889	19,11076984		
Total	9	177,2388362			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,165357586	4,37158665	0,037825531	0,970883	-10,1717948	10,50251	-10,1717948	10,50251
Dummy	-2,829246475	5,403425717	-0,523602363	0,616718	-15,6063088	9,94781588	-15,6063088	9,947815877
Time	0,835	0,56436941	1,47952739	0,182537	-0,49952064	2,16952064	-0,49952064	2,169520639

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,064806352
R Square	0,004199863
Adjusted R Square	-0,280314461
Standard Error	4,023538875
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,477944444	0,238972222	0,014762	0,98537749
Residual	7	113,3220556	16,18886508		
Total	9	113,8			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	4,3	4,023538875	1,068710937	0,320663	-5,21415079	13,8141508	-5,21415079	13,81415079
Dummy	0,202777778	4,973227153	0,040773882	0,968615	-11,5570273	11,9625829	-11,5570273	11,9625829
Time	-0,085	0,519436635	-0,163638824	0,87464	-1,31327159	1,14327159	-1,31327159	1,143271586

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,593578719
R Square	0,352335695
Adjusted R Square	0,167288751
Standard Error	1,899607311
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	13,74144444	6,870722222	1,904034	0,21863761
Residual	7	25,25955556	3,608507937		
Total	9	39,001			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,9	1,899607311	0,473782131	0,650076	-3,5918543	5,3918543	-3,5918543	5,391854303
Dummy	-1,222222222	2,347977478	-0,520542566	0,61874	-6,77430274	4,32985829	-6,77430274	4,329858292
Time	0,46	0,245238249	1,875726977	0,102809	-0,1198959	1,0398959	-0,1198959	1,039895897



SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,553991793
R Square	0,306906907
Adjusted R Square	0,108880309
Standard Error	0,135342012
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,056777778	0,028388889	1,549827	0,27718549
Residual	7	0,128222222	0,01831746		
Total	9	0,185			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,1	0,135342012	0,738868872	0,484019	-0,22003278	0,42003278	-0,22003278	0,420032776
Dummy	-0,094444444	0,167287205	-0,564564664	0,589994	-0,49001554	0,30112665	-0,49001554	0,301126654
Time	0,03	0,017472579	1,716976101	0,129687	-0,01131605	0,07131605	-0,01131605	0,071316054

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,350890866
R Square	0,1231244
Adjusted R Square	-0,127411486
Standard Error	0,767610186
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,57914277	0,289571385	0,491444	0,63136856
Residual	7	4,124577781	0,589225397		
Total	9	4,703720552			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,084559159	0,767610186	0,110158986	0,915375	-1,7305492	1,89966752	-1,7305492	1,899667522
Dummy	-0,278708945	0,948791583	-0,293751494	0,777466	-2,52224293	1,96482504	-2,52224293	1,964825037
Time	0,09522492	0,099098049	0,960916195	0,368603	-0,13910456	0,3295544	-0,13910456	0,329554402

## Product A.2

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,368057017
R Square	0,135465967
Adjusted R Square	-0,111543756
Standard Error	12,05398377
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	159,3702867	79,68514333	0,548423623	0,600810244
Residual	7	1017,089673	145,2985248		
Total	9	1176,45996			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	5,39	12,05398377	0,447155074	0,6682713	-23,11312196	33,89312196	-23,11312196	33,89312196
Dummy	-9,208333333	14,8991227	-0,61804534	0,556111609	-44,439135	26,02246833	-44,439135	26,02246833
Time	1,624333333	1,556162613	1,043806939	0,331275781	-2,055403889	5,304070556	-2,055403889	5,304070556

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,435184589
R Square	0,189385626
Adjusted R Square	-0,042218481
Standard Error	4,185459524
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	28,6495	14,32475	0,817712729	0,47956784
Residual	7	122,6265	17,51807143		
Total	9	151,276			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,3	4,185459524	0,310599109	0,765149535	-8,597032015	11,19703201	-8,597032015	11,19703201
Dummy	-1,791666667	5,173366432	-0,3463251	0,739274951	-14,02472564	10,44139231	-14,02472564	10,44139231
Time	0,665	0,540340501	1,230705451	0,258178966	-0,612701339	1,942701339	-0,612701339	1,942701339

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,459702796
R Square	0,211326661
Adjusted R Square	-0,014008579
Standard Error	2,015690401
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	7,620839688	3,810419844	0,937832275	0,435652349
Residual	7	28,44105455	4,063007793		
Total	9	36,06189424			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	3,246153846	2,015690401	1,610442677	0,151336517	-1,52019315	8,012500842	-1,52019315	8,012500842
Dummy	-1,051448021	2,491460017	-0,42202083	0,685668845	-6,942810585	4,839914543	-6,942810585	4,839914543
Time	-0,231789371	0,260224512	-0,89072843	0,402650255	-0,847122122	0,383543381	-0,847122122	0,383543381

## Product A.3

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,518062322
R Square	0,26838857
Adjusted R Square	0,059356732
Standard Error	6,669518353
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	114,2274594	57,1137297	1,28396	0,334951315
Residual	7	311,3773254	44,48247506		
Total	9	425,6047848			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	16,38074837	6,669518353	2,456061668	0,043717	0,609854807	32,15164193	0,609854807	32,15164193
Dummy	-11,3078105	8,24374532	-1,371683629	0,212508	-30,80115666	8,185535664	-30,80115666	8,185535664
Time	0,008433988	0,861031117	0,009795219	0,992458	-2,027579616	2,044447592	-2,027579616	2,044447592

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,419137222
R Square	0,175676011
Adjusted R Square	-0,059845129
Standard Error	3,77485099
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	21,2575	10,62875	0,745903	0,508560688
Residual	7	99,7465	14,2495		
Total	9	121,004			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	5,8	3,77485099	1,53648449	0,168301	-3,126097813	14,72609781	-3,126097813	14,72609781
Dummy	-5,408333333	4,665840701	-1,15913373	0,28441	-16,44128552	5,624618849	-16,44128552	5,624618849
Time	0,135	0,487331167	0,277019015	0,789767	-1,017354272	1,287354272	-1,017354272	1,287354272

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,266670256
R Square	0,071113025
Adjusted R Square	-0,194283253
Standard Error	1,361469268
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,993344766	0,496672383	0,26795	0,772449427
Residual	7	12,97518998	1,853598569		
Total	9	13,96853475			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,964828431	1,361469268	0,708667066	0,501443	-2,254532515	4,184189378	-2,254532515	4,184189378
Dummy	0,423294083	1,682821055	0,251538381	0,808623	-3,555942547	4,402530713	-3,555942547	4,402530713
Time	0,079959599	0,175764927	0,454923521	0,662937	-0,335658112	0,49557731	-0,335658112	0,49557731



## Product A.4

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,792003401
R Square	0,627269387
Adjusted R Square	0,520774926
Standard Error	3,955644826
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	184,3281434	92,16407168	5,8901597	0,031614238
Residual	7	109,5298819	15,64712599		
Total	9	293,8580253			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-4,134563393	3,955644826	-1,045231201	0,3306614	-13,48817039	5,219043603	-13,48817	5,219043603
Dummy	-5,51771186	4,889307863	-1,128526167	0,2962853	-17,07907954	6,043655815	-17,07908	6,043655815
Time	1,712607796	0,510671551	3,353638542	0,0121899	0,505062326	2,920153267	0,5050623	2,920153267

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,633420437
R Square	0,40122145
Adjusted R Square	0,230141865
Standard Error	3,327103703
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	51,92166667	25,96083333	2,3452328	0,166123786
Residual	7	77,48733333	11,06961905		
Total	9	129,409			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-3	3,327103703	-0,90168515	0,3971868	-10,86734447	4,867344474	-10,867344	4,867344474
Dummy	0,85	4,112410241	0,206691441	0,8421344	-8,874298032	10,57429803	-8,874298	10,57429803
Time	0,7433333333	0,429527241	1,730584844	0,1271417	-0,272336471	1,759003138	-0,2723365	1,759003138

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,752963219
R Square	0,56695361
Adjusted R Square	0,44322607
Standard Error	0,462771854
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,962659751	0,981329876	4,582275	0,053440496
Residual	7	1,499104522	0,214157789		
Total	9	3,461764274			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,491666667	0,462771854	1,06243857	0,3233097	-0,6026141	1,585947433	-0,6026141	1,585947433
Dummy	-1,454479658	0,572001321	-2,542790734	0,0385068	-2,807046885	-0,10191243	-2,8070469	-0,101912431
Time	0,163034687	0,059743589	2,728906791	0,029385	0,021763648	0,304305726	0,0217636	0,304305726

## Division B

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,173478912
R Square	0,030094933
Adjusted R Square	-0,247020801
Standard Error	4,693030589
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	4,783755358	2,391877679	0,108600593	0,898570794
Residual	7	154,1717528	22,02453611		
Total	9	158,9555082			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,684397163	4,693030589	0,358914593	0,730240538	-9,412848843	12,7816432	-9,41284884	12,78164317
Dummy	2,160701428	5,80074106	0,372487137	0,720551893	-11,55586175	15,8772646	-11,5558617	15,8772646
Time	0,026865837	0,605867644	0,044342749	0,965869623	-1,405782462	1,45951414	-1,40578246	1,459514136

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,870342532
R Square	0,757496122
Adjusted R Square	0,6882093
Standard Error	2,744385322
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	164,6834444	82,34172222	10,9327589	0,007022883
Residual	7	52,72155556	7,531650794		
Total	9	217,405			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,26319E-15	2,744385322	-4,60281E-16	1	-6,489435445	6,48943544	-6,48943544	6,489435445
Dummy	-2,627777778	3,392151045	-0,774664142	0,46389619	-10,64893467	5,39337911	-10,6489347	5,39337911
Time	1,536666667	0,354298622	4,337207579	0,003407681	0,698884153	2,37444918	0,698884153	2,37444918

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,069064509
R Square	0,004769906
Adjusted R Square	-0,279581549
Standard Error	1,869479613
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,117253512	0,058626756	0,016774686	0,98340463
Residual	7	24,46467817	3,494954024		
Total	9	24,58193168			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,85026738	1,869479613	0,454815005	0,66301173	-3,570346289	5,27088105	-3,57034629	5,270881049
Dummy	-0,037698179	2,310738647	-0,016314341	0,987438873	-5,501722913	5,42632656	-5,50172291	5,426326555
Time	-0,035493429	0,24134878	-0,147062805	0,88722848	-0,606192199	0,53520534	-0,6061922	0,535205342

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,582941703
R Square	0,339821029
Adjusted R Square	0,151198466
Standard Error	0,265069622
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,253166667	0,126583333	1,80159268	0,233784601
Residual	7	0,491833333	0,070261905		
Total	9	0,745			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,6	0,265069622	2,263556248	0,058026255	-0,026789609	1,22678961	-0,02678961	1,226789609
Dummy	-0,608333333	0,327634822	-1,856741995	0,105715868	-1,383066025	0,16639936	-1,38306603	0,166399359
Time	0,021666667	0,034220341	0,633151686	0,546754752	-0,059251524	0,10258486	-0,05925152	0,102584857

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,372498054
R Square	0,138754801
Adjusted R Square	-0,107315256
Standard Error	0,527561154
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,31388088	0,15694044	0,56388332	0,59284867
Residual	7	1,948245397	0,278320771		
Total	9	2,262126277			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,323083779	0,527561154	-0,6124101	0,559626499	-1,570566785	0,92439923	-1,57056678	0,924399227
Dummy	0,683402748	0,652083038	1,048030248	0,329456561	-0,858527515	2,22533301	-0,85852752	2,225333012
Time	-0,047235471	0,068107852	-0,693539286	0,510321837	-0,208284835	0,11381389	-0,20828483	0,113813892



## Product B.1

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,756810962
R Square	0,572762832
Adjusted R Square	0,45069507
Standard Error	2,785821829
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	72,8300343	36,41501715	4,69217115	0,050973165
Residual	7	54,32562286	7,760803265		
Total	9	127,1556572			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-4,129111139	2,785821829	-1,482187804	0,1818488	-10,71652828	2,458306	-10,7165283	2,458306007
Dummy	10,14881239	3,443367939	2,94735055	0,0214876	2,006546877	18,291078	2,00654688	18,2910779
Time	-0,297425216	0,359648052	-0,826989648	0,43552328	-1,147857112	0,5530067	-1,14785711	0,553006681

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,84273656
R Square	0,71020491
Adjusted R Square	0,627406313
Standard Error	2,23786321
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	85,91277778	42,95638889	8,57749932	0,013101426
Residual	7	35,05622222	5,008031746		
Total	9	120,969			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,7	2,23786321	-0,759653223	0,4722647	-6,991701832	3,5917018	-6,99170183	3,591701832
Dummy	1,294444444	2,766072959	0,46797191	0,65402527	-5,246274076	7,835163	-5,24627408	7,835162965
Time	0,943333333	0,288906898	3,265181065	0,01376557	0,260177564	1,6264891	0,26017756	1,626489102

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,685004002
R Square	0,469230483
Adjusted R Square	0,31758205
Standard Error	1,068218773
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	7,061528194	3,530764097	3,09419934	0,10893587
Residual	7	7,987639434	1,141091348		
Total	9	15,04916763			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,791615792	1,068218773	-0,741061486	0,48276996	-3,317550002	1,7343184	-3,31755	1,734318419
Dummy	2,462193212	1,320353742	1,864798148	0,10447288	-0,659945033	5,5843315	-0,65994503	5,584331457
Time	-0,327940125	0,137906451	-2,377989744	0,0490268	-0,65403683	-0,0018434	-0,65403683	-0,001843421

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,73675308
R Square	0,5428051
Adjusted R Square	0,412177986
Standard Error	0,126239883
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,132444444	0,066222222	4,15537849	0,064618195
Residual	7	0,111555556	0,015936508		
Total	9	0,244			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,1	0,126239883	0,792142689	0,4542803	-0,198509674	0,3985097	-0,19850967	0,398509674
Dummy	0,188888889	0,156036671	1,210541649	0,2653542	-0,180078943	0,5578567	-0,18007894	0,557856721
Time	-0,046666667	0,016297499	-2,86342508	0,02421864	-0,0852041	-0,0081292	-0,0852041	-0,008129233

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,58150587
R Square	0,338149077
Adjusted R Square	0,149048813
Standard Error	0,592699821
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,256364508	0,628182254	1,78819992	0,235863439
Residual	7	2,459051546	0,351293078		
Total	9	3,715416054			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,751729752	0,592699821	-1,268314457	0,24523608	-2,15324112	0,6497816	-2,15324112	0,649781617
Dummy	1,207433468	0,732596586	1,648156012	0,14331114	-0,524880947	2,9397479	-0,52488095	2,939747883
Time	-0,126373525	0,076517218	-1,651569787	0,1426047	-0,307307865	0,0545608	-0,30730786	0,054560814

## Product B.2

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,597366106
R Square	0,356846265
Adjusted R Square	0,173088054
Standard Error	10,27072535
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	409,7006284	204,8503142	1,941934	0,21335449
Residual	7	738,4145939	105,4877991		
Total	9	1148,115222			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	6,612665052	10,27072535	0,643836227	0,540195	-17,6737238	30,8990539	-17,6737238	30,89905391
Dummy	-19,54365414	12,6949563	-1,539481798	0,16758	-49,5624342	10,4751259	-49,5624342	10,47512591
Time	2,457306854	1,325944941	1,853249542	0,106259	-0,67805247	5,59266617	-0,67805247	5,592666174

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,459649804
R Square	0,211277942
Adjusted R Square	-0,014071217
Standard Error	4,399254085
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	36,28994444	18,14497222	0,937558	0,435746546
Residual	7	135,4740556	19,35343651		
Total	9	171,764			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	2	4,399254085	0,454622525	0,663144	-8,40257546	12,4025755	-8,40257546	12,40257546
Dummy	-6,397222222	5,437623582	-1,1764739	0,277859	-19,2551496	6,46070517	-19,2551496	6,460705173
Time	0,688333333	0,56794126	1,211979797	0,264837	-0,65463338	2,03130005	-0,65463338	2,03130005

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,699117115
R Square	0,488764741
Adjusted R Square	0,342697524
Standard Error	1,111975827
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	8,27499619	4,137498095	3,346163	0,095537263
Residual	7	8,655431674	1,236490239		
Total	9	16,93042786			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,792929293	1,111975827	0,713081412	0,498871	-1,83647383	3,42233242	-1,83647383	3,422332419
Dummy	-2,965392893	1,374438907	-2,157529794	0,067855	-6,21542214	0,28463635	-6,21542214	0,284636355
Time	0,33649405	0,143555462	2,344000327	0,051541	-0,00296043	0,67594853	-0,00296043	0,675948534



## Product B.3

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,246424431
R Square	0,060725
Adjusted R Square	-0,207639286
Standard Error	2,566747805
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,981530107	1,490765053	0,226278247	0,80310933
Residual	7	46,11736007	6,588194295		
Total	9	49,09889017			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	2,859040964	2,566747805	1,113876852	0,302111506	-3,210348802	8,92843073	-3,2103488	8,92843073
Dummy	-1,866379112	3,172585198	-0,58828337	0,574823447	-9,368345645	5,635587422	-9,36834564	5,635587422
Time	0,194014733	0,331365717	0,58550032	0,576591759	-0,589540116	0,977569583	-0,58954012	0,977569583

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,583668205
R Square	0,340668573
Adjusted R Square	0,152288165
Standard Error	1,960346989
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	13,89927778	6,949638889	1,808407664	0,232735814
Residual	7	26,90072222	3,842960317		
Total	9	40,8			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,4	1,960346989	0,204045509	0,844123381	-4,235480716	5,035480716	-4,23548072	5,035480716
Dummy	2,530555556	2,423053729	1,044366258	0,331034394	-3,199051956	8,260163067	-3,19905196	8,260163067
Time	0,205	0,253079708	0,810021481	0,444587634	-0,393437987	0,803437987	-0,39343799	0,803437987

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,754897537
R Square	0,569870292
Adjusted R Square	0,44697609
Standard Error	0,516184075
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,471063021	1,23553151	4,637080362	0,052191291
Residual	7	1,865121994	0,266445999		
Total	9	4,336185015			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,966555184	0,516184075	1,872500976	0,103297667	-0,254025325	2,187135693	-0,25402532	2,187135693
Dummy	-1,637612661	0,638020593	-2,56670816	0,037185964	-3,146290548	-0,12893477	-3,14629055	-0,128934774
Time	-0,003817418	0,066639078	-0,057284978	0,955919097	-0,161393684	0,153758848	-0,16139368	0,153758848

## Product B.4

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,432112571
R Square	0,186721274
Adjusted R Square	-0,045644076
Standard Error	5,322545383
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	45,5293213	22,76466065	0,803568	0,485107447
Residual	7	198,3064255	28,32948936		
Total	9	243,8357468			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	4,258602711	5,322545383	0,800106416	0,449945	-8,327208179	16,8444136	-8,32720818	16,8444136
Dummy	-4,865548503	6,57884217	-0,739575198	0,483616	-20,42202712	10,6909301	-20,4220271	10,69093011
Time	-0,337969734	0,687137654	-0,491851569	0,637872	-1,962790933	1,28685147	-1,96279093	1,286851466

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,307762635
R Square	0,09471784
Adjusted R Square	-0,163934206
Standard Error	1,659556261
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,017111111	1,008555556	0,366198	0,705901115
Residual	7	19,27888889	2,754126984		
Total	9	21,296			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,4	1,659556261	0,241028285	0,816441	-3,524224175	4,32422417	-3,52422417	4,324224175
Dummy	-0,938888889	2,051266439	-0,457711817	0,661028	-5,789359787	3,91158201	-5,78935979	3,911582009
Time	0,183333333	0,214247792	0,85570699	0,420482	-0,323281829	0,6899485	-0,32328183	0,689948496

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,432893718
R Square	0,187396971
Adjusted R Square	-0,044775323
Standard Error	1,969175468
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	6,259663736	3,129831868	0,807146	0,483698264
Residual	7	27,14356417	3,877652024		
Total	9	33,4032279			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,229583975	1,969175468	0,624415648	0,552154	-3,426772761	5,88594071	-3,42677276	5,885940712
Dummy	-0,135682877	2,433966021	-0,055745592	0,957102	-5,891093841	5,61972809	-5,89109384	5,619728087
Time	-0,267787507	0,25421946	-1,053371393	0,327167	-0,868920576	0,33334556	-0,86892058	0,333345563

## Division C

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,600255262
R Square	0,360306379
Adjusted R Square	0,177536774
Standard Error	1,638733987
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	10,58802344	5,294011722	1,9713692	0,20936403
Residual	7	18,79814357	2,685449081		
Total	9	29,38616701			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,129414601	1,652333673	-0,683526953	0,5162535	-5,03656008	2,77773088	-5,03656008	2,777730878
Dummy	3,434545322	2,02552942	1,695628456	0,1337762	-1,35506724	8,22415788	-1,35506724	8,224157883
Time	-0,373754428	0,211559648	-1,766662176	0,1206231	-0,87401314	0,12650429	-0,87401314	0,126504288

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,61271384
R Square	0,37541825
Adjusted R Square	0,196966322
Standard Error	3,682575876
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	57,05944444	28,52972222	2,10375	0,192558421
Residual	7	94,92955556	13,56136508		
Total	9	151,989			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,043333333	3,713137195	0,011670275	0,9910143	-8,73683465	8,82350131	-8,73683465	8,823501314
Dummy	-3,238888889	4,551785606	-0,711564465	0,4997538	-14,0021438	7,52436604	-14,0021438	7,524366044
Time	0,956666667	0,475418501	2,012262174	0,0840847	-0,16751865	2,08085198	-0,16751865	2,08085198



SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,459511381
R Square	0,211150709
Adjusted R Square	-0,014234802
Standard Error	1,295360975
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3,143968335	1,571984167	0,9368424	0,43599262
Residual	7	11,7457204	1,677960057		
Total	9	14,88968873			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,916837656	1,306111043	1,467591646	0,1856563	-1,17162198	5,0052973	-1,17162198	5,005297295
Dummy	0,896590051	1,601109018	0,559980639	0,5929521	-2,88942845	4,68260855	-2,88942845	4,682608555
Time	-0,227036509	0,167230383	-1,357627158	0,216721	-0,62247325	0,16840023	-0,62247325	0,168400227

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,564461363
R Square	0,31861663
Adjusted R Square	0,123935667
Standard Error	0,242474021
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,192444444	0,096222222	1,6366091	0,261138169
Residual	7	0,411555556	0,058793651		
Total	9	0,604			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,153333333	0,244486288	0,62716537	0,5504512	-0,42478446	0,73145113	-0,42478446	0,731451125
Dummy	0,422222222	0,299705911	1,408788437	0,201734	-0,28646914	1,13091358	-0,28646914	1,130913581
Time	-0,053333333	0,031303261	-1,703762828	0,1322037	-0,12735373	0,02068706	-0,12735373	0,020687065

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,453395391
R Square	0,20556738
Adjusted R Square	-0,021413368
Standard Error	0,196725194
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,070099535	0,035049768	0,90566	0,446889076
Residual	7	0,270905614	0,038700802		
Total	9	0,341005149			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,425978625	0,198357796	2,147526508	0,0688647	-0,04306269	0,89501995	-0,04306269	0,895019945
Dummy	-0,103489741	0,243158848	-0,425605493	0,6831747	-0,67846864	0,47148916	-0,67846864	0,471489156
Time	-0,022008648	0,025397113	-0,866580683	0,4148855	-0,08206323	0,03804594	-0,08206323	0,038045939

## Product C.1

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,724358893
R Square	0,524695805
Adjusted R Square	0,388894607
Standard Error	4,353139903
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	146,4330928	73,2165464	3,863705	0,074028809
Residual	7	132,6487891	18,94982702		
Total	9	279,0818819			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	11,30510002	4,389266165	2,57562417	0,036706	0,926142227	21,6840578	0,926142227	21,68405782
Dummy	-12,76086849	5,380624927	-2,371633159	0,049487	-25,48401558	-0,0377214	-25,48401558	-0,037721404
Time	0,001069152	0,561987945	0,001902446	0,998535	-1,327820221	1,32995852	-1,327820221	1,329958525

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,700892322
R Square	0,491250047
Adjusted R Square	0,345892918
Standard Error	2,609092769
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	46,01244444	23,00622222	3,379608	0,093921568
Residual	7	47,65155556	6,807365079		
Total	9	93,664			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	11,35333333	2,630745363	4,315633696	0,003499	5,132613499	17,5740532	5,132613499	17,57405317
Dummy	-5,577777778	3,224924975	-1,729583733	0,127327	-13,20350813	2,04795257	-13,20350813	2,047952572
Time	-0,253333333	0,336832428	-0,75210494	0,476511	-1,049814892	0,54314823	-1,049814892	0,543148225

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,215931422
R Square	0,046626379
Adjusted R Square	-0,225766084
Standard Error	1,797112598
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,105648742	0,552824371	0,171174	0,846098566
Residual	7	22,60729583	3,22961369		
Total	9	23,71294457			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,389482564	1,812026651	0,766811329	0,468261	-2,895276535	5,67424166	-2,895276535	5,674241663
Dummy	-0,887223884	2,221290622	-0,399418192	0,701491	-6,139737801	4,36529003	-6,139737801	4,365290033
Time	-0,036202171	0,232006239	-0,156039644	0,880406	-0,584809357	0,51240502	-0,584809357	0,512405015

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,448819395
R Square	0,201438849
Adjusted R Square	-0,02672148
Standard Error	0,251850296
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,112	0,056	0,882883	0,455070439
Residual	7	0,444	0,063428571		
Total	9	0,556			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,06	0,253940375	-0,236275936	0,819983	-0,660473141	0,54047314	-0,660473141	0,540473141
Dummy	0,333333333	0,311295297	1,070794633	0,319787	-0,402762549	1,06942922	-0,402762549	1,069429215
Time	-0,04	0,032513733	-1,23024937	0,258339	-0,116882707	0,03688271	-0,116882707	0,036882707

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,448370338
R Square	0,20103596
Adjusted R Square	-0,02723948
Standard Error	0,701055486
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,865663964	0,432831982	0,880673	0,455874516
Residual	7	3,440351559	0,491478794		
Total	9	4,306015523			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,866404335	0,706873473	1,225685172	0,25995	-0,805084628	2,5378933	-0,805084628	2,537893297
Dummy	-1,149763206	0,866527772	-1,326862499	0,226198	-3,198774325	0,89924791	-3,198774325	0,899247913
Time	0,060556786	0,090505874	0,669092331	0,524882	-0,153455445	0,27456902	-0,153455445	0,274569018



## Product C.2

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,792496085
R Square	0,628050044
Adjusted R Square	0,521778628
Standard Error	8,163039089
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	787,6105611	393,8052805	5,909868	0,031383096
Residual	7	466,4464502	66,63520717		
Total	9	1254,057011			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-30,22171932	8,230783314	-3,671791392	0,007945	-49,68441523	-10,7590234	-49,6844152	-10,75902341
Dummy	15,44707176	10,08978636	1,530961232	0,169635	-8,41146469	39,3056082	-8,41146469	39,3056082
Time	1,923959962	1,053843815	1,82565949	0,110647	-0,567982898	4,415902821	-0,5679829	4,415902821

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,579651462
R Square	0,335995817
Adjusted R Square	0,146280336
Standard Error	5,123047828
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	92,96466667	46,48233333	1,771051	0,238560125
Residual	7	183,7193333	26,24561905		
Total	9	276,684			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-3,503333333	5,165563477	-0,678209328	0,519422	-15,71794127	8,711274599	-15,7179413	8,711274599
Dummy	-3,416666667	6,332256592	-0,539565417	0,606226	-18,39006346	11,55673013	-18,3900635	11,55673013
Time	1,203333333	0,661382631	1,819420828	0,111663	-0,360586956	2,767253623	-0,36058696	2,767253623

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,374072534
R Square	0,139930261
Adjusted R Square	-0,105803951
Standard Error	0,337949494
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,130070741	0,065035371	0,569437	0,5900215
Residual	7	0,799469023	0,11420986		
Total	9	0,929539764			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,079255633	0,340754102	-0,232588932	0,822735	-0,88501047	0,726499204	-0,88501047	0,726499204
Dummy	0,399913409	0,417716754	0,957379384	0,370265	-0,587829052	1,387655869	-0,58782905	1,387655869
Time	-0,00427085	0,043629092	-0,097889967	0,924764	-0,107437186	0,098895485	-0,10743719	0,098895485

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,217423988
R Square	0,047273191
Adjusted R Square	-0,224934469
Standard Error	0,243600636
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,020611111	0,010305556	0,173666	0,84409116
Residual	7	0,415388889	0,05934127		
Total	9	0,436			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,081666667	0,245622253	0,332488876	0,749255	-0,499137253	0,662470587	-0,49913725	0,662470587
Dummy	-0,069444444	0,301098445	-0,230637008	0,824192	-0,781428619	0,642539731	-0,78142862	0,642539731
Time	0,018333333	0,031448707	0,582959847	0,578209	-0,056030988	0,092697655	-0,05603099	0,092697655

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,549728136
R Square	0,302201024
Adjusted R Square	0,102829888
Standard Error	0,104302568
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,032980227	0,016490114	1,515771	0,283828595
Residual	7	0,07615318	0,010879026		
Total	9	0,109133407			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,073221105	0,105168164	-0,696228805	0,508736	-0,321904119	0,175461908	-0,32190412	0,175461908
Dummy	0,224442058	0,128921424	1,740921331	0,12524	-0,080408451	0,529292566	-0,08040845	0,529292566
Time	-0,01255368	0,013465404	-0,932291414	0,382217	-0,044394277	0,019286917	-0,04439428	0,019286917

## Product C.3

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,836724814
R Square	0,700108414
Adjusted R Square	0,614425104
Standard Error	7,429284096
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	901,9718611	450,9859306	8,1708843	0,014769812
Residual	7	386,3598353	55,19426219		
Total	9	1288,331696			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	27,90025857	7,490938964	3,724534228	0,00741177	10,1870153	45,6135018	10,1870153	45,61350184
Dummy	-5,879985446	9,182840913	-0,640323131	0,54234639	-27,59393823	15,8339673	-27,5939382	15,83396734
Time	-2,944037575	0,959116453	-3,069530886	0,01807943	-5,211985976	-0,67608917	-5,21198598	-0,67608917

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,529793157
R Square	0,280680789
Adjusted R Square	0,075161015
Standard Error	2,934865671
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	23,52694444	11,76347222	1,36571184	0,315664546
Residual	7	60,29405556	8,613436508		
Total	9	83,821			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	6,228333333	2,959221821	2,104719994	0,07335814	-0,769109343	13,225776	-0,76910934	13,22577601
Dummy	-0,102777778	3,627591058	-0,028332239	0,978188	-8,680661433	8,47510588	-8,68066143	8,475105877
Time	-0,528333333	0,378889529	-1,394425797	0,20584552	-1,424264061	0,36759739	-1,42426406	0,367597395

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,814714827
R Square	0,66376025
Adjusted R Square	0,56769175
Standard Error	1,094807617
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	16,56287968	8,28143984	6,90923924	0,02204305
Residual	7	8,390226024	1,198603718		
Total	9	24,9531057			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	3,152433815	1,103893313	2,855741382	0,02448636	0,542142783	5,76272485	0,542142783	5,762724847
Dummy	-0,719395824	1,353218432	-0,531618405	0,61143683	-3,919246657	2,48045501	-3,91924666	2,480455008
Time	-0,404219529	0,141339056	-2,859928047	0,0243401	-0,738433049	-0,07000601	-0,73843305	-0,07000601



## Product C.4

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,569678131
R Square	0,324533173
Adjusted R Square	0,131542651
Standard Error	2,78657527
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	26,11527891	13,05763946	1,68160162	0,253287692
Residual	7	54,35501213	7,765001733		
Total	9	80,47029105			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-3,600455078	2,809700772	-1,281437196	0,24085278	-10,24433691	3,04342675	-10,24433691	3,04342675
Dummy	6,315141546	3,444299216	1,833505497	0,10938176	-1,829326084	14,4596092	-1,829326084	14,45960918
Time	-0,35618807	0,35974532	-0,990111754	0,35510181	-1,20684997	0,49447383	-1,20684997	0,49447383

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,660338005
R Square	0,43604628
Adjusted R Square	0,274916646
Standard Error	3,824371512
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	79,16027778	39,58013889	2,70618302	0,134695203
Residual	7	102,3807222	14,62581746		
Total	9	181,541			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-6,145	3,856109579	-1,593575046	0,15505988	-15,2632437	2,9732437	-15,2632437	2,973243704
Dummy	5,530555556	4,727049703	1,169980411	0,280297	-5,647132815	16,7082439	-5,647132815	16,70824393
Time	0,545	0,493724239	1,103855061	0,30615082	-0,622471474	1,71247147	-0,622471474	1,712471474

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,394183208
R Square	0,155380402
Adjusted R Square	-0,085939483
Standard Error	1,143897851
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,68502991	0,842514955	0,64387732	0,553750384
Residual	7	9,159516062	1,308502295		
Total	9	10,84454597			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,833936644	1,153390942	0,723030339	0,49310606	-1,893397599	3,56127089	-1,893397599	3,561270888
Dummy	0,348217469	1,413895586	0,246282309	0,8125296	-2,995111931	3,69154687	-2,995111931	3,691546869
Time	-0,158502026	0,147676578	-1,073305115	0,31873471	-0,507701393	0,19069734	-0,507701393	0,190697341

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,464692536
R Square	0,215939153
Adjusted R Square	-0,008078231
Standard Error	0,362935562
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,253944444	0,126972222	0,96393927	0,426799778
Residual	7	0,922055556	0,131722222		
Total	9	1,176			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,348333333	0,365947527	0,951866887	0,37286628	-0,516994445	1,21366111	-0,516994445	1,213661112
Dummy	-0,113888889	0,448600361	-0,253876053	0,80688693	-1,174659423	0,94688165	-1,174659423	0,946881645
Time	-0,048333333	0,04685478	-1,031556092	0,33659792	-0,159127202	0,06246054	-0,159127202	0,062460536

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,293000054
R Square	0,085849032
Adjusted R Square	-0,175336959
Standard Error	0,205068897
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,027644905	0,013822453	0,32868927	0,73040331
Residual	7	0,294372768	0,042053253		
Total	9	0,322017674			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,11256309	0,206770743	0,544385964	0,60307693	-0,376371673	0,60149785	-0,376371673	0,601497854
Dummy	0,144688543	0,253471941	0,570826668	0,58596697	-0,454676926	0,74405401	-0,454676926	0,744054013
Time	-0,020891936	0,026474281	-0,789140846	0,45592193	-0,083493618	0,04170975	-0,083493618	0,041709745

## Product C.5

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,788641501
R Square	0,621955417
Adjusted R Square	0,513942679
Standard Error	1,754075372
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	35,43323272	17,71661636	5,7581673	0,033220072
Residual	7	21,53746287	3,076780411		
Total	9	56,97069559			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-2,721040309	1,768632264	-1,538499757	0,1678161	-6,90318806	1,4611074	-6,90318806	1,461107442
Dummy	6,394796642	2,168095187	2,949499949	0,0214221	1,268069852	11,521523	1,26806985	11,52152343
Time	-0,67292132	0,226450157	-2,971608984	0,0207603	-1,20839047	-0,1374522	-1,20839047	-0,137452171

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,555710404
R Square	0,308814053
Adjusted R Square	0,111332354
Standard Error	4,859522643
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	73,85627778	36,92813889	1,5637604	0,274525157
Residual	7	165,3047222	23,61496032		
Total	9	239,161			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,491666667	4,899851323	-0,100343181	0,9228853	-12,07796565	11,094632	-12,0779656	11,09463231
Dummy	5,952777778	6,006530745	0,991050913	0,3546739	-8,25040033	20,155956	-8,25040033	20,15595589
Time	-1,108333333	0,627361676	-1,766657698	0,1206239	-2,591806905	0,3751402	-2,5918069	0,375140238

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,31210368
R Square	0,097408707
Adjusted R Square	-0,16047452
Standard Error	2,437854343
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	4,489729606	2,244864803	0,3777241	0,69858457
Residual	7	41,60193657	5,943133796		
Total	9	46,09166618			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,072441638	2,458085846	-0,029470752	0,9773118	-5,884886884	5,7400036	-5,88488688	5,740003608
Dummy	2,576757313	3,013268615	0,855136943	0,4207771	-4,548485633	9,7020003	-4,54848563	9,702000258
Time	-0,182293972	0,314725642	-0,579215506	0,5805966	-0,926501326	0,5619134	-0,92650133	0,561913382



SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,762339012
R Square	0,58116077
Adjusted R Square	0,461492418
Standard Error	0,506998638
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,496666667	1,248333333	4,8564283	0,047551666
Residual	7	1,799333333	0,257047619		
Total	9	4,296			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,203333333	0,511206168	0,397752113	0,7026637	-1,005476304	1,412143	-1,0054763	1,412142971
Dummy	0,883333333	0,626667089	1,409573519	0,2015113	-0,598497802	2,3651645	-0,5984978	2,365164469
Time	-0,203333333	0,065453243	-3,10654331	0,0171641	-0,358105548	-0,0485611	-0,35810555	-0,048561119

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,683130726
R Square	0,466667589
Adjusted R Square	0,314286901
Standard Error	0,689455725
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,911524621	1,455762311	3,0625114	0,11078805
Residual	7	3,327444374	0,475349196		
Total	9	6,238968995			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,29259735	0,695177447	-0,420895918	0,6864524	-1,936429624	1,3512349	-1,93642962	1,351234925
Dummy	0,025453065	0,852190084	0,029867826	0,9770062	-1,989654832	2,040561	-1,98965483	2,040560963
Time	0,186457512	0,089008351	2,094831656	0,0744371	-0,024013644	0,3969287	-0,02401364	0,396928668

## Product C.6

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,702527036
R Square	0,493544236
Adjusted R Square	0,348842589
Standard Error	10,06626203
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	691,2244138	345,6122069	3,4107714	0,09244753
Residual	7	709,3074193	101,3296313		
Total	9	1400,531833			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	7,856629764	10,14980091	0,774067377	0,4642269	-16,14381845	31,857078	-16,14381845	31,85707798
Dummy	15,34883212	12,44223288	1,233607527	0,2571599	-14,07235243	44,770017	-14,07235243	44,77001668
Time	-3,388553874	1,29954884	-2,60748482	0,0350413	-6,46149638	-0,3156114	-6,46149638	-0,31561137

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,307829747
R Square	0,094759153
Adjusted R Square	-0,163881089
Standard Error	4,376985264
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	14,038	7,019	0,3663744	0,70578837
Residual	7	134,106	19,158		
Total	9	148,144			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	5,27	4,413309416	1,194115233	0,2713232	-5,165811009	15,705811	-5,165811009	15,70581101
Dummy	1,416666667	5,410098582	0,26185598	0,8009706	-11,37617449	14,209508	-11,37617449	14,20950783
Time	-0,47	0,565066368	-0,831760704	0,4329983	-1,806168681	0,8661687	-1,806168681	0,866168681

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,387320065
R Square	0,150016833
Adjusted R Square	-0,0928355
Standard Error	1,012345096
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,26614917	0,633074585	0,6177286	0,566156031
Residual	7	7,173898152	1,024842593		
Total	9	8,440047322			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-2,566787548	1,020746444	-2,514618163	0,040125	-4,980467618	-0,1531075	-4,980467618	-0,15310748
Dummy	0,723006396	1,251292028	0,577807882	0,5814958	-2,235826963	3,6818398	-2,235826963	3,681839755
Time	-0,145266377	0,13069319	-1,111506859	0,3030628	-0,454306442	0,1637737	-0,454306442	0,163773688

## Product C.7

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,723079962
R Square	0,522844631
Adjusted R Square	0,386514525
Standard Error	16,11064599
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1990,841966	995,420983	3,835137	0,075042856
Residual	7	1816,870399	259,5529142		
Total	9	3807,712365			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-22,29411144	16,24434659	-1,372422788	0,212289	-60,70585986	16,11763698	-60,7058599	16,11763698
Dummy	-15,94223021	19,9132914	-0,800582379	0,449687	-63,02964831	31,14518788	-63,0296483	31,14518788
Time	5,572233289	2,079875454	2,679118732	0,03158	0,654112869	10,49035371	0,654112869	10,49035371

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,761566669
R Square	0,579983792
Adjusted R Square	0,459979161
Standard Error	2,558986655
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	63,29711111	31,64855556	4,833012	0,048020997
Residual	7	45,83888889	6,548412698		
Total	9	109,136			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-2,883333333	2,580223423	-1,117474289	0,300672	-8,984587848	3,217921181	-8,98458785	3,217921181
Dummy	-2,494444444	3,162992159	-0,788634407	0,456199	-9,973727062	4,984838173	-9,97372706	4,984838173
Time	0,983333333	0,330363757	2,976516987	0,020616	0,202147742	1,764518925	0,202147742	1,764518925

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,615820805
R Square	0,379235263
Adjusted R Square	0,20187391
Standard Error	0,286417653
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,350815907	0,175407954	2,138207	0,188471043
Residual	7	0,574245503	0,082035072		
Total	9	0,92506141			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,133784292	0,288794603	0,463250663	0,657243	-0,549105943	0,816674526	-0,54910594	0,816674526
Dummy	-0,613907742	0,354021694	-1,734096391	0,126493	-1,451035426	0,223219942	-1,45103543	0,223219942
Time	0,069012911	0,03697636	1,8664063	0,104226	-0,018422224	0,156448046	-0,01842222	0,156448046



## Division D

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,37311026
R Square	0,139211266
Adjusted R Square	-0,106728372
Standard Error	5,19649372
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	30,57008623	15,28504312	0,566038	0,59174965
Residual	7	189,0248289	27,00354698		
Total	9	219,5949151			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,593536655	5,239618889	-0,304132169	0,769869	-13,98325769	10,796184	-13,98325769	10,7961844
Dummy	5,305314433	6,423038144	0,825982084	0,436058	-9,882746467	20,493375	-9,882746467	20,4933753
Time	0,094333333	0,670864455	0,140614595	0,892135	-1,492007891	1,6806746	-1,492007891	1,68067456

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,20856425
R Square	0,043499046
Adjusted R Square	-0,22978694
Standard Error	4,271430562
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	5,808166667	2,904083333	0,15917	0,855852504
Residual	7	127,7158333	18,24511905		
Total	9	133,524			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	8,158333333	4,306878727	1,894256572	0,100047	-2,025809267	18,342476	-2,025809267	18,3424759
Dummy	-2,808333333	5,279629479	-0,53191864	0,61124	-15,29266431	9,6759976	-15,29266431	9,67599764
Time	0,241666667	0,551439314	0,438247075	0,674413	-1,062279177	1,5456125	-1,062279177	1,54561251

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,406053068
R Square	0,164879094
Adjusted R Square	-0,073726879
Standard Error	8,956892129
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	110,8738081	55,43690405	0,69101	0,532258671
Residual	7	561,5814163	80,22591661		
Total	9	672,4552244			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	2,392064156	9,031224459	0,264865984	0,798743	-18,96337294	23,747501	-18,96337294	23,7475013
Dummy	3,157085965	11,07101498	0,285166805	0,783769	-23,02168581	29,335858	-23,02168581	29,3358577
Time	-1,296858591	1,156329802	-1,121530025	0,299056	-4,031142127	1,4374249	-4,031142127	1,43742494

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,554267109
R Square	0,307212029
Adjusted R Square	0,109272608
Standard Error	0,207727691
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,133944444	0,066972222	1,552051	0,276758638
Residual	7	0,302055556	0,043150794		
Total	9	0,436			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,481666667	0,209451602	2,29965616	0,055019	-0,013607316	0,9769406	-0,013607316	0,97694065
Dummy	-0,447222222	0,256758298	-1,741802409	0,12508	-1,054358686	0,1599142	-1,054358686	0,15991424
Time	0,018333333	0,02681753	0,683632445	0,516191	-0,045080002	0,0817467	-0,045080002	0,08174667

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,478018001
R Square	0,228501209
Adjusted R Square	0,008072983
Standard Error	3,684816535
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	28,15030028	14,07515014	1,036624	0,403341932
Residual	7	95,04511027	13,5778729		
Total	9	123,1954105			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,309273766	3,715396449	0,083241121	0,93599	-8,476236498	9,094784	-8,476236498	9,09478403
Dummy	2,122615753	4,554555135	0,466042388	0,655339	-8,64718807	12,89242	-8,64718807	12,8924196
Time	-0,668472142	0,475707769	-1,405215945	0,20275	-1,793341465	0,4563972	-1,793341465	0,45639718

## Product D.1

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,099612861
R Square	0,009922722
Adjusted R Square	-0,2729565
Standard Error	5,151893787
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1,86205959	0,931029795	0,035078	0,965699103
Residual	7	185,7940671	26,54200959		
Total	9	187,6561267			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	3,624974963	5,194648825	0,697828686	0,507794	-8,65840884	15,9083588	-8,65840884	15,90835877
Dummy	-1,431607385	6,367911151	-0,224815854	0,828544	-16,48931375	13,626099	-16,48931375	13,62609898
Time	-0,001347365	0,665106628	-0,002025789	0,99844	-1,574073503	1,57137877	-1,574073503	1,571378772

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,71013029
R Square	0,504285029
Adjusted R Square	0,362652181
Standard Error	1,775119044
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	22,43866667	11,21933333	3,560509	0,085765401
Residual	7	22,05733333	3,151047619		
Total	9	44,496			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	6,326666667	1,789850575	3,534745725	0,009537	2,094345619	10,5589877	2,094345619	10,55898771
Dummy	-5,833333333	2,194105861	-2,658638053	0,032531	-11,02156555	-0,64510112	-11,02156555	-0,645101116
Time	0,273333333	0,229166883	1,192726146	0,271833	-0,268559848	0,81522652	-0,268559848	0,815226515

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,331922009
R Square	0,11017222
Adjusted R Square	-0,144064288
Standard Error	2,959671423
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	7,591912247	3,795956123	0,433345	0,664616104
Residual	7	61,31758453	8,759654934		
Total	9	68,90949678			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,656030461	2,984233433	0,554926583	0,596223	-5,400555239	8,71261616	-5,400555239	8,712616161
Dummy	2,046945507	3,658251789	0,559541996	0,593236	-6,603439203	10,6973302	-6,603439203	10,69733022
Time	-0,354098094	0,382091938	-0,926735319	0,384902	-1,25760131	0,54940512	-1,25760131	0,549405122



## Product D.2

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,568618633
R Square	0,32332715
Adjusted R Square	0,129992049
Standard Error	9,915358884
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	328,8352283	164,4176141	1,672367	0,254874057
Residual	7	688,2003925	98,31434179		
Total	9	1017,035621			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-3,332856071	9,99764543	-0,3333641	0,748622	-26,973514	20,3078019	-26,973514	20,30780186
Dummy	21,52945558	12,25571159	1,756687519	0,122393	-7,450676534	50,5095877	-7,45067653	50,5095877
Time	-1,729660579	1,280067328	-1,351226253	0,218664	-4,75653666	1,2972155	-4,75653666	1,297215502

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,460857314
R Square	0,212389464
Adjusted R Square	-0,012642118
Standard Error	3,551164575
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	23,80461111	11,90230556	0,943821	0,433601035
Residual	7	88,27538889	12,61076984		
Total	9	112,08			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	4,115	3,580635326	1,149237391	0,288206	-4,351851071	12,5818511	-4,35185107	12,58185107
Dummy	4,186111111	4,389356892	0,953695772	0,372002	-6,193061219	14,5652834	-6,19306122	14,56528344
Time	-0,615	0,458453375	-1,341466838	0,221655	-1,699069194	0,46906919	-1,69906919	0,469069194

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,604022499
R Square	0,364843179
Adjusted R Square	0,183369802
Standard Error	1,700585586
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	11,62840884	5,814204418	2,01045	0,204212998
Residual	7	20,24393934	2,891991335		
Total	9	31,87234818			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,437666154	1,714698571	-0,838436667	0,429483	-5,492281079	2,61694877	-5,49228108	2,616948771
Dummy	4,199443042	2,101980041	1,997851054	0,085891	-0,770946384	9,16983247	-0,77094638	9,169832469
Time	-0,261213398	0,219544655	-1,189796205	0,272911	-0,780353642	0,25792685	-0,78035364	0,257926847

## Product D.3

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,627861447
R Square	0,394209997
Adjusted R Square	0,221127139
Standard Error	10,02547239
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	457,8395035	228,9197518	2,27758	0,17303237
Residual	7	703,5706762	100,5100966		
Total	9	1161,41018			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-10,9977324	10,10867276	-1,087950186	0,312651	-34,90092805	12,90546325	-34,90092805	12,9054632
Dummy	12,52211946	12,39181553	1,010515322	0,345896	-16,77984709	41,82408601	-16,77984709	41,824086
Time	1,391947376	1,29428292	1,075458352	0,317834	-1,668543215	4,452437967	-1,668543215	4,45243797

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,525200977
R Square	0,275836066
Adjusted R Square	0,068932085
Standard Error	1,76125181
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	8,270944444	4,135472222	1,33316	0,323168573
Residual	7	21,71405556	3,102007937		
Total	9	29,985			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,345	1,775868258	-0,757376001	0,473543	-5,544258146	2,854258146	-5,544258146	2,85425815
Dummy	1,052777778	2,176965501	0,483598742	0,643431	-4,094923958	6,200479513	-4,094923958	6,20047951
Time	0,245	0,227376631	1,07750739	0,316979	-0,292659911	0,782659911	-0,292659911	0,78265991

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,221564596
R Square	0,04909087
Adjusted R Square	-0,222597453
Standard Error	4,934918874
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	8,800752123	4,400376062	0,180688	0,83846813
Residual	7	170,47397	24,35342429		
Total	9	179,2747221			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-0,045390948	4,975873259	-0,009122207	0,992976	-11,81145311	11,72067122	-11,81145311	11,7206712
Dummy	-1,501082182	6,099722981	-0,246090222	0,812672	-15,92462475	12,92246039	-15,92462475	12,9224604
Time	0,379868446	0,637095287	0,596250598	0,569779	-1,126621443	1,886358334	-1,126621443	1,88635833

## Product D.4

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,820528511
R Square	0,673267037
Adjusted R Square	0,579914762
Standard Error	2,975596475
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	127,7145896	63,85729478	7,212112	0,019937712
Residual	7	61,97922066	8,854174379		
Total	9	189,6938102			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	14,73250683	3,000290645	4,910359887	0,001733	7,637951885	21,82706	7,637951885	21,82706177
Dummy	-13,84353862	3,677935679	-3,763942555	0,007038	-22,5404683	-5,14661	-22,5404683	-5,146608937
Time	0,589036492	0,384147853	1,533358804	0,169055	-0,31932819	1,497401	-0,319328187	1,497401172

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,6522096
R Square	0,425377363
Adjusted R Square	0,261199466
Standard Error	2,230305339
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	25,77616667	12,88808333	2,590954	0,143826714
Residual	7	34,81983333	4,974261905		
Total	9	60,596			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	8,151666667	2,248814414	3,624873006	0,008455	2,834069369	13,46926	2,834069369	13,46926396
Dummy	-6,275	2,75673118	-2,276246609	0,056951	-12,7936287	0,243629	-12,79362874	0,24362874
Time	0,348333333	0,287931181	1,209779823	0,265629	-0,33251523	1,029182	-0,332515233	1,0291819



SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,59582225
R Square	0,355004154
Adjusted R Square	0,170719626
Standard Error	0,821903246
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2,602651073	1,301325537	1,926392	0,215500962
Residual	7	4,72867462	0,675524946		
Total	9	7,331325693			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,509837581	0,828724137	1,821881992	0,111261	-0,44978221	3,469457	-0,449782209	3,46945737
Dummy	-1,14113169	1,015899601	-1,123272111	0,298364	-3,54335081	1,261087	-3,543350806	1,261087427
Time	-0,083413338	0,106107253	-0,786122871	0,457577	-0,33431694	0,16749	-0,334316942	0,167490266

SUMMARY OUTPUT - PURCHASE FREQUENCY

<i>Regression Statistics</i>	
Multiple R	0,505219669
R Square	0,255246914
Adjusted R Square	0,042460317
Standard Error	0,276772785
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,183777778	0,091888889	1,199544	0,356486502
Residual	7	0,536222222	0,076603175		
Total	9	0,72			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,59	0,279069694	2,114167222	0,072342	-0,06989449	1,249894	-0,069894495	1,249894495
Dummy	-0,494444444	0,342100318	-1,445320036	0,191605	-1,30338258	0,314494	-1,303382575	0,314493686
Time	0,01	0,035731213	0,279867354	0,787669	-0,07449083	0,094491	-0,074490832	0,094490832

SUMMARY OUTPUT - PURCHASE PER OCCASION

<i>Regression Statistics</i>	
Multiple R	0,427574185
R Square	0,182819683
Adjusted R Square	-0,050660407
Standard Error	0,440452309
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,303809169	0,151904585	0,78302	0,493301732
Residual	7	1,357987655	0,193998236		
Total	9	1,661796824			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,20968857	0,444107577	0,472157155	0,651179	-0,84045823	1,259835	-0,840458226	1,259835367
Dummy	-0,083200737	0,544413625	-0,152826332	0,882847	-1,37053348	1,204132	-1,370533476	1,204132001
Time	-0,055691456	0,056862149	-0,979411748	0,360005	-0,19014898	0,078766	-0,190148976	0,078766063

## Product D.5

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,737587869
R Square	0,544035865
Adjusted R Square	0,413760398
Standard Error	11,26191155
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	1059,30034	529,6501699	4,176042	0,06401141
Residual	7	887,8145629	126,8306518		
Total	9	1947,114903			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-16,37212446	11,355373	-1,441795391	0,192562	-43,22329564	10,47905	-43,22329564	10,47904672
Dummy	5,598164244	13,92009524	0,40216422	0,69956	-27,31760699	38,51394	-27,31760699	38,51393548
Time	3,243076311	1,45390653	2,230594777	0,060917	-0,194863869	6,681016	-0,194863869	6,681016491

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,511128063
R Square	0,261251897
Adjusted R Square	0,05018101
Standard Error	3,189015124
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	25,17527778	12,58763889	1,237745	0,346527197
Residual	7	71,18872222	10,16981746		
Total	9	96,364			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	6,635	3,215480433	2,063455256	0,077966	-0,968397574	14,2384	-0,968397574	14,23839757
Dummy	2,130555556	3,94172819	0,540513058	0,605606	-7,190143847	11,45125	-7,190143847	11,45125496
Time	-0,635	0,411700082	-1,542384924	0,166885	-1,608515302	0,338515	-1,608515302	0,338515302

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,417520518
R Square	0,174323383
Adjusted R Square	-0,061584222
Standard Error	2,585904437
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	9,882541401	4,9412707	0,738948	0,511487412
Residual	7	46,80831229	6,686901756		
Total	9	56,69085369			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1,481920064	2,607364592	-0,568359357	0,587552	-7,647353201	4,683513	-7,647353201	4,683513074
Dummy	2,309552863	3,196263428	0,72257901	0,493367	-5,248403747	9,867509	-5,248403747	9,867509474
Time	0,152356509	0,333838827	0,456377438	0,661941	-0,637046314	0,941759	-0,637046314	0,941759331

## Product D.6

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,160841224
R Square	0,025869899
Adjusted R Square	-0,252452986
Standard Error	16,92261045
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	53,23662711	26,61831356	0,092949	0,912345578
Residual	7	2004,623211	286,3747444		
Total	9	2057,859838			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	11,80580074	17,06304946	0,691892781	0,511294	-28,54187095	52,15347243	-28,54187095	52,15347243
Dummy	1,297342335	20,91690633	0,062023624	0,952278	-48,16324627	50,75793094	-48,16324627	50,75793094
Time	-0,865710007	2,184699615	-0,396260429	0,703714	-6,031700003	4,300279988	-6,031700003	4,300279988

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,250123963
R Square	0,062561997
Adjusted R Square	-0,205277432
Standard Error	1,08860257
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	0,553611111	0,276805556	0,23358	0,797625343
Residual	7	8,295388889	1,185055556		
Total	9	8,849			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	0,251666667	1,097636771	0,229280463	0,825206	-2,343830005	2,847163339	-2,343830005	2,847163339
Dummy	0,436111111	1,345548789	0,324113934	0,755321	-2,745603911	3,617826133	-2,745603911	3,617826133
Time	0,048333333	0,140537987	0,343916504	0,741008	-0,283985962	0,380652629	-0,283985962	0,380652629



SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,473101116
R Square	0,223824666
Adjusted R Square	0,002060285
Standard Error	3,783574421
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	28,89686369	14,44843185	1,00929	0,411964155
Residual	7	100,2080478	14,3154354		
Total	9	129,1049115			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	3,121699558	3,814973917	0,818275466	0,440162	-5,899273832	12,14267295	-5,899273832	12,14267295
Dummy	-6,467645181	4,676623149	-1,382973349	0,209177	-17,52609378	4,590803422	-17,52609378	4,590803422
Time	0,488380018	0,488457357	0,999841665	0,350688	-0,666637269	1,643397304	-0,666637269	1,643397304

## Product D.7

### SUMMARY OUTPUT - MARKET SHARE

<i>Regression Statistics</i>	
Multiple R	0,573129023
R Square	0,328476877
Adjusted R Square	0,136613127
Standard Error	11,09933033
Observations	10

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	421,82802	210,91401	1,712032	0,248149498
Residual	7	862,3659369	123,1951338		
Total	9	1284,193957			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-6,228219557	11,19144254	-0,556516243	0,595193	-32,69175706	20,2353179	-32,6917571	20,23531795
Dummy	15,36443612	13,71913947	1,119927103	0,299694	-17,07615058	47,8050228	-17,0761506	47,80502281
Time	0,961980791	1,432917384	0,671344211	0,52353	-2,426327983	4,35028956	-2,42632798	4,350289565

SUMMARY OUTPUT - PENETRATION

<i>Regression Statistics</i>	
Multiple R	0,35772806
R Square	0,127969365
Adjusted R Square	-0,121182245
Standard Error	3,39356534
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	11,83	5,915	0,51362	0,619242988
Residual	7	80,614	11,51628571		
Total	9	92,444			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	3,49	3,42172819	1,019952435	0,341701	-4,601095673	11,5810957	-4,60109567	11,58109567
Dummy	3,683333333	4,194559023	0,878121708	0,409005	-6,235215561	13,6018822	-6,23521556	13,60188223
Time	-0,39	0,438107401	-0,890192676	0,402919	-1,425958645	0,64595865	-1,42595865	0,645958645

SUMMARY OUTPUT - BUYING RATE

<i>Regression Statistics</i>	
Multiple R	0,266547821
R Square	0,071047741
Adjusted R Square	-0,19436719
Standard Error	3,849053213
Observations	10

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	7,931635504	3,965817752	0,267686	0,772639458
Residual	7	103,7064744	14,81521063		
Total	9	111,6381099			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,079336918	3,880996111	0,278108219	0,788965	-8,097754041	10,2564279	-8,09775404	10,25642788
Dummy	3,297459667	4,757557102	0,693099336	0,510582	-7,952367187	14,5472865	-7,95236719	14,54728652
Time	-0,279229471	0,496910633	-0,561930964	0,591693	-1,454235564	0,89577662	-1,45423556	0,895776622

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