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Switch on the competition
Causes, consequences and policy implications of consumer switching costs

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Abstract

The success or failure of reforms aimed at liberalising markets depends to an important degree on consumer behaviour. If consumers do not base their choices on differences in prices and quality, competition between firms may be weak and the benefits of liberalisation to consumers may be small. One possible reason why consumers may respond only weakly to differences in price and quality is high costs of switching to another firm. This report presents a framework for analysing markets with switching costs and applies the framework in two empirical case studies. The first case study analyses the residential energy market, the second focuses on the market for social health insurance. In both markets, there are indications that switching costs are substantial. The report discusses policy options for reducing switching costs and for alleviating the consequences of switching costs.

Key words: Switching costs, consumer behaviour, competition, energy markets, health insurance

JEL code:L13, D12

Samenvatting

Het welslagen van marktwerkingsoperaties hangt in belangrijke mate af van het gedrag van consumenten. Als consumenten zich bij hun keuzes niet laten leiden door verschillen n prijs en kwaliteit, kan dit leiden tot zwakke concurrentieprikkels voor ondernemingen. Consumenten zullen dan weinig voordeel ondervinden van liberalisering. Hoge overstapkosten vormen één van de mogelijke redenen waarom consumenten slechts beperkt reageren op verschillen in prijs en kwaliteit. Dit rapport presenteert een analysekader voor markten met overstapkosten. Het analysekader wordt toegepast in case studies van de kleinverbruikersmarkt voor energie en de markt voor zorgverzekeringen. In beide markten zijn er aanwijzingen dat overstapkosten substantieel zijn. Het rapport gaat in op beleidsopties om overstapkosten te verlagen en om de negatieve gevolgen van overstapkosten te verzachten.

Steekwoorden: Overstapkosten, consumentengedrag, marktwerking, energiemarkten, zorgverzekeringen

Een uitgebreide Nederlandse samenvatting is beschikbaar via www.cpb.nl.

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Preface

In recent years both policymakers and researchers have become more aware of the important role of consumer behaviour in determining market outcomes, in particular in newly liberalised markets. This has resulted in a rapidly growing literature on the nature and effects of consumer switching costs. However, it is not always clear what the findings from this literature imply for policy. This report contributes to bridging the gap between research and policy. To this end, the report develops a framework for analysing switching costs. The framework is applied in case studies on the market for residential energy and the market for social health insurance.

The report was written by Marc Pomp and Victoria Shestalova. Luiz Rangel (University of Toulouse) contributed a chapter on consumer characteristics (chapter 5). The chapter on health insurance is partly based on joint work with Machiel van Dijk (CPB), Trea Laske-Aldershof and Erik Schut (both Erasmus University) and Willem de Boer and Anne de Boo (Vektis). We would like to thank Misja Mikkers (Health Care Authority), Michael Waterson (University of Warwick), and various staff members at the Ministry of Economic Affairs and DTe for comments on draft versions of this report. In addition, we thank participants of three seminars where chapters of this report were presented. In particular, we would like to thank the discussants Michiel Stal of the Ministry of Health, Anne Reitsma of the Ministry of Economic Affairs, and Martin Godfried of DTe. Finally, we thank the Dutch Consumentenbond for providing us with the data used in chapter 5 and for their assistance in collecting the data used in chapter 6.

Henk Don
Director CPB

Summary

Consumers play an important role in determining the success or failure of attempts at liberalising markets. If consumers do not base their choices on differences in price and quality, liberalisation of markets will not be successful. One possible reason why consumers may respond only weakly to differences in price and quality is that the costs of switching to another supplier are high. The literature reports significant effects of switching costs on prices and profits in different industries and countries. For example, in telecommunications in the US, some estimates indicate that prices have been 14% higher as a result of switching costs. Other research finds that price-cost margins for gasoline in the US may have been 30% higher due to switching costs. Switching costs may have raised profits of Norwegian banks from retail lending by 16%.

For policymakers it is important to know whether consumer switching costs are high and if so, what can be done to reduce switching costs or alleviate their consequences. This report presents a framework for analysing markets with switching costs and applies the framework in two empirical case studies. In addition, the report discusses policy options for reducing switching costs or for alleviating the consequences of switching costs.

Analysing markets with switching costs

The framework consists of three steps:

Step I.   Assess whether switching costs in the market under study are large. This will usually involve an analysis of the determinants of switching costs. If switching costs are small, there is no need for policy and the analysis can stop here. Otherwise continue to step II.

Step II.   Determine whether there is fierce competition for market share. An important criterion for judging this is the amount of new entry and the growth of new entrants. If competition for market share is fierce, then large negative effects of switching costs on consumer welfare are unlikely and the analysis can stop here. There is no need for government policy. Otherwise, continue to step III.

Step III: Estimate the loss in consumer welfare due to switching costs. Before deciding that there is a potential role for government policy in reducing switching costs or their consequences, we need some idea of the welfare effects of switching costs. Overall welfare losses due lower demand as a result of higher prices (the so-called Harberger-triangles) tend to be small. Therefore, the welfare costs of switching costs consist primarily of a transfer from consumers to firms. In addition switching costs may have dynamic effects that work through innovation and incentives to reduce costs. If the loss in consumer welfare is small, then the analysis can stop here. There is no need for government policy.

Else continue to an analysis of policy options aimed at alleviating the consequences of switching costs.

In order to implement this framework, empirical information on a number of issues is needed. First, an estimate of the level of switching costs. In the empirical literature on switching costs, various methods are used for determining the level and determinants of switching costs. Both econometric and direct techniques have been applied, based either on data from consumer surveys or on actual firm data available from the market.

Second, evidence is needed on competition for market share. An important indicator of competition for market share is the entry and growth of new firms. These data can sometimes be obtained from industry surveys, websites, annual reports and other sources. However, it is not always easy to obtain data on market shares since these data are generally treated as confidential by firms.

Third, an estimate is needed of the loss in consumer welfare due to high switching costs. The literature on switching costs offers little guidance on this, since the welfare consequences of switching costs have not attracted much attention. In our case studies we will use two different approaches. In the case study on energy we use empirical estimates of switching costs along with plausible assumptions about firm behaviour, while in the case study on social health insurance we use estimates of the firm-level price elasticity of demand along with a standard oligopoly model in order to assess the welfare effects on consumers.

From diagnosis to policy

Once it has been established that consumer welfare is substantially reduced by switching costs, the next question is whether there is a role for policy in reducing switching costs or in alleviating the negative consequences of switching costs.

In designing appropriate policy options, a natural starting point is to look at the determinants of switching costs identified in step I of the diagnosis. For example, if a lack of comparable information on prices and quality inhibits switching then this suggests that switching costs may be lowered by promoting transparency. However, if the source of switching costs is to be found in long term contracts, then the appropriate policy may be to regulate contract terms.

In some cases, it will be impossible or undesirable to reduce switching costs. However, it may still be possible to alleviate the consequences of switching costs. For example, making consumers aware that they have to check on certain contract terms, such as the size of switching fees, may already be effective in facilitating a better choice.

While the costs and benefits of the various policy options will depend on the case at hand, a general conclusion is that almost every policy option has substantial welfare costs: there are few no-regret options. These welfare costs are generally larger for more interventionist policy options such as heavy regulation of firms or subsidising switching, than for light regulation and measures that aim at improving transparency. This is one reason why improving transparency is

a rather popular policy option. However, we know fairly little about the effectiveness of measures aimed at improving transparency. Therefore, these policies should be evaluated in order to assess whether and when these policies pass the cost/benefit test.

Types of products and consumers

One of the datasets on which this report is based contains information about switching behaviour of a sample of consumers in nine markets: current and savings accounts, life and health insurance, mortgages, mobile and fixed telephony, internet providers and green energy. We use this dataset to answer the following research questions: (i) which consumer characteristics affect switching decisions in all markets the same way?; (ii) which market characteristics affect the switching decisions of all consumers in that market in the same way?; and (iii) are there any factors that make some consumer types in general more inclined to switch than others?

   Our empirical findings suggest that there are indeed large differences in switching behaviour across markets. We also find that these differences are related to expected search and switching costs. Financial products can be characterised as low-interest products: consumers do not like to devote much effort to shopping around for this type of product. This may warrant special attention of policymakers to these markets. Measured household characteristics such as age, income and education do not have much power in explaining differences in switching behaviour, but unobserved household characteristics do play a role. Unobserved characteristics that may affect switching could be aversion to paperwork, membership of consumer organisations or the amount of leisure. However, since by definition we do not know what the role of each of the unobserved factors is, this finding cannot be used as a basis for policy.

Case study on energy

This case study focuses on liberalisation of energy supply to small customers in the Netherlands, which was completed in July 2004.

Step I: are switching costs high?

Although the number of switchers is relatively large, there is still a concern over the effect of switching costs in this market, because of relatively high switching costs for a group of consumers. The analysis of switching costs shows that switching costs are not homogeneous. About 25% of consumers are either unable to estimate their switching costs or perceive switching costs to be very high. Different types of switching costs play a role, such as switching fees, consumer time and effort needed for switching, product differentiation and the risk of mistakes in processing switching requests by firms.

   An econometric analysis of the effect of different factors on switching behaviour indicates that consumers who perceive switching costs to be high, are less likely to switch. Especially those consumers who find it difficult to evaluate their expected switching costs have low

switching probability. Also consumers who express a strong preference for the same supplier for electricity and gas are generally less likely to switch. In contrast, a positive attitude to liberalisation of energy markets increases the switching probability, by up to 11% in some regressions. Finally, we have found no significant effect of demographic variables in most regressions.

Step II: is there fierce competition for market share?
After liberalisation of the green electricity market in 2001, several new suppliers entered the residential market and were able to gain some market share, partly because of the subsidies for green energy that were introduced in that period. In 2004 the market has been liberalised also for grey electricity and gas, which stimulated entry also in the remaining segments of the residential energy market. Although the concentration in consumer energy markets remains relatively high, by now new entrants have a substantial market share in electricity. About 9% of our sample receives their electricity from entrants, compared to 2.8% for gas. It is unclear, however, whether the growth of entrants' market share observed in electricity will be repeated in gas. All in all, it is not clear whether entrants are able to gain a substantial market share. As a result we cannot draw strong conclusions about the intensity of competition for market share.

Step III: is there a large loss in consumer welfare due to switching costs?
Based on the distribution of switching costs across consumers, and provided entrants charge at marginal cost, it appears that incumbents can profitably keep prices at least 75 euros per year above prices of entrants. 30% of consumers would switch for such an amount, but the rest would stay, so that the profit made on those who stay will outweigh the loss associated with loosing market share.

   Because of the low elasticity of demand, the static effect of retail competition in the consumer segment on social welfare consists mainly in reallocation of surplus between firms and consumers. The allocation of surplus depends on the scenario realised. Under a pessimistic scenario, in which incumbents keep prices at 75 euros above the competitive level, consumers lose 88 mln euros compared to the initial situation. However, if switching costs fall sufficiently and force incumbents to follow entrants' prices, consumers would gain about 280 mln euros. In addition, competition may yield dynamic welfare gains, e.g. better service quality.

Policy options
Since at this stage it is unclear towards which scenario the market will develop and since there is a risk that the pessimistic scenario may result because of switching costs, policies addressing switching costs and their effects may be considered. Given a high percentage of customers who have relatively poor knowledge regarding switching (e.g. unable to estimate the expected time they need to complete the procedure) and a potentially large negative effect of this lack of knowledge on switching, educating the public on how to switch remains an important policy

option. Other policy options included reducing switching fees, improving the quality of websites that provide customers with information on prices, facilitating comparison by means of standard contracts, and monitoring compliance of firms with existing regulation.

Case study on social health insurance

This case study focuses on the market for social health insurance. In view of the reforms of the Dutch health care sector, it is important that switching costs in this market are low. The institutional setting suggests that switching costs for basic health insurance are low: there is annual open enrolment at community rated premiums. However, most consumers also buy supplementary insurance to which open enrolment does not apply, and most health insurance firms offer supplementary insurance only on the condition of also purchasing basic health insurance (tied sales). As a result, supplementary insurance may constitute a source of switching costs in this market.

Step 1: *are switching costs high?*

While the number of switchers in this market is rather low (at most a few percent per year), this does not constitute evidence that switching costs are high. If most insured are happy with their current choice, there will be little switching even if there are no switching costs. An indirect measure of switching costs is the sensitivity of consumer demand to price differentials between different suppliers. This sensitivity is measured by the elasticity of residual demand, defined as the percentage drop in sales at an individual firm after it raised its price by 1%, assuming other firms keep their prices unchanged. If switching costs are high, then the elasticity of residual demand will be low, at least at small price differentials. Existing estimates and new estimates of our own do indeed indicate that this elasticity is very low, which point to high switching costs. However, this conclusion is based in the fairly small differences in price between sickness funds. Because of this, the potential savings from switching amount to roughly 100 euro per year.

Step 2: is there fierce competition for market share?

During the 1990s, seven new sickness funds have entered the market. Two of these new entrants had been taken over by an existing firm by 2002. The remaining five new firms did not succeed in achieving a substantial market share. Indeed, two of these remaining firms had already left the market by 2002. In 2002, the combined market share of all new entrants during the 1990s amounted to1,5%. This is consistent with high switching costs, but does not prove high switching costs since there may be other reasons why new entrants are relatively unsuccessful. One of these explanations runs in terms of scale economies. If scale economies are important, new entrants may find it hard to compete with large incumbent firms. However, the available evidence suggests that technological factors such as large fixed costs do not inhibit entry in this market. A third possible reason for the limited amount of entry is the exclusion of

for-profit insurance companies from this market. However, there has been very little entry in the for-profit section of the Dutch health insurance market as well. We conclude that the low level of successful entry probably indicates high switching costs.

Step III: is there a large loss in consumer welfare due to switching costs?

The low sensitivity of consumers to price differences in this market implies that the excess of price over marginal costs would be very large if health insurers would follow a pure profit maximising strategy. This would imply large losses to consumer welfare. Although currently price/cost margins in this market are quite small, this may change after this market is opened to for-profits.

Before concluding that high switching costs may lead to large losses in consumer welfare, it should be pointed out that high switching costs may also have one advantage to consumers. This is because high switching costs may stimulate health insurers to invest in prevention if this reduces expected health costs in the future. How relevant this is in practice is unknown, but in any case, the appropriate policy response to the risk of underinvestment in prevention is not to keep switching costs high. The fact that many preventive actions are contractible points in a different direction. First, preventive actions that have been shown to be cost-effective could be included in the government-defined basic health insurance policy. Second, providers and/or insurance companies could be paid separately for providing such preventive services.

All in all, we conclude that there is a possibility that high switching costs in social health insurance lead to substantial losses in consumer welfare.

Policy options

Planned regulation in the Netherlands already goes a long way towards ensuring easy switching between health insurers. Standardisation of the basic package, measured aimed at improving transparency and annual open enrolment in basic health insurance should facilitate switching. Moreover, after the reforms there will be more room for group insurance by allowing discounts of up to 10% on the premium for basic insurance (currently such discounts are forbidden in social health insurance). If this induces employers to become active buyers of health insurance on behalf of their employees, then this may introduce a desirable dose of competition in this market. Additional policies have costs and drawbacks which must be set against potential benefits in terms of lower switching costs. These policies may be considered only if transparency-improving policies turn out to be insufficiently effective. To determine this at an early stage, close monitoring of the nature and intensity of competition in the market for health insurance is required.

1   Introduction and overview

1.1   Introduction

Consumers play an important role in determining the success or failure of attempts at liberalising markets. If, for whatever reason, consumers fail to base their choices on differences in prices and quality, liberalisation of markets will not be successful. In particular, if consumers face high costs of switching to another firm, then the competitive pressure on firms may be weak and the benefits of liberalisation to consumers may be small. Indeed, in such a setting liberalisation might even produce a welfare loss to consumers.

In recent years, both policymakers and economic researchers have become more aware of the potential role of consumer switching costs. As a result there is a rapidly growing literature on the nature and effects of consumer switching costs. However, it is not always clear what these findings from the literature imply for policy. A first aim of this report is to bridge this gap between research and policy. We do this by developing a framework for answering the following question: when are switching costs a problem from a welfare point of view? The framework consists of a number of diagnostic steps that can be used to assess whether or not the (consumer) welfare costs of switching costs are likely to be large. The framework will be applied in the case studies in later chapters of the report.

A second aim of this report is to contribute to our understanding of the nature of switching costs. We do this by offering three empirical case-studies based on new micro-econometric analysis of consumer behaviour in (soon to be) liberalised markets.

A third aim of this report is to contribute new empirical findings on switching costs in the Netherlands in two (soon to be) liberalised markers, energy and health insurance.

In this introductory chapter we first sharpen our definition of switching costs. Next we outline the structure of the report.

1.2   What are switching costs?

Klemperer, a renowned expert on the subject, proposes the following definition of switching costs:

"A consumer faces a switching cost between sellers when an investment specific to his current seller must be duplicated for a new seller. That investment might be in equipment, in setting up a relationship, in learning how to use a product, or in buying a high-priced first

unit that then allows one to buy subsequent units more cheaply (when firms' prices are non-linear). Switching costs may even be psychological." (Klemperer 2004, p. 4).[1]

Empirical research suggests that consumers do indeed 'suffer' from status-quo bias: once they have chosen a certain product, they will stick to it even if they would have chosen another product if they had not made previous purchases from their present supplier and switching is (almost) free (Samuelson and Zeckhauser, 1988).[2]

In an earlier paper, Klemperer (1995) listed the following as possible causes for switching costs:

- Need for compatibility (cameras and lenses, razors with blades)
- Transaction costs of switching (e.g. when changing bank accounts)
- Cost of learning to use new brands (e.g. software)
- Uncertainty about the quality of untested brands
- Discount coupons such as frequent flyer programs
- Psychological costs of switching including non-economic 'brand loyalty'

Obviously, Klemperer's definition is rather broad, but this is in line with the rest of literature. For example, NERA (a consultancy) in a report for the Office of Fair Trade in the UK, proposes the following definition:

"Switching costs can be defined as the real or perceived costs that are incurred when changing supplier but which are not incurred by remaining with the current supplier." (NERA 2003, p. 11).

Although the phrasing is different from Klemperer's definition, the two definitions amount to the same thing and are equally broad in scope.

As we will argue below, for the purposes of our checklist it will be useful to distinguish explicitly between different types of switching costs that are implicit in Klemperer's definition.

Switching costs and search cost

It is difficult to draw a sharp distinction between search cost and switching costs. Search costs and switching costs both have investment-like properties: searching and switching both yields a stream of benefits in the sense of a better match for a number of periods. On might argue that search costs differ from switching costs in the sense that search costs do not depend on whether

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[1] In a footnote, he is somewhat more specific about these psychological costs: "Social psychologists have demonstrated that consumers change their own preferences in favour of products that they have previously chosen or been given, in order to reduce "cognitive dissonance"." (ib., p. 4)

[2] One case study analysed by Samuelson and Zeckhauser focuses on health insurance, a sector also covered in this project.

a customer has already invested in a relationship with an existing supplier. Thus, search costs are incurred by all consumers who purchase a certain product. Switching costs by contrast only apply to consumers who have already established a relationship with a supplier. However, in both theoretical work and empirical work, the distinction between search costs and switching costs is not always clear. For example, as indicated above, switching costs include informational costs and psychological costs. But such costs must also be made by new customers, if they are to make an informed choice. For our purposes it is not essential to draw a sharp distinction between search and switching costs. Therefore, we will not dwell further on this distinction and include search costs in cases where these are relevant.

Switching costs and product differentiation

Products and services from different suppliers are seldom exactly identical. Also, preferences differ between consumers. As a result switching to a cheaper supplier does not always lead to higher consumer welfare: for some consumers, the financial savings may not fully compensate for the deterioration in the match between product characteristics and preferences. In that sense, for these consumers switching involves a cost in terms of utility derived form the product. However, such costs differ from switching costs as defined above in that they do not arise in the process of switching itself, but arise due to a mismatch between preferences and product qualities.[3]

An example may be helpful. Suppose you prefer coffee to tea. Now suppose you switch to tea because a coffee cartel has succeeded in raising prices to levels you cannot afford. You suffer a welfare loss compared to the situation in which could afford coffee. Is this due to switching costs - the cost of switching from coffee to tea? Of course the answer is no. Switching costs refer to costs that prevent consumers from making a move that they would have made if the act of switching itself was costless. By contrast, in the coffee/tea example the loss in welfare has nothing to due with the costs of switching itself. It is just a question of taste.

However, things are not always so clear cut. Firms may engage in activities – for example advertising – that change essentially homogeneous products like electricity into heterogeneous products in the eyes of consumers. For example, as a result of advertising consumers may - erroneously – come to believe that reliability of energy supply differs across energy suppliers

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[3] Of course, it is true that product differentiation may soften competition, and that this negative effect should be balanced against the positive effects (better fit with what different consumers want). But that is not the topic of this report.

1.3   Outline of the report

The first two chapters that follow present our analytical framework. Chapter 2 asks how we can determine whether switching costs have important welfare consequences. A five-step analytical approach towards answering this question is presented. Chapter 3 continues with the question: if switching costs have large welfare effects, then what does this imply for policy?

With the analytic framework in place, chapter 4 asks what we know empirically about the causes and consequences of switching costs and about the effectiveness of polices aimed at reducing switching costs. This chapter is based on a survey of the literature.

Our own empirical contribution is presented in chapters 5 - 7. Chapter 5 offers a comparative analysis of switching behaviour by a sample of consumers in different markets. The chapter asks whether the determinants of switching behaviour differ across (types of) markets, and whether these differences can be explained out of observable or unobservable consumer characteristics.

Chapter 6 presents a case study of the recently liberalised retail market for energy. Using a dataset obtained though a specially designed consumer survey, we first present econometric estimates of switching behaviour in this market. Next we use the survey results in order to assess the welfare consequence of the liberalisation of this market. The chapter also discusses policy options for reducing switching costs.

Chapter 7 presents a case study of switching costs in health insurance. We summarise existing estimates of consumer sensitivity to price differences between health insurers and supplement these estimates with our own, based on more recent data. Our data also allow a detailed analysis of differences in price sensitivity across different groups of consumers. The chapter offers a tentative welfare analysis of the effects of switching costs. Finally the chapter discusses policy options.

Chapter 8 briefly summarises our findings and discusses the broader policy implications.

2 Diagnosing markets with switching costs

2.1 Aim of the chapter

This chapter and the next make up the analytical framework of this report. This chapter asks when switching costs are a problem, the next chapter asks what to do about switching costs if they are considered to be a problem.

In order to answer the first question, this chapter looks for a set of diagnostic criteria for determining when switching costs are a problem from a policy perspective. To be precise, in this chapter we ask under which observable circumstances switching costs are likely to lead to a serious fall in *consumer* welfare. The reason for focussing on consumer welfare will be explained in section 2.3.[4]

We should point out that high switching costs may not only lead to high prices but also to low quality. This means that even if consumers can be protected against rising prices (e.g. by signing long-term contracts) firms may still be able to exploit switching costs by economising on quality (if quality cannot be contracted). In this chapter we will be mostly talking about the implications for price, but this is mainly for brevity. Most conclusions will also hold if quality is substituted for price.

2.2 Switching costs and market failure

Before going on, we must ask a fundamental question: why should switching costs be of concern to policymakers? Put differently, why should the government be more worried about switching costs than about other costs? There are essentially two answers to this question. First, in some cases switching costs are artificial, in the sense of being created by firms in order to make switching more difficult. Such artificial switching costs are a loss from a social welfare point of view. Presumably, if firms create artificial switching costs, they must benefit from this. One reason why firms may benefit from artificial switching costs is that such costs may create market power for the firm concerned. This strategy will only be successful if consumers do not anticipate such firm behaviour before becoming locked-in. Klemperer shows that if consumers do anticipate such firm behaviour, competition for consumers that are not yet locked-in will drive prices down. However, he also shows that ex-ant competition will in general not be sufficient to neutralise the negative effects of switching costs o consumer welfare. We will return to this issue in the next section.

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[4] The checklist developed in this chapter is a complement to the decision tree presented in the 2002 report *Kosten noch moeite*, by the Working Group on Switching Costs of the Department of Economic Affairs. That report mentions complaints from customers and little switching at the same time, or observed "irrational market behaviour" of customers, as signs of consumer welfare losses due to switching costs. If such signs are lacking, then the decision tree stops: there is no role for government policy.

The second reason why policymakers should worry more about switching costs than about other costs, is that switching costs (either real or artificial) may reduce competition between existing firms and act as a barrier to entry for new firms. Since new firms are an important source of innovation, the welfare costs of switching costs may be high. But even if switching costs mainly lead to a transfer from consumers to firms (because switching costs enable firms to keep prices high), this should be of concern to policymakers who are interested in promoting consumer welfare.

2.3 Switching costs and consumer welfare: a diagnostic checklist

In this section we present a diagnostic checklist for assessing whether switching costs are likely to have important effects on consumer welfare. The checklist will be applied in the case studies in chapters 6 and 7. The checklist consists of three steps:

2.3.1 Step I: Are switching costs large?

For switching costs to have a large impact on consumer welfare, switching costs must be substantial. Although one can construct theoretical cases in which even small switching costs can have large consequences for consumer welfare (see box), we consider this to be a theoretical oddity.

Can small switching costs have large effects on consumer welfare? No!

Even small switching costs may lead to much higher prices compared to no switching costs. Klemperer (1987) presents examples and a theoretical model to show when this may happen. The story behind his analysis is as follows. Suppose we start from a given price below the monopoly price and the price is the same for all firms. Now suppose one firm raises its price a little. Because of switching costs, the firm hardly loses any customers, so its profits go up (as long as the profit per customer is not too high). However, this means that other similar firms may also raise their price without loosing too many customers. This allows the first firm to raise its price again. Thus, even with small switching costs, prices may spiral upwards – in fact, they may spiral all the way up to the monopoly price! However, an important assumption in this story is that there is no entry. With free entry, high profits will attract new competitors and intensify competition in the market.

The various empirical techniques that can be used to assess whether switching costs are large are discussed in chapter 4. Sometimes the ease or difficulty of switching can be assessed directly on the basis of consumer surveys which measure consumer attitudes towards switching suppliers. Our case study in chapter 6 is based on surveys among Dutch consumers. Similar surveys were held in the UK (Giulietti et al. 2004). Sometimes the level of switching costs can be inferred from observable market outcomes. For example, one may have access to data on prices and sales for individual firms. By looking at price differentials, one may be able to infer

something about switching costs.[5] If we find that few consumers switch between providers even though prices for homogeneous goods differ substantially, then this is a clear sign of high switching costs.

Data on prices and sales of individual firms can be used to estimate a so-called *residual elasticity of demand*. This is a figure that says by how much demand at a given firm falls if it raises its price by 1%, keeping constant prices of competitors. If this fall in demand is very small, then consumers are not very price sensitive. With homogenous products, a small residual elasticity of demand is a strong indication of high switching costs. With heterogeneous products, one should ask whether quality differences are large enough to explain low partial elasticities of demand.

2.3.2   Step II: How fierce is competition for market share?

In markets with switching costs, firms typically compete for market share. Under certain conditions, such competition drives prices down far enough to compensate customers for price rises once they have become locked-in (Klemperer 2002, p. 11). This leads Klemperer to conclude that "..one must not jump from the fact that buyers become locked in to the conclusion that there is an overall competitive problem" (Klemperer, 2002, p. 38). This suggests that our checklist should include competition for market share as an important criterion. Indeed, in a report for the UK Office of Fair Trading, NERA (a consultancy) argues that this should be the prime criterion for assessing the desirability of government policy in markets with switching costs: "That is, intervention should only occur when the rents available from locked-in customers are not competed away *ex ante*." (NERA 2003, p. 119). [6] However, ex ante competition is unlikely to fully compensate customers for higher prices after they have become locked-in. Klemperer (2004) lists these reasons: ".. while sometimes (as in our core model) firms must give all their ex post rents to consumers in ex ante competition, that is not always true. The ex post rents may be less than fully competed away, as in most of the oligopoly models we discussed. Or, if the ex post rents are dissipated in unproductive activities such as excessive marketing or advertising, then consumers are harmed by switching costs even if firms are no better of. So, switching costs often do raise average prices. Moreover, as in our core model, switching costs often cause a bargain-then-rip-off pattern of prices, and (going beyond the core model) this can be inefficient even when the average level of prices remains competitive; they make matching less efficient by discouraging re-matching or the use of multiple suppliers; and, of course, they result in direct costs when consumers do switch."

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[5] With differentiated goods or services, price differentials must be adjusted for quality differentials before we can say anything about implied switching costs. This adjustment often requires some form of expert judgement.

[6] The NERA-report argues that ex ante competition cannot be trusted upon in newly liberalised markets, since customers who had purchased before competition was introduced have not benefited from *ex ante* competition. This is true, but bygones are bygones. Even these customers may be attracted by new, more efficient firms who are able to undercut the incumbents sufficiently to entice customers to switch.

(Klemperer 2004, p. 40). Still, there may be cases in which competition for market share does attenuate the adverse effects of switching costs for consumer welfare.

In markets characterised by high switching costs, existing firms may face a trade-off between exploiting their current customer base and attracting new customers (Klemperer, 2002, section 2.4.2).[7] As a result, even with a large number of incumbent firms, prices may be substantially above the competitive level. By contrast, new entrants do not face such a trade-off. Therefore, it is likely that entrants will be more willing to accept prices below costs in order to compensate customers for later price rises. This means that in order to judge whether competition for market share is fierce in markets with high switching costs, we should look at current and past entry.[8]

In assessing the intensity of competition for market share, we should look at market growth. If the number of new customers is large relative to the installed base, then it will be attractive for incumbents to attract new customers. If price discrimination between old and new customers is not possible, then this will lower the incentive for incumbents to exploit their existing customer base by charging high prices (or offering low quality).

If firms compete for market share, they may neglect unobservable quality aspects. Only after they have become locked-in will consumers find out that these quality aspects have been neglected, but then it is too late. Furthermore, consumers may err in their choice of product and switching costs make it costly to reverse these errors. If these effects are important, then even if ex-ante competition is fierce there may still be a case for policy aimed at reducing or alleviating switching costs.

2.3.3   Step III: How large is the loss in consumer welfare?

Before deciding on whether there is a potential role for government policy in reducing switching costs, we need some idea of the welfare effects of switching costs. Overall welfare losses due to a fall in demand as a result of higher prices (the so-called Harberger-triangles) tend to be small. Therefore, the welfare costs of switching costs consist primarily of a transfer from firm to consumers. In addition switching costs may have dynamic effects that work through innovation and incentives to reduce costs.

There are several ways in which the effects on consumer welfare can be estimated. In our case study on energy, we will use survey evidence on switching costs to estimate the size of the transfer from firms to consumers. In the case study on health insurance, we are forced to use an indirect approach based on estimated price elasticities of demand which we then use to calculate the price-cost margin (the Lerner-index). More advanced methods use econometric techniques

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[7] Unless firms are able to charge different prices to old and new customers or to give large enough discounts or presents to new customers.

[8] Asymmetric market shares may to some extent substitute for entry. Firms with a small established customer base will more or less behave as new entrants, provided their small size is not the result of inefficiency. In practice, small efficient forms will chiefly be found among recent entrants.

to estimate the effects of switching costs on prices. These methods will be discussed in chapter 4.

In estimating the effects of switching costs on consumer surplus, we should also take into account the possibility that switching costs also have beneficial effects for consumers. These beneficial effects may arise for various reasons:

- First, contracts with high switching costs may offer consumers protection against changes in prices. Examples are life insurance, mortgages, and energy contract with fixed prices. In these cases, if consumers could freely terminate these contracts in case of a fall in price, firms would only be willing to offer these contracts at higher prices (if at all).
- Second, switching costs may alleviate the hold-up problem, which arises if firms are unsure whether they will reap the future returns from their investments. For example, health insurance firms may cut back on their investment in prevention if consumers frequently switch between health insurance firms.
- Finally, if consumers respond to incomplete information lowering switching costs may lead firms to focus on certain characteristics to the detriment of other characteristics. This is especially relevant where professionals have an intrinsic motivation for providing quality.

2.3.4 Summary

The above discussion leads to the following checklist for assessing whether switching costs are likely to have large effects on consumer welfare.

Step I.   Assess whether switching costs are large. If not, stop here.

Step II.   Determine whether there is (and has been) fierce competition for market share. An important criterion for judging this is the amount of new entry. If it is likely that consumers benefit from competition for market share, then large effects on consumer welfare are unlikely and the analysis can stop here. There is no need for government policy. Otherwise, continue to step III.

Step III: Estimate the loss in consumer welfare due to switching costs. If the loss in consumer welfare is small, then the analysis can stop here. There is no need for government policy. Else continue to an analysis of policy options aimed at alleviating the consequences of switching costs (see the next chapter).

3 Switching costs and policy: an overview

3.1 Introduction

The previous chapter presented tools for diagnosing markets with switching costs. This chapter continues with the question that comes after diagnosis: *What is the appropriate treatment for markets with switching costs?* Unsurprisingly, there is no standard answer to this question that applies to all markets with switching costs. Like patients, every market is different and the doctor should decide on a case-by-case basis what the appropriate treatment is. Therefore, this chapter will not offer a standard recipe but rather discuss in general terms the pros and cons of various measures. We will distinguish between two types of measures:

- Measures aimed at lowering switching costs themselves (analysed in section 3.2), and
- Measures that alleviate the adverse consequences of switching costs (analysed in section 3.3).

3.2 Measures that lower switching costs

3.2.1 Improving transparency

This is the most obvious policy option and perhaps for that reason the most popular. Thus, government agencies increasingly publish information on their website on prices (e.g. on energy, health insurance, financial products) or quality (health providers). Two questions must be asked about these policies:

1. Is there really a role for government policy here?
2. Does transparency really help?

Start with the first question. Clearly, the market is developing ways to improve price- and quality transparency. For example, there have long been hallmarks for all kinds of products. More recently, private companies have set up websites that allow visitors to compare prices and characteristics of different suppliers of a wide range of products including books, cars, wine, houses, airline tickets, mortgages, various types of insurance, energy, and telecom. However, some of these websites have undisclosed financial ties with certain firms offering products through their sites. This may lead to biased information. In such cases there is a case for government policies aimed at providing unbiased information. Different countries take different views on the role of government in this area. For example, whereas the Financial Services Authority in the UK publishes detailed comparative tables on various financial products on its website, the Dutch Financial Services Authority (AFM) apparently does not see such a task for itself. The more active stance of the UK-government is understandable given the private

pension drama in that country in 1990s. However, without detailed analyses of the quality of private comparison websites, firm statements about the role of government are not possible.

With respect to the second question, in theory at least it is possible that customers erroneously believe that price differentials reflect quality differentials, or that switching is costly. This may seriously hinder competition. Providing customers with information - on quality differentials and on real switching costs - may correct this belief and may stimulate competition.

It should be noted that improving transparency is not always (or not only) a good thing. Transparency may facilitate collusion among suppliers, and this risk should be taken into account when deciding on policy. Moreover, not a lot is known about the effectiveness of policies aimed at improving transparency.

3.2.2   Educating the public

As already argued in the previous chapter, consumer rationality cannot always be taken for granted. Consumers may have a strong bias in favour of the status quo, in this case their current provider. Even if consumers are perfectly happy with their current choice, there may still be a role for policy. This is because customers may not realise that switching would make them better off, even if the problem of information about quality has been solved. For example, consumers may erroneously assume that the market is competitive, in which case searching for a better does not make sense. Publicity campaigns can then be useful to convince consumers that shopping around makes sense.

Is there is a role for policy here, and will policy be effective? With regard to the first question, there are reasons for doubting the necessity of government intervention. After all, firms that stand to gain from a better awareness among customers – i.e. firms offering better value for money – will try to convey this information to potential new customers through advertising and other publicity tools. Thus, there is only a role for policy if it is better at conveying the relevant information to customers *or* if it is willing to spend more resources on conveying the information to customers. Both conditions can be fulfilled in practice. Government information may be considered more reliable than advertising by firms (clearly, this will depend on the reputation of the relevant government agency in this area). And the government may also be prepared to spend more resources than individual firms. The reason is that there is a positive externality associated with a higher propensity to switch in response to differences in price/quality: A higher propensity to switch on behalf of customer X makes the market more competitive and this also benefits other customers (see chapter 2).

3.2.3   Regulation, light and heavy

Regulating firms with a view to lowering switching costs may take several forms. An important distinction is between light regulation, i.e. regulation that does not involve regulators interfering

with the management of the firm, and heavy regulation that does. Important examples of light regulation are:

- Requiring firms to offer number portability in banking and telecom.
- Prohibiting firms from setting up unnecessary administrative hurdles to switching (e.g., not responding to emails, not enabling switching through internet sites when other administrative processes (e.g., change of contract, change of address, questions about bills) can be handled through the internet.
- Requiring firms to publish product information in a standardised form.

Examples of heavy regulation are:

- Standardisation: firms may be required to standardise their products. Mandatory health insurance in the Netherlands is one example. Technological standards in e.g. telecommunications is another.
- Prohibiting long-term contracts: the government may regulate the extent to which firms are allowed to lock-in customers through long-term contracts. Again, health insurance is a case in point: in the Dutch social health insurance scheme, the insured are allowed to switch insurers once a year. Insurers are not allowed to restrict this freedom of choice. Another example would be a prohibition of 'unreasonable' fines upon switching mortgages; the US has such a prohibition, the Netherlands does not.
- Prohibiting front-loading of costs: for a number of financial products (e.g. private pensions, term life insurance with a savings element) firms allocate costs to the early years of the policies. As a result, during the first couple of years the customer hardly builds up any capital. This makes switching a very expensive option.
- Restrictions on the type or amount of marketing a firm are allowed to undertake. As argued in chapter 2, firms producing essentially homogeneous goods may spend substantial amounts on advertising in order to achieve artificial product differentiation.
- Prohibiting price-discrimination: discounts may enable firms to attract new customers while exploiting existing customers.

Heavy regulation has drawbacks that must be set against the beneficial effects. For example, standardisation is costly and runs the risk of getting locked into the wrong standard; long-term contracts and front-loading of cost may have important commitment advantages (for example, prohibiting banks from imposing fines on early amortisation of mortgages may raise mortgage rates); large expenditures on marketing may signal high quality; and prohibiting price discrimination hurts new customers while the gains to existing customers are uncertain. Thus, even apart from legal obstacles to regulating firms, from a purely welfare economic point of

view regulating firms in order to reduce switching costs requires a very careful balancing of pros and cons.

3.2.4 Subsidising switching

As argued above, a lack of switching may reflect consumer ignorance about the costs and benefits of switching. Improving transparency and educating the public may then help to reduce these misperceptions.

However, there is no guarantee that these policies will have the desired effect. Indeed, in the Netherlands there is at least one market where information about costs and benefits of switching is readily available and where objective costs of switching are low, but where the level of switching remains low: mandatory health insurance (see the box in chapter 1).

In such cases, an obvious policy to consider is subsidising switching. After all, a higher propensity to switch in response to differences in price/quality leads to a positive externality for other consumers. As a result, the market generates a suboptimal level of switching and in principle a switching subsidy is called for. However, such a policy has two obvious drawbacks:

- In order to determine the correct level of the subsidy, policymakers would need a good estimate of the level of switching costs, and such estimates are seldom (if ever) available.
- By subsidising switching, policymakers risk strategic behaviour on the side of suppliers, who may find it attractive to artificially raise switching costs.

For these reasons, we shall not discuss this option any further.

3.3 Measures that alleviate the consequences of switching costs

3.3.1 Why alleviate consequences rather than lower switching costs directly?

Lowering switching costs may sometimes be infeasible, for example because reducing switching costs is too costly or because switching costs have important commitment advantages. In such cases, it may still be possible to alleviate the adverse consequences of switching costs without lowering switching costs themselves.

3.3.2 Enhancing ex ante competition

As argued in chapter 2, ex ante competition leads firms to compensate new customers for later price rises through discounts and bonuses. (De-)Regulation of entry may affect the level of ex ante competition, and in some markets this may be an important lever that the government can pull to alleviate the adverse effects of switching costs. An example is the deregulation of the mobile phone market, where deregulation of entry has resulted in fierce ex ante competition to the benefit of consumers.

However, such a policy will only benefit new customers. Existing customers will already have been locked in and will not benefit from enhanced ex ante competition.

3.3.3 Lowering the probability of regret

The welfare loss due to switching costs is especially large for those customers who discover that their initial choice was wrong. This is likely to apply in cases where switching costs are due to long-term contracts (mortgages, insurance, energy, and telecom). In order to reduce the likelihood of wrong choices, the government could do several things:

- Increase quality transparency, e.g. through quality report cards for insurers or by subsidising consumer organisations in exchange for making price- and quality comparisons available to the public
- Naming and shaming of firms offering misleading contracts or financial intermediaries offering misleading advice
- Facilitate redress: offer consumer access to a consumer authority where they can file their complaints
- Regulation, e.g. imposing minimum standards, prohibition of misleading contracts.

These policies are ranked from light-handed to heavy-handed. Light-handed policies are to be preferred since they interfere less with the management of the firms. Thus, regulation should only be considered if light measures do not work.

The government may not want to limit the probability of regret too much, since this might lead consumers to expect an implicit guarantee that the government has checked the quality of the product. This might lead to crowding out of private actions to monitor the performance of firms.

3.3.4 Increasing the profitability of new customers

In insurance markets with community rating (i.e. price discrimination is forbidden), the expected profitability differs for different types of customers.[9] Suppose the expected profitability is relatively high for those customers that are likely to switch in response to differences in price/quality. Then a low number of switchers may already be enough to discipline firms, i.e. to keep the market competitive. Health insurance is a case in point. With community rating (i.e., equal premiums across risk classes), differences in expected costs translate into differences in expected profitability. In the Netherlands and other countries, differences in expected profitability are smoothed through a risk-equalisation scheme, but this

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[9] Also, customers who consume more are more profitable and may also be more likely to switch. This is quite likely since switching costs are a fixed cost, independent of the level of consumption. The fixed nature of switching costs implies that customers with a high consumption level are more likely to pass the threshold at which switching becomes attractive than customers with low levels of consumption. In this case, further increasing the profitability of switchers would amount to a subsidy on switching which we have already rejected.

still leaves open the possibility that *within* risk classes expected costs – and therefore expected profitability - differ between switchers and non-switchers. The risk-equalisation scheme gives policymakers a lever that can be pulled in order to increase the profitability of switchers. Of course, policymakers would then face a trade-off between risk-equalisation and competition: the more one wants to use the risk-equalisation scheme for stimulating competition, the less one succeeds in smoothing differences in expected profitability across customers. In the case-study on health insurance we will come back to this policy option.

3.4   Conclusions

This chapter has discussed various policy options for markets with switching costs. While the relevant policy options will depend on the case at hand, a general conclusion is that almost every policy option has certain drawbacks. These drawbacks are generally larger for policy interventions such as heavy regulation of firms or subsidising switching than for measures that aim at improving transparency. This may explain why many policy measures are often aimed at improving transparency. However, we know fairly little about the effectiveness of these measures. Therefore, it is important to evaluate policies aimed at improving transparency.

4 Empirical studies of switching costs

"The empirical literature on switching costs is much smaller and more recent than the theoretical literature. There are some studies that test specific aspects of the theory (see later sections), but only a few studies directly attempt to measure switching costs." (Klemperer, 2002, p. 7).

4.1 Introduction

The quote of Klemperer at the beginning of this chapter makes it clear that the amount of empirical work on switching costs is not exactly overwhelming. This dearth of empirical knowledge is not without a cause. Klemperer (2002) once again:

"Because switching costs are usually both consumer specific and not directly observable, and micro data on individual consumers' purchase histories are commonly unavailable, less direct methods of assessing the level of switching costs are often needed." (Klemperer, 2002, p. 7-8.)

As a result, the economic literature offers little empirical evidence. Given that economic theory highlights that under certain circumstances switching costs may adversely affect market outcome, the policy question is how large the effects of switching costs are in practice. In this chapter we review empirical evidence on switching costs in different markets. We structure our review around the following questions:

- How large are switching costs in different markets?
- Which factors determine switching cost and affect the likelihood of switching?
- What do we know empirically about the consequences of switching costs for market outcomes?
- What do we know empirically about the effectiveness of policies to reduce switching costs?

These questions come to order in sections 4.2 - 4.4.4 respectively. Before addressing these questions, we briefly summarise existing empirical methods in the Box below.

4.2 How large are switching costs?

Switching costs consist of direct financial costs, given by the size of switching fees, and indirect costs. The latter include customer non-financial costs (e.g., time needed for searching and switching, investment in knowledge and psychological cost). While direct financial costs are easily observed and quantified, it is much more difficult to estimate indirect costs. In this section we review papers that assess the level of switching costs. We begin with papers that use

econometric methods in section 0, and then turn to computational methods in section 4.2.3. Section 4.2.4 concludes.

Methods of estimating switching costs

Switching costs may be identified directly or indirectly, using either econometric techniques or straightforward computation from data.

NERA (2003) provides an overview of direct and indirect econometric methods for the estimation of switching costs. *Direct methods* use information on individual consumers regarding their switching behaviour. Such methods combine information on stated or revealed preferences of individuals with the individuals' historic consumption pattern. In contrast, *indirect methods* focus on the consequences of switching costs (such as price discrepancy, low residual price elasticity) or events (e.g. introduction of certain policies) which are expected to affect switching costs, as a source of indirect information on switching costs. The data that are necessary for direct methods generally come from consumer surveys. This type of data is not readily available and costly to collect. The methods are data intensive and can not always be performed based on standard procedures, but require programming skills. However, these methods deliver the best estimates of switching costs: the data are tailored for the purpose for which they are used and researchers are able to construct the relevant variables that they need in their estimation. This is different for indirect methods, which often identify switching cost based on aggregate firm data provided by the market.[10] Such data is often readily available, which makes this kind of estimation easier to implement. The disadvantage of indirect methods is that such methods often use strong assumptions and involve complex econometrical issues. For example, the estimation may feature endogeneity bias.[11] Although there are econometric techniques (such as instrumental-variables) that overcome this problem, it is not always easy to find appropriate instrumental variables.

In addition to methods that use *econometric techniques*, there are methods for assessing switching costs using no econometrics, but *straightforward computation* from the data. Unfortunately, such methods often require restrictive assumptions. Still, the methods may be useful as they are easy to implement and in some cases may provide reasonably good indication of potential effects of switching costs, provided the appropriateness of the used assumptions. Therefore, these papers will also be included in our review.

4.2.2 Econometric methods

It is possible to estimate average switching costs based on information about actual switching. Such an analysis is provided by Shum (2004), who analyses switching across breakfast-cereal brands. Shum uses a household-level scanner dataset, which tracks the cereal purchases of more than 1000 households over six quarters, and data on firm's promotional activities and their spending on advertisement. The breakfast-serial market is characterised by strong brand-loyalty. The analysis shows that the average switching cost across all brands is $4.33, i.e., larger than the price of the product. Households are much more likely to repurchase brands they have purchased recently. According to Shum, this evidence is consistent with the large number of

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[10] There are, however, some exceptions. For example, NERA mentions that consumer-level data are preferable in the case of price discrimination between customers in order to control for the differences in evolution of switching costs across different customer groups.

[11] NERA mentions omitted variables, measurement errors and simultaneity bias as possible sources of endogeneity.

coupons for 'free-samples' dispensed in this industry, which allows the firms to compensate customer switching costs.

Several papers provide evidence of switching costs imposed by Frequent Flyer Programs (FFP) in the air travel market and find a significant effect of FFP on carrier choice, especially for most frequent travellers (e.g., Proussaloglou and Koppelman, 1995, and Nako, 1992). FFP's provide their participating members with the opportunity to earn frequent-flyer (FF) credits on each flight that they take with the company and/or the company's affiliates, and to redeem their FF credits for FF awards upon accumulating the credit required. As these schemes are non-linear, they create loyalty effects: the travellers that are close to the required credit are more willing to fly with the airlines that belong to that particular FFP. Nako (1992) uses business travellers' data to quantify the effect of the FFP's and finds a significant effect of FFP's upon airline choice. The effect varies across airlines and depends on the presence of the corresponding airline in the city of the residence of travellers. In the basic model restricting airline specific effects of FFP's to be the same for all companies, Nako estimates the customer value of FFP be equal to $40 per trip, while an increase of the airline's airport market share by 10% further increases this number by $4.16.

Kim et al. (2003) analyse switching costs in the market for bank loans, using aggregate panel data on Norwegian banks. They present an empirical model of the behaviour of a bank in the presence of switching costs. Switching cost is assumed to be constant across all firms and treated as a parameter of the model. According to the estimation, the average switching cost in the Norwegian market for bank loans is equal to 4.1%, i.e., about one-third of the market average interest rate on loans.

4.2.3   Computation from data

One way to construct the distribution of switching costs will be simply to ask consumers at what price differentials they would switch. The problem however is that consumers often cannot estimate their non-financial switching costs correctly, therefore their answers will reflect their perceived switching costs, which may be different from actual switching costs. Still, it is perceived switching cost rather than actual switching cost what explains customer switching behaviour and affects the market outcome. For example Giulietti et al. (2004a) infers the distribution of customer switching costs in UK retail electricity market using the consumers' answers to the question what size of potential savings would make them switch provider. Based on the distribution of switching costs constructed, Giulietti et al. estimates how this may affect market outcome. One of the conclusions that they draw is that with such a distribution of switching costs, the incumbent firms may find it profitable to raise prices by up to 8 pounds (about 10% of the average monthly bill for electricity, or, if we exclude network charges, 33% of the cost of electricity) − only 38% of customers are ready to switch for a smaller amount.

There are also computational methods based on data of firms. In particular, Shy (2002) develops a 'quick and easy' method for the calculation of switching costs from the aggregate

data on firms, mapping observed prices and market shares onto the switching cost estimates. The method employs no econometrics, but a simple calculation. Shy introduces the concept of the 'undercut-proof property', according to which no firm in the market would find it profitable to undercut prices by more than the level of switching costs. The model assumes that all customers will walk away from the firm as soon as the price is risen above this level. Unfortunately, such assumptions are very restrictive and may not hold in reality. Therefore, despite the easiness of the method, its application in practice is likely to be limited. Shy himself offers two examples of such applications: for the Israeli cellular phone market and for the Finnish bank deposit markets. Furthermore, Carlson and Löfgren (2004) use it for evaluating switching costs in the Swedish market for air travel. We summarise the results of these papers below.

With respect to the Israeli cellular phone markets, where there are two suppliers of cellular phone services operating on different standards, Shy obtains switching costs of about the price of an average phone. As the operators in Israel operate on different standards, purchase of a new phone is an unavoidable part of switching. Switching of telephone provider involves also cost of searching and costs due to partial loss of the subscription fee. Therefore, one could have expected to find higher estimates of switching costs in this market. According to the author, the result can perhaps be explained by the tendency of consumers to upgrade their phones upon switching to a new provider. This means that upon switching consumers buy a better phone that they used to have, therefore, only part of the cost of the new phone is accounted as switching costs, while the rest is seen as the cost of the upgrade of the phone.

For the bank deposit market, Shy finds switching costs in the range between 0 and 11% of the average balance a depositor maintains with the bank, except for one bank (the bank providing many government services for which Shy obtains higher switching costs).

Carlson and Löfgren (2004) apply the same methodology to analyse switching costs for the air travel market in Sweden, dominated by the national flag carrier airline company SAS. They consider operation in six different routes, five of which are served by two airlines, and one by three airlines. They find that the upper bound of switching cost from SAS is significantly higher than switching cost from the other airlines on the five routes that are operated by only two airlines. According to the authors, average switching cost from SAS is about 70% of the average ticket price used in computation.

4.2.4 Conclusion

We conclude that there are wide differences across markets in the level of switching costs. As Table 4.1 shows, for repeated purchases of products (such as airline tickets and breakfast cereal) switching costs are high, and in some cases even exceed the cost of the product itself. Also for durable products or services, switching costs may be substantial (e.g., 1/3 of market interest in banking.)

We observe a variety of techniques for estimating switching costs. Both direct and indirect methods are used. In addition to econometric methods, there are papers that use simple calculation from aggregate prices of firms and market shares.

Table 4.1   Summary: Level of switching costs

Author	Market	Methodology	Level of switching costs
Giulietti et al. (2004a)	Residential energy market in the UK	Computation from individual consumer data	Distribution of switching costs is constructed; 38% of customers have switching cost less than 8 pounds (=10% of the average electricity bill)
Shum (2004)	Market for breakfast cereal in the US	Direct estimation based on household scan data	On average, $4.33
Kim et al. (2003)	Market for loans in Norway	Indirect estimation from aggregated firm data	On average, 4.1% (=1/3 of the market average interest on loans)
Shy (2002)	Bank deposit market in Finland	Direct computation from aggregated firm data	Between 0 and 11% of the average balance a depositor maintains with the bank
Shy (2002)	Cellular phone market in Israel	Direct computation from aggregated firm data	Approximately equal to the price of a mobile phone
Nako (1992)	Air travel in the US	Direct estimation from individual consumer data	Switching cost varies across companies: On average: $40 per trip
Carlson and Löfgren (2004)	Air travel in Sweden	Direct computation from aggregated firm data	The average switching cost from SAS to another company is about 70% of the average ticket price

4.3   Which factors determine switching costs and affect the likelihood of switching?

In this section, we summarise several papers that analyse the determinants of switching costs. Two categories of factors affect switching costs and the likelihood of switching: product characteristics (e.g., a certain brand name, or product attributes) and consumer characteristics (age, education, etc.). The information regarding customer loyalty to a particular firm, product attributes and consumer characteristics affecting switching is relevant to policy makers, as it may be useful in designing policies that target at increasing customer mobility, if such an increase appears to be necessary.

Giulietti et al. (2004a): residential energy marketing the UK

Perhaps the most elaborate analysis of the effect of consumer characteristics on switching is presented in Giulietti et al. (2004a). Therefore, we will discuss this paper at some length. Giulietti et al. estimate the propensity to switch energy supplier for residential customers in the UK, contingent on customer awareness of switching possibilities. The switching decision is

modelled as a function of customer characteristics such as the importance of potential savings and supplier reputation, and factors affecting search and switching costs. The factors affecting consumer search costs are proxied by population density in the area where the customer lives, customer income, education and previous switching experience in other markets; and the factors affecting switching costs include expected time and ease of switching.

The authors estimate two model specifications: using the actual switching decision and using information regarding the intention of individuals to switch in the future. It appears that the variables used as proxies for search[12] and switching costs included in the regression have positive effects on the likelihood of switching. Since several factors that appear to affect the likelihood of switching, e.g. expected time or ease of switching, characterise the customer *perception* of switching costs, rather than the realised switching costs, this analysis highlights the importance of the perception of switching costs for switching decisions. Reducing misperceptions regarding actual size of switching costs would generate more switching.[13] Another finding of the paper is that customers that have switched their telephone provider are on average 11% more likely to have switched their electricity provider, and 17% more likely to consider switching of electricity provider in the future. This result may arise if switchers share some common characteristics which are missing among the control variables (such as age, income and education) included in the model. However, it is also plausible that experiences in other markets decrease search and switching costs. In that case, policies reducing switching costs in some markets may have positive externalities in other markets.

Giulietti et al. also look into switching behaviour of vulnerable customers groups (such as pensioners, low-income, disabled). For the UK energy market, they find that pensioners are less likely to be aware of switching possibilities, however not less likely to switch once they are aware. Given that awareness is growing over time, this category of households is unlikely to remain locked-in. Furthermore, low-income people appear to be more likely to consider switching, but not many of them had actually done so when the data were collected.

Hausman and Sidak (2004): telecom marketing the US

Identifying customer groups that may be most heavily affected by staying with the same firm provides policy makers with an insight where price discrimination is more likely to manifest, which is useful to inform the choice of policy to prevent such undesirable effects. For the telecom market, Hausman and Sidak (2004) investigate whether some customer groups are likely to pay more for the same services. Correcting for the usage of services, they find a statistically significant inverse relationship between the price per minute paid for standard long-distance services purchased by residential customers and the customer's household income and

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[12] With respect to search costs, especially experience in other markets has a strong positive effect on likelihood of switching. The educational variable was insignificant. There is evidence of a significant impact of income-related search costs, represented by an inverted U-shaped relationship with income.

[13] Giulietti et al. also provide a complementary analysis that shows why the decrease of switching costs is desirable. See the next section for more detail.

level of education. "A consumer's price per minute falls by 0.156 cents for every additional $10,000 of household income… an additional year of education reduces the per-minute price of long-distance service by 0.186 cents. Thus, a college-educated individual would pay 0.744 cents less per minute than a high-school educated individual, all other factors being held constant." (Hausman and Sidak, 2004, pp. 13-14.) That is, poorer consumers and less educated consumers pay more for the long-distance services.[14] The data did not allow the researchers to identify the cause behind this. According to the authors, their finding may relate either to the firms' strategies (offering and/or marketing certain products to certain customer groups) or to consumer behaviour. It may be that poorer and less educated customers search less for better prices, are less able to negotiate a lower price, or have a greater degree of loyalty.

Royalty and Salomon (1999): health insurance market in the US

Regarding the health plan choice, Royalty and Salomon (1999) find that younger and healthier employees are more price sensitive. However, they also find that the more educated and perhaps the wealthier are less price sensitive. We will discuss the literature on switching costs in health insurance in more detail in chapter 7.

Chen and Hitt (2002): on-line brokerage services

Chen and Hitt (2002) analyse the use of online brokerage services. They find that higher website quality and breadth of offered products reduces switching away from the firm. Also the usage pattern matters: heavier users of online brokerage services are less likely to switch, because of higher psychological and sunk learning costs. In contrast, demographic characteristics of consumers appear not to be important in this case.[15]

Carlson and Löfgren (2004): air travel in Sweden

In an analysis of the determinants of switching costs in air travel in Sweden, Carlson and Löfgren (2004) find that perceived quality differences between airlines (e.g. in terms of the number of departures) have a very small positive and significant effect on switching cost. Furthermore, Carlson and Löfgren find that other attributes of firms and products may matter, such as the number of companies that serve a particular route and the main airport of a company.

4.3.1 Conclusion

In this section we have reviewed several papers that identify factors affecting switching. We distinguish consumer characteristics and product characteristics. Among consumer characteristics, demographic characteristics are often included. Education, income and health

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[14] The estimates cited in the text are obtained from an OLS-estimation. The authors also test the robustness of their conclusion by using two other methodologies.

[15] Furthermore, higher website quality reduces switching, and so does increasing the breadth of offered products.

(the last particularly for health insurance) turn out to be important factors in some cases. Certain customer groups may be particularly vulnerable in some markets where they may pay a higher price than the average because of their low switching: several papers find that either 'poor', or 'less educated', or 'less healthy', or 'older' consumers tend to switch less or to pay more for certain services. However, this does not have to be the case in all markets. For example, education appears not to be significant for switching electricity supplier. Another important conclusion is that for an individual consumer, switching in one market may increase propensity to switch in another market.

Table 4.2. summarises this section.

Table 4.2   Summary: Factors affecting switching

Author	Market	Methodology	Factors affecting switching costs
Giulietti et al. (2004a)	Energy market in the UK	Direct estimation from consumer data	Positive significant effect on likelihood of switching of expected time and easiness of switching, and experience in other markets; the educational variable is insignificant.
Hausman and Sidak (2004)	Telecom market, long-distance calls	Direct estimation from consumer data	On average, every additional $10,000 decrease prices by 1%; individuals with college education pay less by 5%.
Royalty and Salomon (1999)	Health insurance in the US	Direct estimation from consumer data	Younger and healthier employees are more price sensitive.
Chen and Hitt (2002)	Online brokerage services	Direct estimation from consumer data	Higher website quality and breadth of offered products reduces switching; more heavy users of online brokerage services are less likely to switch; demographic characteristics of consumers are not important.
Carlson and Löfgren (2004)	Air travel in Sweden	Regression analysis	Higher quality reduces switching from the firm; the number of companies serving the route explains more than 50% of switching costs; airport dummy explains 15% of switching costs.

4.4   What do we know about the consequences of switching costs?

The theoretical literature does not offer a unique answer to the question of whether switching costs make markets more or less competitive. On the one hand, the presence of switching costs makes it easier to exploit existing customers. On the other hand, the desire to attract new customers in the presence of switching costs creates downward pressure on prices. The combination of these two effects may work one or another way depending on market characteristics. Empirical papers that consider the effect of switching costs focus on the effect of switching costs on price elasticities, prices and price-cost margins. We first discuss papers that estimate price elasticities of consumer demand in section 4.4.1. Next, we turn to the papers

that analyse the effect of switching costs on prices and price-cost margins. These are reviewed in sections 4.4.2 and 4.4.3, which cover econometric and computational methods respectively. Section 4.4.4 concludes.

4.4.1 Effect on demand elasticities

In the case of homogeneous goods, a low firm residual demand elasticity[16] indicates the presence of switching costs. A low elasticity of residual demand means that the demand for the firm's product does not change much when the price changes, hence, few customers switch when the firm changes its price. A low cross-price elasticity of demand has a similar interpretation. If such elasticity is low, few customers of one firm switch to another firm in response to the change in their relative prices. In the case of differentiated products, one should look at price elasticity of demand between periods. A negative price elasticity between periods means that the use of the product in the previous period, makes the future use of this product more likely, which also serves as an indication of switching costs. The main drawback of the methods that focus on demand elasticities as an indication of the possible presence of switching costs is that they do not distinguish between types of switching costs.

Among the papers that consider demand elasticities there are many that focus on the health insurance market. They typically find very low demand elasticities on the consumer level, indicating the presence of switching costs in such market. We will review a number of such results later in our case study on health insurance (see chapter 7).

4.4.2 Effect on prices and price-cost margins: econometric methods

In this section we review a number of papers that use econometric methods of estimation of the effect of switching costs on prices and on price-cost margins. Econometric methods of estimation of switching costs focus on the effect of switching costs on prices, or in some cases on price-cost margins. NERA (2003b) lists three main modelling techniques used in such estimations: (1) including dummies for events that may affect the size of switching costs (e.g., a dummy corresponding to the introduction of number portability); (2) using variables that proxy switching costs (e.g., density of firms in the area, the amount of switching fees); (3) using data on differences in evolution of switching costs.

Knittel (1997): long-distance telephone rates in the US (1983-1993)

According to Knittel (1997) switching costs were the main reason that the AT&T divestiture in the telecommunication market in US in 1984 did not intensify competition among providers of long-distance telephone services. It was expected that this divestiture should intensify competition and lead to a decrease in long-distance rates. Although the rates seem to decrease, Knittel argues that the reduction is due to a decrease of access charges paid by the local

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[16] A residual demand elasticity shows how the demand faced by the firm changes if the price charged by this firm changes by 1%. A cross-price elasticity shows how the demand changes in response to changes in the other firms' prices.

providers of services after the divestiture, and not due to intensified competition between the local providers, as was initially expected. Long-distance rates adjusted for access charges actually rose, the reason being switching costs.

Knittel focuses on price-cost margins rather than on prices, in order to control for the decrease in access charges (representing costs for local service providers) after the divestiture. The price-cost margin is modelled as a function of switching costs. The most interesting result of Knittel is that switching fees increase the firm's profit: a 10% reduction of such fees would reduce price-cost margin by about 6%. Thus, even in rapidly growing markets, such as long-distance communication, where there are relatively many new customers, switching costs may allow the firms to enjoy market power.

We notice that several other studies offer different explanations to the phenomena that adjusted prices rose, such as asymmetric regulation of AT&T and other firms or tacit collusion. Knittel does not test for these alternative explanations.

Viard (2003): the introduction of 800-number portability in the US

Viard (2003) investigates the effect of the introduction of 800-number portability in the US in 1993, in the presence of regulation that prohibits price discrimination between new and old customers. In the US, 800-numbers are the telephone numbers of businesses, which consumers can call in order to ask information regarding their products or to order their services. The prohibition of price discrimination between old and new customers of telephone companies affects the behaviour of the telephone companies. It makes these companies trade-off their gains from charging high prices to receive higher revenues from locked-in customers, and their losses associated with loosing the possibility to attract new customers at a high price. An increase or decrease of switching costs may lead either to higher or to lower equilibrium prices, depending on which of the two effects dominates.

Viard finds that the prices charged for stand-alone toll-free (i.e., 800-number) services by the two largest telephone operators, MCI and AT&T, dropped by around 14% after the introduction of 800-number portability, while there was no significant decrease in the price charged for stand-alone no toll-free services. The average price of contract has fallen by about 4.4%.

Borenstein (1991): retail gasoline market in the US

Borenstein (1991) finds evidence that customers facing higher search and switching costs pay higher price in the US retail gasoline market. In particular, these costs can explain the differences in the margin on leaded gasoline relative to unleaded gasoline in the US. In the period under investigation, many stations in the US stopped selling leaded gasoline, which according to Borenstein increased customer switching cost for the customers consuming leaded gasoline, compared to those buying unleaded gasoline. Borenstein uses these difference in the

evolution of switching costs to explain changes in the margin on leaded and unleaded gasoline. Switching costs are proxied by the percentage of gas stations that carry leaded gasoline.

The results indicate that the increase in switching costs for leaded gasoline customers explains the increase of the difference in price-cost margins of these two products: this may explain about 1 cent of the 3.1 cent increase in the gap between the margins of the two products. Thus the gasoline stations discriminate against groups of customers who are unlikely to switch to another station because of more loyalty or higher switching costs.

Kim et al.(2003): market for bank loans

In the market for bank loans, customers' switching among suppliers entail direct costs (psychological cost, search cost and cost associated with closing an account with one bank and opening it with another bank) as well as in some cases even more important cost related to the loss of the capitalised value of an established long-term customer-bank relationship. In section 4.2, we have already mentioned the work by Kim et al. (2003). After estimating the parameters of the model including the average switching costs (of 4.1%), the authors evaluate the consequences of switching costs. They conclude that about 40% of the average bank's customers switch to another bank after one year, implying the time that would be needed for 99% customers of the banks to switch of about 8.9 years. Secondly, about 20% of the average bank's market share is due its bank-borrower relationship in the previous period. Finally, customer added value attributed to the lock in phenomena is 16%.[17] These figures are based on the total sample. In addition, the authors report differences across subsamples. It appears that customers of larger banks are less locked in than customers of small banks, which may emanate from the higher proportion of mobile wholesale customers in larger banks.

While Kim et al. provide arguments that firms derive additional profits from by locking customers in, some other authors stress just the opposite. According to the theoretical model presented in Bouckaert and Degryse (2004), competing banks can relax overall competition by inducing borrowers to switch lenders. In a two-period model developed in this paper, banks strategically commit to disclosing borrower information. This allows them to poach each other's first-period market, thus increasing their second-period profit. The second period becomes more important than the first period, and ex-ante competition for serving the first-period market decreases. Since ex-ante competition is not fierce, profits are not competed away.

Stango (2002) and Ausubel (1991): the credit card market

Stango (2002) investigates the relationship between prices charged by the issuers of credit cards and switching costs. The theoretical model used by Stango incorporates the features that in bank credit markets new customers and existing customers pay different prices (cheap 'tease rates' for new customers and normal rates for old customers) and allows for differential distribution of

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[17] The latter value is defined as the marginal increase in the firm's present value due to an additional locked-in customer, beyond the increase in profit generated by the current sales to that customer.

switching costs across credit card issuers. The model predicts that the price of a firm is an increasing function of both own switching costs and competitors' switching costs.

In the empirical model, switching costs are proxied by three variables. First, the own outstanding balances are expected to be positively related to switching costs. Second, credit card annual fees represent direct monetary costs associated with switching. Third, the so-called "switching checks" provided by credit card issuers in mail-out solicitations mitigate switching costs, by making a customer's move to another issuer easier. Since larger insurers are more likely to use these checks, the issuer size is also included in the regression. Using panel data on credit card issuers, Stango finds that variation in switching costs explains over one quarter of the within-firm variation in prices over the sample period.

The issue of high switching costs in banking services is aggravated if customers' original decisions regarding bank choice are suboptimal. For example, Ausubel (1991) provides evidence on poor decision making by consumers in banking. Too little switching in response to price differentials may be a reason for the stickiness of interest rates in the bank credit market in the US.

Giulietti et al. (2004b): electricity supply in the UK

Recent work by Giulietti et al. (2004b) tests hypotheses on the effect of consumer search and switching costs on price dispersion, in particular in the electricity industry. The analysis focuses on price gaps between firms. Price gaps among entrants relate to search costs, while price gaps between incumbents and new entrants are attributed to switching costs. Their analysis indicates an increase in the price gaps, which means that search and switching costs are increasing over time. The result implies that there is room for policies that would enhance switching, as there remain significant potential benefits of switching to an alternative supplier.

4.4.3 Effect on prices: computation from consumer survey data

It is possible to use the information from consumer surveys and firms' market shares to come up with an estimate of the *potential* impact of switching costs on prices. One example, is the work of Giulietti et al. (2004a), which addresses switching in the residential energy market in the UK. They compute by how much an incumbent firm may increase prices in the presence of entrants that supply at the competitive level. Giulietti et al. (2004a) use information from a customer survey (in particular, the answers of the survey participants to the question how much the potential savings should be in order to make them switch provider) to infer the distribution of customer switching costs for each firm. Knowing the number of customers at each firm and how many of them will switch at each price increase, it is possible to calculate to what extend a firm can raise prices in order to maximise profit. Giulietti et al. find that it would be profitable for the incumbent, British Gas, to increase prices by 8 pounds (i.e. approximately 10% of the average total bill, including transportation charges). Even with such difference, 55% customers will remain loyal, hence, insufficient consumer switching may be the reason for the incumbent

to retain considerable market power in the liberalised energy market in the UK. (See also the case study on Liberalisation of the Dutch electricity market that uses a similar methodology.)

Table 4.3   Summary: Consequences of switching costs

Author	Market	Methodology	Consequences of switching costs
Royalty and Solomon (1999)	Health insurance in the US	Direct estimation of elasticities based on individual data	'employee perspective' price elasticity: from − 0.966 to − 1.753, 'insurer-perspective' elasticities: from − 3.706 to − 6.175
Knittel (1997)	Market for long-distance calls in the US	Indirect estimation from aggregated firm data Switching costs: fees to switchers, advertising expenditure and standard deviation rates	10% reduction of switching fees ⇒ 6.02% reduction of price-cost margin
Viard (2003)	Telecommunications in the US	Indirect estimation based on aggregated firm data Switching costs: a dummy corresponding to the introduction of portability of toll-free services	Portability of toll-free services⇒ 14% reduction of the price of stand-alone toll-free services and 4.4% reduction of the average price of contract
Borenstein (1991)	Retail gasoline market in the US	Indirect estimation based on aggregated firm data Switching costs: percentage of stations selling leaded gasoline in the area	The increase in switching costs explains 30% difference in price-cost margins
Kim et al. (2003)	Market for loans in Norway	Indirect estimation based on aggregated firm data Switching cost enter as a parameter	Marginal increase in profit attributed to the lock-in phenomena is 16%
Stango (2002)	Bank credit market in the US	Indirect estimation based on aggregated firm data Switching costs: outstanding balances, fees, switching checks (size)	Variation in switching costs explains over ¼ of the within firm variation in prices
Ausubel (1991)	Bank credit market in the US	Calculation of average interest rate differentials across banks	Switching costs may explain extremely high prices of major credit card issuers (≥3 times normal return)
Giulietti et al. (2004a)	Residential energy market in the UK	Computation from the data at the individual level	Switching costs may potentially lead to a 10% price increase by British Gas
Giulietti et al. (2004b)	Residential electricity market in the UK	Indirect estimation based on aggregated firm data Switching costs are proxied by price gaps	Switching costs and price gaps are increasing over time

4.4.4 Conclusions

We conclude that switching costs may have a significant effect on prices (or in some cases price-cost margins) and profits. We observe a large effect of switching costs on these variables in several industries, for example, on prices in telecommunications (14%), on price-cost margins for gasoline (30%) and on profits in banking (an increase of profits 16%). Table 4.3 presents a summary of the results reviewed.

4.5 Effects of policies that reduce switching cost

The empirical evidence on the effect of policies that mitigate switching costs or their consequences is very scarce. This section summarises this literature in this section.

4.5.1 Number portability

The analysis of the effect of the introduction of number portability on prices provides us with the evidence on the effectiveness of this measure in alleviating the consequences of switching costs. The paper by Viard (2003), discussed in the previous section, investigates the effect of the introduction of 800-number portability in the US in 1993. As shown by the author, this measure reduced the average prices of stand-alone 800-number services by about 14%, and prices of contracts (which may bundle toll-free and non-toll-free services[18]) by about 4.4%.

Discussing the effect of wireless number portability (WNP) in the cellular phone industry in Hong Kong, Shi et al. (2002) also provide evidence on price decreases, which for some operators reached 40% of their initial prices. However, they point out that at the same time larger companies were gaining market share, while smaller companies were loosing market share. Therefore, the authors argue that a positive impact of WNP may not be sustainable in the long-run, and therefore should be treated with care. Shi et al. suggest the following explanation. Because of interconnection costs, companies generally choose to price on-net calls cheaper than off-net calls. Data show that before the introduction of WNP, larger companies charged higher fixed fees, while offering larger on-net discounts to their customers than smaller companies. After the introduction of WNP in Hong Kong in 1999, large networks decreased fixed fees, gaining customers of small networks.

For the UK, NERA reports that the introduction of WNP first had a very small effect on switching, mainly because of unfavourable conditions (25 days waiting time to perform the switch). However, the effect became stronger after the term was reduced to five days in 2002.

4.5.2 Restricting frequent flyer programs

If switching costs are to a large extent affected by the behaviour of firms, then regulation may reduce such costs. One example of artificial switching costs created by firms is frequent flyer programs (FFP), the effect of which we discussed in section 4.2. Although these programs lock

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[18] The cumulative proportion of 800-number services in contracts was about one third.

customers in, it is not that obvious if they lead to welfare losses in the long run, which is needed to justify government intervention. While acknowledging possible lock-in effects from the programs, NERA mentions also factors mitigating these effects, such as resetting balances each year. NERA finds no evidence that any hub carrier was able to earn monopoly profits over a significant period and therefore conclude that "Considerable caution <…> needs to be urged before deciding that such programs allow the maintenance of a dominant position or are detrimental to consumer welfare."

Carlson and Löfgren (2004) also argue that although it is clear that frequent flyer programs affect switching costs positively, it is not obvious if it is necessary to restrict them. However, the reasoning used by Carlson and Löfgren is somewhat different from NERA. According to them, in addition to frequent flyer programs, habit formation plays an important role.[19] Habits create psychological switching costs. It is difficult to distinguish to what extent switching costs are raised by frequent flyer program, and to what extent by habit formation, and to what extent habit formation may be affected by FFP. Hence, significant welfare gains of restricting frequent flyer programs are not obvious.

Given that there is no proof that FFP are associated with large welfare losses, the European Commission has not banned these programs as such. Still, they have concluded that FFP may be considered anticompetitive in relation to mergers and alliances. The argument regarding the possibility of a larger adverse welfare effect when an FFP is combined with an increase in the company's market share finds support in the literature. According to Nako (1992), a 10% increase in an airline's airport market share translates into a $4.16 increase of switching costs imposed by a FFP.

4.5.3 Conclusion

The small literature on the effect of government policy with respect to switching costs reaches the following conclusions. First, the introduction of number portability reduces prices (up to 40% in some cases). However, depending on market conditions, introducing number portability may also increase concentration in some markets. Second, there is evidence that restricting FFP reduces switching costs. However, the welfare effects of such programs are unclear. It is likely that negative welfare effects of a FFP become stronger if firm's market share increases, which justifies restrictions on such programs in the case of mergers/alliances.

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[19] They also find that perceived quality differences between airlines (e.g. in terms of the number of departures) have a positive and significant effect on switching cost.

Table 4.4 **Summary: Effect of policies**

Author	Market	Policy	Effect
Viard (2003)	Telecommunications in the US	Number portability for toll-free services	The average price of contract falls by 4.4% The average price of stand- alone toll-free services falls by 14%
Shi et al. (2002)	Cellular phone industry in Hong Kong	Wireless number portability	Price decreases up to 40%, but more concentration in the market
NERA (2003c)	Mobile market in the UK	Wireless number portability	More benefits to business users: 80% business customers changed network during one year, while only 20% residential customers
NERA (2003c)	Mobile market	Removal of SIM-locking	No large effect on switching
NERA (2003c)	Air travel	Restricting frequent flier programs	In the long run, the effect on competition is insignificant
Carlson and Löfgren (2004)	Air travel in Sweden	Restricting frequent flier programs	Unrestricted Eurobonus increased switching costs by 410 SEK (=12 % of the average ticket price)

5 Determinants of switching behaviour: market versus consumer characteristics

5.1 Introduction

In this chapter we use a survey conducted by the Consumentenbond in 2002 to investigate which factors are most important with respect to consumers' switching decisions, and whether these decisions can be better explained by characteristics of the consumer or by characteristics of the market. The survey gathers information about respondents' switching behaviour in nine markets: current and savings accounts, life and health insurance, mortgages, mobile and fixed telephony, internet providers and green energy. The two-dimensional feature of the data, encompassing the behaviour of different consumers in different markets, makes it well-suited to answer the following research questions: (i) which consumer characteristics affect his/her switching decision in all markets the same way?; (ii) which market characteristics affect the switching decision of all consumers in that market the same way?; and (iii) are there any factors that make some consumer types in general more inclined to switch than others?

This chapter is based on a background paper containing the technical details of our econometric analysis (Rangel 2005). In this chapter we only summarise the outcomes of the analysis.

The chapter proceeds as follows. Section 5.2 describes the data. Section 5.3 presents some answers to questions in the survey in the form of a series of figures. Section 5.4 summarises the outcome from the econometric analysis. Section 5.5 concludes.

5.2 Data

Our data comes from a survey conducted in 2002 by the Consumentenbond, containing responses to questions dealing with Dutch consumers' attitudes towards switching suppliers. There were 1,091 respondents. The survey consists of two sections: the first one deals with future intentions and expectations about switching, while the second section deals with past switching experiences. Some economic and socio-demographic information about the individual respondents are also available. For the first section, questions pertain to 9 different markets: current and savings accounts, life and health insurances, mortgages, mobile and fixed phones, and internet providers.[20] For the second part, only 5 of the above markets were included (current accounts, life and health insurances, mortgages and mobile phones).

For each of the 9 markets, respondents were asked about their intentions to switch. Specifically, the question was: "For this market, are you going to stay with your current

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[20] The markets for child care, gas and electricity were also in the survey. We do not include child care in the analysis since less than 30 respondents gave complete answers about this market. Similarly, we do not include the gas and electricity markets in the analysis in this chapter, since they were not yet liberalised by the time of the survey (2002). However, see chapter 6.

supplier or switch to another supplier?" Possible answers were: (i) will stay or (ii) plan to switch. From this information, we create the variable intention, which is equal to 1 if the respondent answered "plan to switch" and 0 if the answer was "will stay".[21] Table 5.1 presents some summary statistics for this and other variables. Table 5.2 contains definitions of the variables in table 1. Note that 9,6% of the respondents were planning to switch at the time of the survey.

Table 5.1	Descriptive statistics - Pooled data			
Variable	Number of observations	Mean	Standard Deviation	Minimum / Maximum values
Intention	6884	0.096	0.294	0/1
Aware	9304	0.950	0.218	0/1
Prefest	9017	0.747	0.435	0/1
Prefnew	9017	0.070	0.255	0/1
Savhi	7367	0.164	0.370	0/1
Searchgen	9244	0.117	0.322	0/1
Searchspc	8960	0.247	0.431	0/1
Switchnof	8213	0.403	0.491	0/1
Switchfin	7690	0.270	0.444	0/1
Membcb	955	1.687	0.591	0/2
Gender	974	0.521	0.499	0/1
Hous	967	0.201	0.400	0/1
Typhous	931	2.503	0.990	1/5
Single	963	0.151	0.358	0/1
Child	963	0.421	0.494	0/1
Education	961	5.161	1.507	1/7
Income	842	4.689	1.454	1/7
Age	961	54.456	10.491	25/87

Note: The figures exclude observations with missing values due to "Do not know", "Does not apply" and blank answers.

The next question pertains to consumers' awareness about the possibility of choice. Since some of these markets had been, at the time of the survey, only recently liberalised, it might be that some consumers were not aware. The question was: "For this market, among how many suppliers do you think you can choose from?" Possible answers were: (i) many suppliers, (ii) a few suppliers or (iii) no choice. We create the variable aware, which we code as 1 if the answer was "many suppliers" or "a few suppliers" and 0 if "no choice". Table 5.1 shows that, all markets together, 95% of the respondents were aware that the possibility of choice existed.

[21] For this and the other questions, the survey also allowed for answers "Do not know" and "Does not apply". In our analysis, both answers, as well as answers left blank, are coded as missing values for the corresponding variables.

Table 5.2 Variable description

Intention	Intention to switch	1. If respondent plans to switch supplier
		0. If will stay with current provider
Aware	Awareness	1. If responder considers possible to choose among different providers
		0. If considers that there is no choice
Prefest	Preference for established firms	1. If respondent has preference for established firms
		0. Otherwise
Savhi	Expected savings	1. If respondent expects that changing providers will bring large savings
		0. If small savings or no savings
Searchgen	Ease of finding information about existing offers	1. If respondent considers not easy to find information about what providers have to offer
		0. If relatively easy or very easy
Switchnof	Expected ease of switching providers	1. If respondent considers not easy to change providers
		0. If relatively easy or very easy
Switchfin	Expected one-time extra fees of switching providers	1. If respondent expects to pay large one-time extra fees in case of changing provider
		0. If small or no one-time extra fees
Switched	Switched in the last 5 years	1. If respondent switched suppliers in the previous five years
		0. Otherwise
Satisfaction	Degree of satisfaction with current supplier	5 levels
		1. If very unsatisfied…5. If very satisfied
Howlong	Tenure with current supplier	5 levels
		1. If 1-5 years; 2. If 5-10 years 3. If 10-15 years 4. If 15-20 years 5. If > 20 years
Difficult	Proportion who found difficult to switch	Number of consumers who answered that it was difficult to switch in market *I* divided by the number of consumers who switched in the previous 5 years
Membcb	Member of Consumentenbond	2. If respondent is currently member of Consumentenbond
		1. If has been member in the past
		0. If has never been member
Female	Gender	1. If female
		2. If male
Hous	Housing tenure	1. If renting housing
		2. If owned housing
Typhous	Housing type	0. If farm 1. If stand-alone house 2. If two-under-one-roof
		3. If attached house 4. If flat / apartment
Single	One adult household	1. If there is only one adult in the household
		0. if more than one adult
Child	Household with children	1. if there are children in the household
		0. Otherwise
Education	Education level	7 levels
		1. For lowest … 7. For highest
Income	Gross income per year (in guilders)	7 levels
		1. For lowest … 7. For highest
Age	Age	Respondent's age in years

A third question regards expectations about the financial advantages of switching suppliers: 'For this market, to what extent do you expect to make savings if you switch to a new supplier?'. Possible answers were: (i) large savings, (ii) small savings or (iii) no savings at all. The variable savhi is equal to 1 if the answer was "large savings" and 0 otherwise.

Next, respondents were asked: "For this market, do you prefer to buy from established firms or from new firms?", and they could answer (i) established firms, (ii) new firms or (iii) no preference. From this, we create two variables: the first is called prefest, and is coded 1 if the answer was (i) and 0 otherwise; the second is called prefnew, being equal to 1 if the answer was (ii) and 0 otherwise. These variables capture factors such as risk aversion, brand loyalty and consumers' attitudes towards the reputation of firms. It can be seen from Table 1 that a large majority of consumers has an intrinsic preference for established firms.

The following two questions reflect consumers' perceptions about search costs. The first one of these was: "For this market, how easy do you think it is to find information about what the different suppliers have to offer?". The alternative answers were: (i) very easy, (ii) relatively easy or (iii) not easy. Let us call this "general" search costs, and the corresponding variable, searchgen, is coded 1 if the answer was "not easy" and 0 otherwise.

Another dimension of search costs is that, once the consumer finds information about the existing offers, he/she has to find out which one best suits his/her specific or personal needs. We call "specific" search costs, and it is reflected by the question "For this market, how easy do you think it is to find information about which offer best fits your personal needs?", and the possible answers were the same as for the previous question. The corresponding variable is called searchspc, and is coded in the same way as searchgen.

The final questions are about expectations of switching costs. Respondents were asked: "For this market, do you expect that it will be easy to switch suppliers?". This question reflects consumers' perceptions about non-financial switching costs such as, for example, the amount of time or paperwork that the process of switching takes. Again, the possible answers and the coding of the corresponding variable, switchnof, are as for the search costs questions.

The last question regards financial switching costs: "For this market, do you expect to pay one-time extra fees in order to switch suppliers?". The answers were: (i) large one-time extra fees, (ii) small one-time extra fees or (iii) no one-time extra fees. We define the variable switchfin as 1 if the answer was (i) and 0 otherwise.

The remaining variables in Table 1 reflect socio-demographic factors, such as gender, housing tenure, housing type, household composition, education, income and age. The appendix presents the definition of all variables and the correlations among them. The variables that are most strongly correlated with the intention to switch are the ones reflecting intrinsic preferences, expected savings, search and switching costs; there are no signs of correlation between the intention to switch and socio-demographic variables (except for age). Surprisingly, the variable intention is positively correlated with searchgen and searchspc: the higher

consumers expect search costs to be, the more likely they are to plan to switch. Also surprisingly, intention is not significantly correlated with awareness.

Turning to the determinants of awareness, we find that this is correlated with expected savings, search costs, non-financial switching costs, household composition, income and age.

5.3   Differences in (determinants of) switching across markets

In this section we use the survey data in order to detect differences in switching plans and in determinants of switching across markets. Figure 5.1 shows the proportion of consumers who plan to switch in each market, that is, the proportion of consumers for which the variable intention takes the value 1. It is interesting to see that the markets with the highest proportion of potential switchers are those for "new" products: green energy, internet and mobile phones. By contrast, the lowest proportion of people planning to switch are for financial products: mortgage, current accounts and life insurance. [22]

Figure 5.1   **Plan to switch**

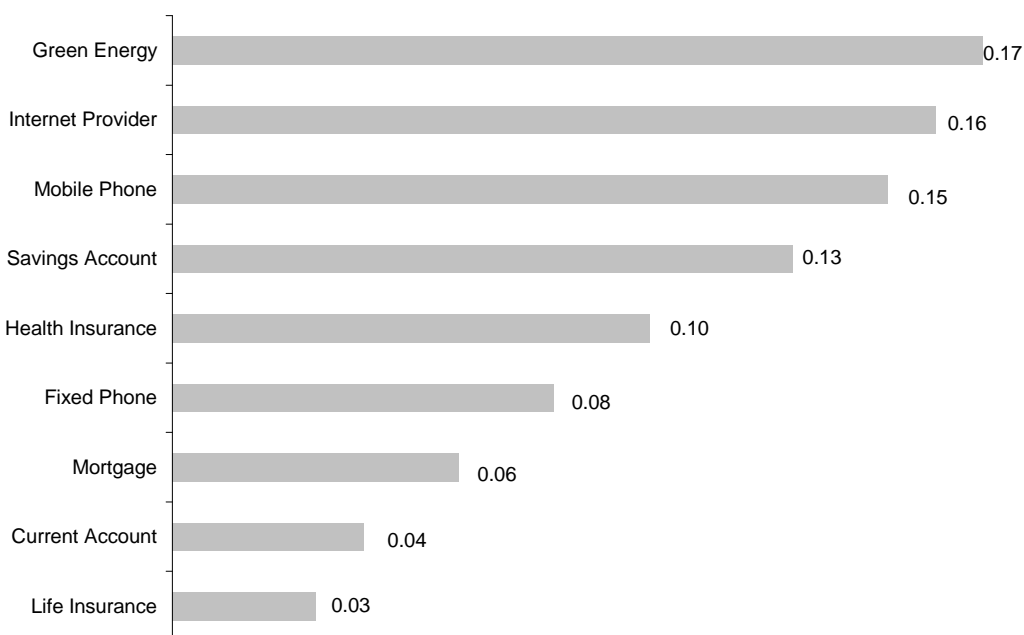| Market	Value
Green Energy	0.17
Internet Provider	0.16
Mobile Phone	0.15
Savings Account	0.13
Health Insurance	0.10
Fixed Phone	0.08
Mortgage	0.06
Current Account	0.04
Life Insurance	0.03

Figure 5.2 compares, across markets, consumers' awareness about the possibility to choose. It shows the proportion of consumers for whom the variable aware takes the value of 0. The percentage of consumers who are not aware that it is possible to choose is under 15% in all markets. In the markets for mortgage, life insurance, internet, bank accounts and mobile phone, roughly all consumers are aware that there is a choice among different suppliers. There may be room for policies to increase awareness in green energy, health insurance and fixed telephony,

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[22] The tables in this section ignore answers "I don't know" and "Does not apply", as well as missing answers.

although, even in those markets, the great majority of consumers are aware that they can choose.

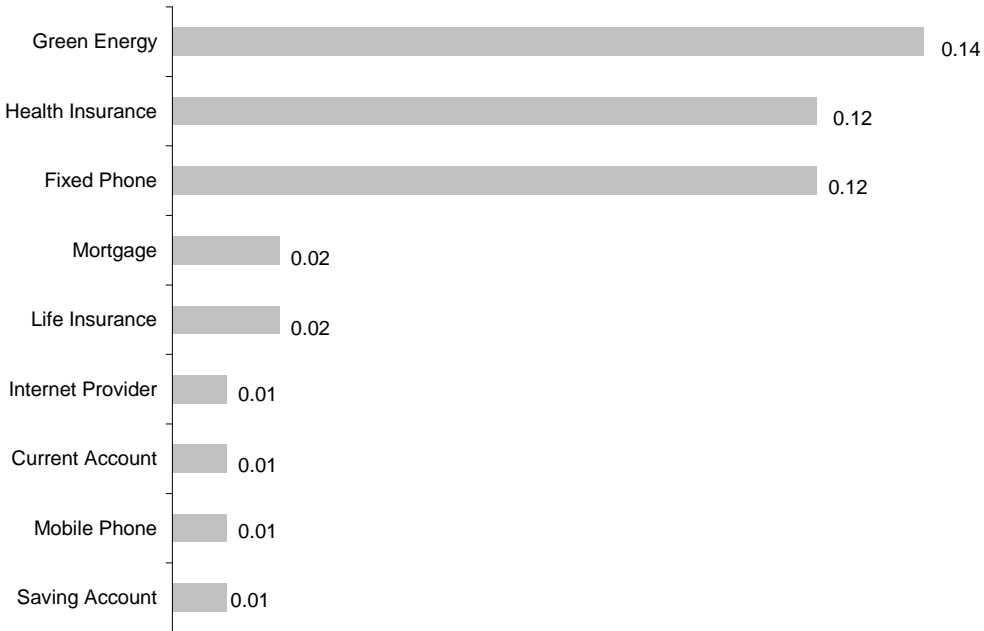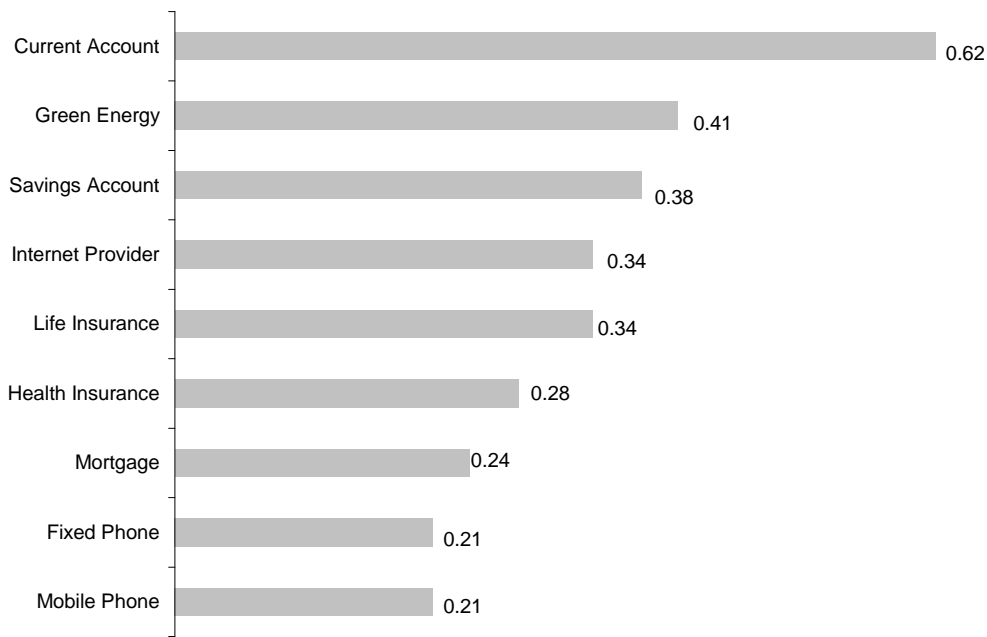**Figure 5.2**   **Not aware of possibility of choice**

Figure 5.3 regards expectations about savings. It shows the proportion of consumers who expect that switching suppliers would bring no savings at all. Bank accounts and green energy are the markets for which consumers are most pessimistic about the possibility of saving money by switching suppliers. For mortgages and telephony, consumers are more optimistic.

Figure 5.3   Do not expect savings

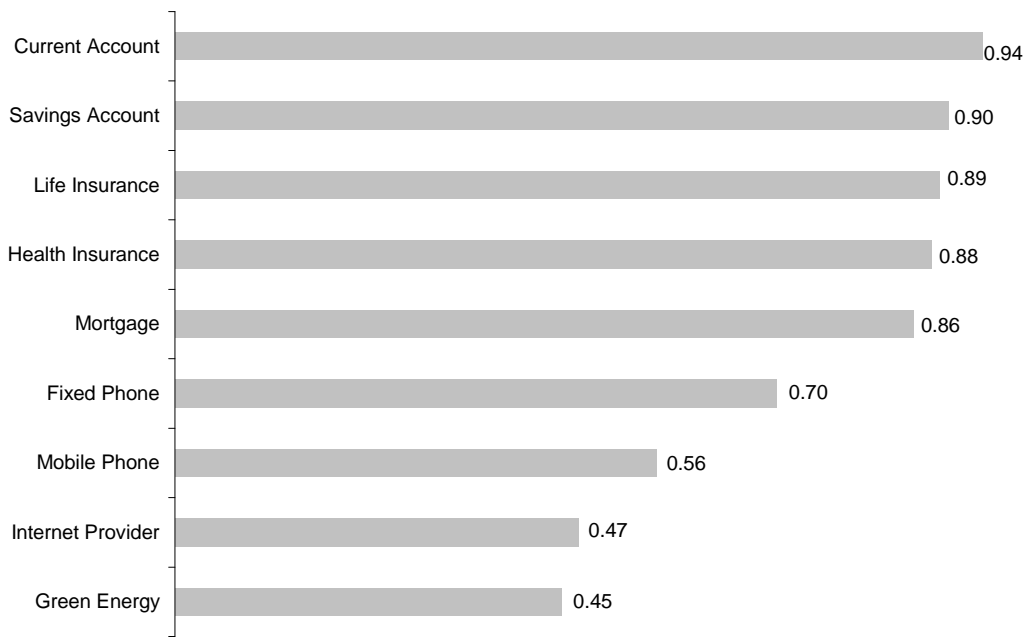| Category	Value
Current Account	0.62
Green Energy	0.41
Savings Account	0.38
Internet Provider	0.34
Life Insurance	0.34
Health Insurance	0.28
Mortgage	0.24
Fixed Phone	0.21
Mobile Phone	0.21

It would be interesting if we were able to get data on the actual distribution of prices on those markets, to see whether consumers' perceptions are correct. This is important for analysing the type of policies that would be most effective. For example, if consumers consider that there are no possibilities of savings in a given market, but actual price data show that prices differ significantly among firms, then a policy to induce firms to publicly post their tariffs is likely to be effective.[23]

Let us now look at consumers' intrinsic preferences for established or new firms. Figure 5.4 shows the proportion of respondents who have a preference for established firms. We see that, for financial products, consumers are more inclined to deal with established suppliers, while in newly liberalised industries there is a higher proportion of consumers who either prefer entrants or have no preference.

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[23] Of course, such a policy should be weighted against the possibility of facilitating collusion.

Figure 5.4   Preference for established firm

Product	Value
Current Account	0.94
Savings Account	0.90
Life Insurance	0.89
Health Insurance	0.88
Mortgage	0.86
Fixed Phone	0.70
Mobile Phone	0.56
Internet Provider	0.47
Green Energy	0.45

The following two figures compare the perceptions about search costs. Figure 5.5 shows the proportion of consumers for whom the variable searchgen is equal to 1. We see that for simple financial products, such as bank accounts, consumers do not consider general search costs to be high. On the other hand, for new products (green energy, mobile phone, and internet) and complex financial products (health and life insurance) consumers seem to believe that it is harder to get information about the existing offers.

Figure 5.5   Not easy to get information about offers

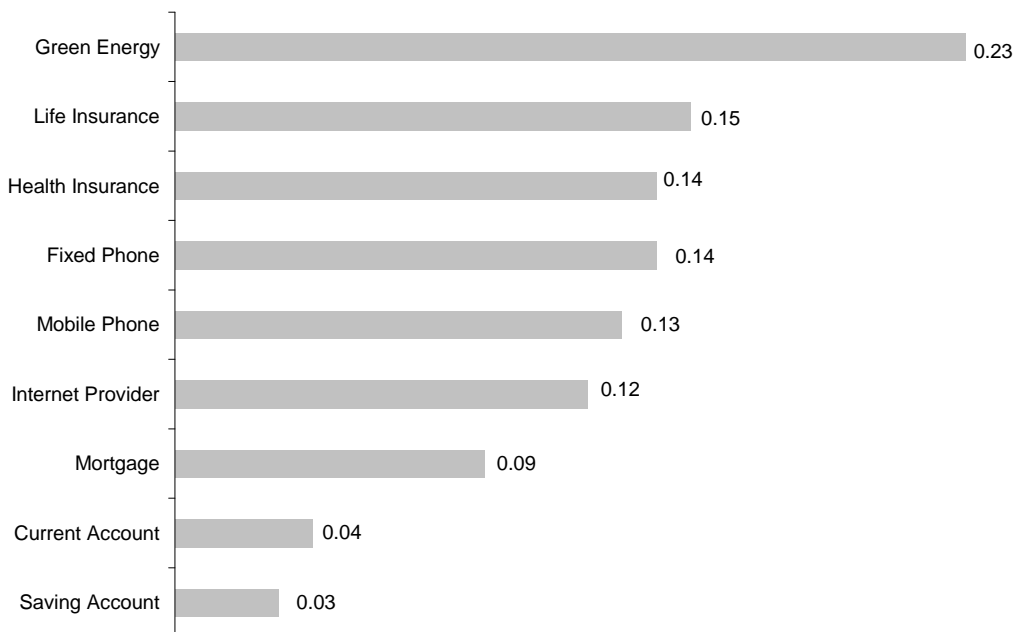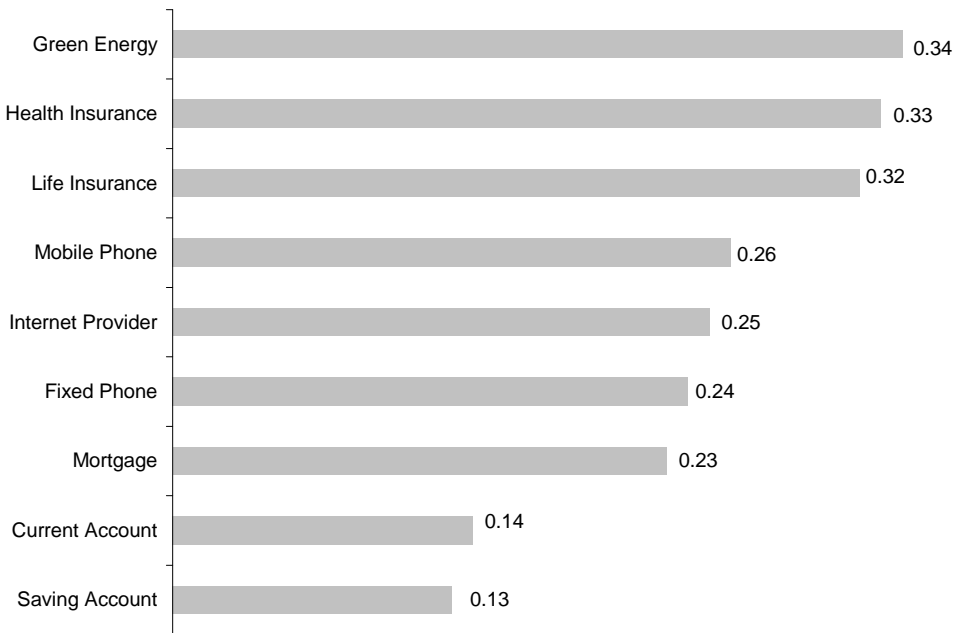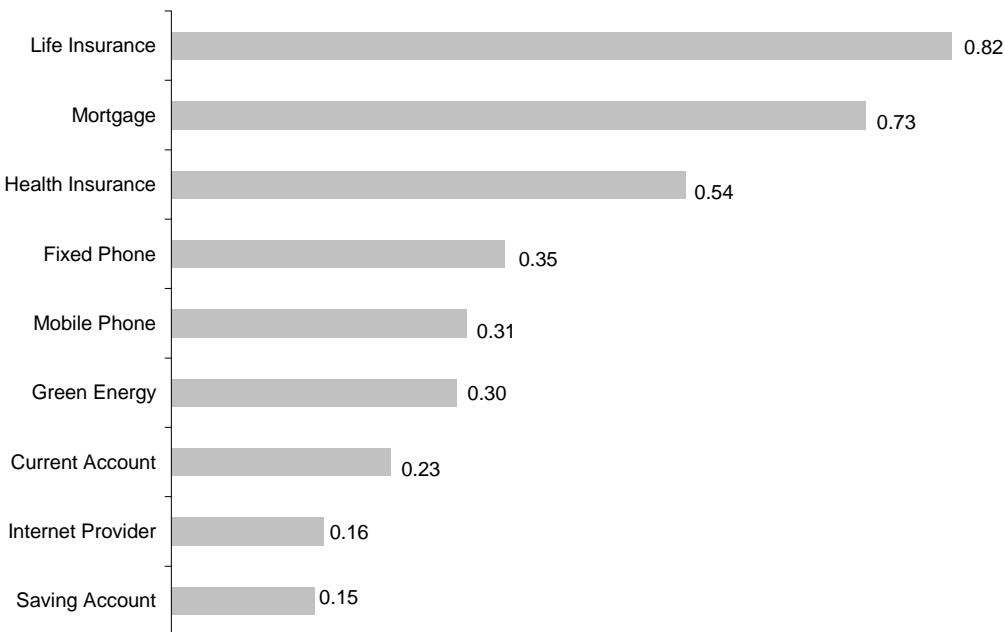| Product	Value
Green Energy	0.23
Life Insurance	0.15
Health Insurance	0.14
Fixed Phone	0.14
Mobile Phone	0.13
Internet Provider	0.12
Mortgage	0.09
Current Account	0.04
Saving Account	0.03

Figure 5.6 summarises the variable searchspc. It shows, for each market, the proportion of consumers who think that it is not easy to find information about what offer best fits their specific personal needs. Comparing this and the previous figure, we clearly see that consumers consider more difficult to make out the best option among the existing offers than to find information about the offers themselves.

Figure 5.6   Not easy to find best offer

Market	Value
Green Energy	0.34
Health Insurance	0.33
Life Insurance	0.32
Mobile Phone	0.26
Internet Provider	0.25
Fixed Phone	0.24
Mortgage	0.23
Current Account	0.14
Saving Account	0.13

Figure 5.7   Not easy to switch

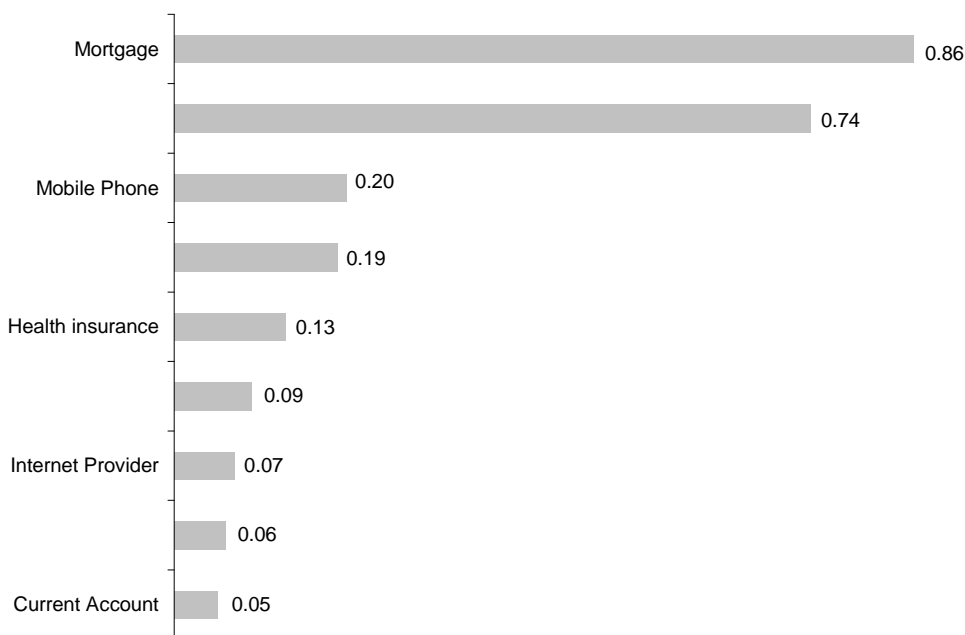| Market	Value
Life Insurance	0.82
Mortgage	0.73
Health Insurance	0.54
Fixed Phone	0.35
Mobile Phone	0.31
Green Energy	0.30
Current Account	0.23
Internet Provider	0.16
Saving Account	0.15

We now show how consumers' perceptions about switching costs compare across markets. Figure 5.7 shows the proportion of consumers for whom switchnof is equal to 1. Again, a pattern arises: for the more complex financial products (insurances, mortgage) most consumers expect switching to be difficult, while for simple financial products (bank accounts) and for new products (green energy, internet, mobile), there is a significantly higher proportion who find easier to switch.

Figure 5.8 regards expectations about financial switching costs. It shows the proportion of consumers who expect to pay large one-time extra fees in order to switch suppliers. As for the non-financial switching costs, mortgages and life insurance are the markets in which consumers are more pessimistic.

Figure 5.8   Expect high extra fees

Market	Value
Mortgage	0.86
	0.74
Mobile Phone	0.20
	0.19
Health insurance	0.13
	0.09
Internet Provider	0.07
	0.06
Current Account	0.05

5.4   Results from an econometric analysis of switching behaviour

The survey data have been used in an econometric analysis of switching behaviour. As indicated in the introduction to this chapter, we refer to a background paper for the details of this analysis. Here we only summarise the policy relevant outcomes.

A first finding is that consumers are more likely to be aware about the possibility of choosing among different suppliers in a given market when they are also aware of this possibility in other markets. A plausible interpretation runs in terms of learning: consumers who have become aware of the possibility of switching in on market also explore the possibility of switching in other markets. If so, then one implication is that future reforms involving more consumer choice may benefit from past experiences.

Once aware, consumers have to decide whether or not to switch. In line with what one would expect, we found that expectations of high switching costs (both non-financial and financial) significantly affect consumers' switching intentions. We also found that consumers are less likely to have switched in the past in markets where it is more difficult to do so (measured by the consumers' assessments of the difficulty of switching). However, this conclusion should be contrasted with the finding that expectations of switching costs lose their explanatory power once we include dummy variables for each market. These dummy measure pick up switching costs that apply to each consumer in a given market. This finding suggests that there are unobserved market specific factors that are correlated to switching costs and that affect switching intentions. Put differently, there are systematic differences in switching costs across markets and these differences affect switching behaviour. This suggests that policies that succeed in reducing switching costs would be effective in stimulating competition.

Expected savings and consumer's intrinsic preference for established firms (as opposed to new ones) were also found to be important factors for an individual's intention to switch in the future. This is again in line with what one would expect.

Consumers are more likely to consider switching in some markets than in others. This remains true after taking into account differences across markets in expected savings, preferences for established firms and expectations about switching costs. In particular, financial products tend to be 'low interest products', justifying special attention of policymakers to these markets.

In general, household characteristics such as age, income and education do not seem to affect (planned or actual) switching systematically in all markets, at least not after controlling for consumers' expectations about switching and search costs. However, when we look at specific markets, some of these factors become relevant. Moreover, there is an unobserved individual-specific component that affects the switching behaviour of consumers the same way in all markets and this (maybe subjective?) component is not captured by the household characteristics included in our dataset. In other words, individuals systematically differ in their tendency to switch, even after controlling for factors such as income, education or age. This finding implies that the scope for policies directed at specific consumer groups is limited.

5.5   Conclusions

In this chapter, we have used data from a consumer survey encompassing nine different markets in order to analyse differences in switching behaviour across markets, and also to assess what explains these differences. Our findings suggest that there are indeed large differences in switching behaviour across markets. We also find that these differences are related to expected search and switching costs. In addition, our findings suggest that financial products can be characterised as low-interest products, which warrants special attention to these markets. Measured household characteristics such as age, income and education do not have much power

in explaining differences in switching behaviour, but our results show that unmeasured household characteristics do play a role. However, since by definition we do not know what these factors are, this finding cannot be used as a basis for policies aimed at specific groups of consumers. Of course, a more detailed analysis of specific markets might reveal more about which household characteristics affect switching behaviour. We will come back to this in chapter 7, where we present a case study on health insurance.

6 Switching in the residential energy market

6.1 Introduction

Liberalisation of the Dutch energy market (grey electricity and gas) began in 2001 and was completed on July 1, 2004, when small energy users were allowed to choose their suppliers of grey electricity and gas. More than a year later, there are still concerns that retail market may not work properly for residential consumers. First, consumers may remain unaware about switching opportunities because they are not used to choose their energy supplier. Secondly, they may not find switching beneficial because of high (or more likely, perceived high) switching costs. This may restrain competition in this segment of the market and lead to consumer welfare losses.

In this case study, we focus on the role of switching costs in explaining consumer behaviour in the newly liberalised Dutch residential energy market. In addition we discuss policy options aimed at reducing switching costs. The empirical analysis conducted in this case study is based on data from a consumer survey of the Dutch Consumer Union (Consumentenbond). We provide new empirical evidence with respect to consumer switching behaviour in residential energy markets.

The case study proceeds as follows. After describing the institutional setting in the industry in section 6.2, we apply our three-step diagnostic framework that was developed in chapter 2. Sections 6.3-6.5 focus on the three steps respectively: the level of switching costs, competition for market share and the welfare consequences of switching costs. Policy options are discussed in section 6.6. Section 6.7 concludes.

6.2 Institutional setting

Like other European countries, the Netherlands began to deregulate their electricity and gas industries in the late 90s. Before this, Dutch customers received energy from regional energy companies, which were monopoly suppliers in their areas. In 1998, following the First European Electricity Directive (1996), the Netherlands passed the national Electricity Law creating the legal basis for the liberalisation of the electricity market. Liberalisation has been conducted in three stages: first for large users, then for medium users, and finally for small users. A few years later (in 2000) the Gas Law was passed. The liberalisation of the gas industry featured similar stages as in electricity.

For both markets, the last liberalisation stage was implemented on July 1, 2004, when all small customers received the right to choose their energy suppliers. While the residential energy market was officially liberalised only on July 1, 2004, an exception was made for green energy: small customers who wanted to buy green electricity could choose their supplier already since July 2001.

Now, all energy prices are free. In addition to the tariff for energy, a customer bill includes a transportation tariff, which is regulated by the Dutch energy regulator (DTe) and may differ across areas, depending on the network characteristics. Supply companies offer contracts to customers country-wide. There are currently about twenty different suppliers of electricity and a similar number of gas suppliers. However, just three large incumbents – Nuon, Essent and Eneco – supply a large part of the market. Section 6.4 provides more detail on market structure and entry.

6.3 Step I: Level and determinants of switching costs

In this section we look at the existing evidence regarding the level and the determinants of switching costs in the residential energy market in the Netherlands. We first present some indicators of switching costs in section 6.3.1, after which we turn to econometric analysis of switching behaviour. We use an econometric model that explains switching as a function of benefits of switching, consumer search cost and consumer switching costs. Section 6.3.2 describes the model. Section 6.3.3 introduces the data set. The following four sections (6.3.4-6.3.7) focus on the four groups of variables used in estimation. Estimation results are presented in section 6.3.8. The last section concludes.

6.3.1 Indicators of switching costs

Consumer switching costs consist of switching fees and time and efforts involved in switching. Switching fees apply only to contracts with a fixed term. As long as the term of a contract is not fixed, switching is free, in accordance with the European regulation. Switching fees of fixed-term contracts vary across companies, with the maximum fees capped by DTe. For example, a supply company cannot charge more than 50 euros for termination of a one-year contract by a residential consumer.

In contrast to actual switching fees, where the monetary valuation is clear, switching costs in terms of time and efforts are much more difficult to assess. Although actual efforts needed for switching supplier seems not too large[24], there are more factors affecting consumers' switching costs. Also, perceived switching costs play an important role. Even if actual costs are low, consumers may still be deterred from switching if they *think* that switching is costly and time consuming. In addition, psychological switching costs may play role, for example, some customers may prefer well-known incumbent suppliers because they think that new suppliers are less reliable.

Data from a consumer survey of the Dutch Consumer Union and CPB allows us to get insight into consumer perceived switching costs in terms of time and money. Table 6.1 below

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[24] Since both electricity and gas are homogeneous products, the main difference across companies is the price. It is rather easy to check price discrepancies across contracts of different companies on the internet, to choose the cheapest and to perform switching. Less than one hour is needed to an Internet user to complete this procedure. However, searching may be complicated by the necessity to compare across different types of contracts.

summarises the answers of the respondents to the question regarding the expected time they would need for switching to another supplier.[25] The respondents could choose out of the categories of answers shown in the first column of the table. Notice the relatively large percentage of consumers in the last category (25%), who were unable to give their estimate but thought it was more than a day. Also most people who chose the category 'another answer, namely' explicitly indicated that they would need more than one day. Only 9% of consumers expected to spend less than one hour.

Table 6.1 **Respondents answers to the question regarding the time expected to be needed**

	Number of observations	Percentage
Not more than 1 hour	98	9
Some hours	222	21
A morning or an afternoon	233	22
A day	196	18
Another answer, namely…	46	4
Don't know	267	25
Total	1062	100

In order to get an idea regarding the monetary valuation of consumer switching costs, we look at the respondents' answers to the question what minimum amount per year would induce them to switch supplier.[26] Table 6.2 presents the answers of the respondents to this question. The respondents could choose from several categories that are given in the first column of the table. Here again, we observe a relatively large number of people who 'do not know' (16%), as well as 11% who either finds savings unimportant or will never switch. Only a half of the respondents of the survey who have already switched think that switching would take less than a couple hours. The rest would need more than that (an afternoon, or a day). If we look separately on those respondents who switched and those who not (not shown here), then it appears that non-switchers typically give higher estimates.

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[25] See appendix for the exact formulation of this question in the questionnaire.
[26] Again see appendix.

Table 6.2   Perceived switching costs

Answer	Number of observations	Percentage
Less than 25 euros	20	2
25-50 euros	120	11
50-75 euros	139	13
75-100 euros	169	15
100-150 euros	196	18
150-200 euros	48	4
200-250 euros	48	4
250-300 euros	24	2
More than 300 euros	35	3
Savings play no role in switching decision	51	5
Will never change, independently of the amount to be saved	68	6
Do not know	174	16
Total	1092	100

This shows that consumer switching costs in this market are not homogeneous. There is a large proportion of consumers who are either unable to estimate their switching costs or have rather high switching costs.

6.3.2   The model

In the analysis that follows, we estimate the effect of switching costs on consumer switching behaviour. Our model uses insights from the paper by Giulietti et al. (2006), which addresses consumer switching behaviour in UK residential energy markets. Given the importance of this paper for the choice of our analytical approach, we discuss it in more detail in the textbox included in this section.

Similar to Giulietti et al., we model a consumer switching decision as a function of three groups of factors, reflecting benefits of switching, search cost and switching cost[27]:

Switching decision= F(Benefits of switching; Switching cost; Search cost)

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[27] In contrast to Giulietti et al., our model does not include an equation on consumer awareness. While in the UK the moment of liberalisation of energy supply to small customers was different in different areas and there were relatively many customers who were unaware of the existence of the choice in their areas, in the Netherlands, the residential energy market was fully liberalised everywhere on the same day, preceding by a large campaign by both the Ministry of Economic Affairs who wanted to stimulate consumers to make competition work and by market players who wanted to recruit new customers. Given this, only very few of Dutch consumers were unaware of the possibility to change providers. Not surprisingly, just 4 respondents (out of 1017) in the current survey acknowledge their unawareness about the existence of several providers. Interestingly, while almost all participants of the survey knew that the retail energy market was fully liberalised and there were several companies from which to choose, only a half of respondents (541 out of 1123) could specify correctly exactly which company they could change, namely their suppliers of (green or grey) electricity and gas. Some respondents thought that they could only change their electricity supplier, or only their gas supplier, or thought that they could change their respective network companies instead of supply companies. However, this lack of exact knowledge seems not to deter switching. In fact, about a half of respondents who had switched or was considering switching in 2004, have provided incomplete or incorrect answers to the question exactly which choice they have in the liberalised energy market.

Here, benefits of switching relate to expected savings that could be made by switching and the importance of these savings for the consumer. The expected savings depend on the price gap with the cheapest supplier, energy use and consumer expectation regarding the supplier price behaviour. In addition, consumer benefits depend on consumer preference for a single supplier. With respect to switching costs, we consider two alternative specifications: using direct perceived switching costs as reported by consumers (see Table 6.2) and using the expected time and ease of switching as proxies. The second specification has been also used by Giulietti et al. Finally, search cost is proxied by consumer experience with switching suppliers in other liberalised markets, consumer attitude to liberalisation and some demographic characteristics.

In the next sections we provide more detail on the data and on the four groups of variables used in estimation: switching decisions, potential benefits of switching, switching cost proxies, and search cost proxies.

6.3.3   Data

The data used in this case study has been collected by the Dutch Consumer Union during a recent consumer survey on liberalisation of the Dutch energy market. This survey was the second among two surveys of consumer behaviour in the energy market undertaken by the Dutch Consumer Union. Both surveys, respectively 'Nulmeting Liberalisering Energiemarkt' and '1-meting Liberalisering Energiemarkt', shed light on consumer awareness about liberalisation, consumer expectations, actual switching, and intentions to change supplier in the future. In total, slightly above 1400 respondents took part in the survey of 2003, and about 1100 in 2004. The CPB collaboration on the second survey provided us with the opportunity to collect information needed for this analysis.

Some remarks are in place. First, we notice that the respondents of this survey belong to the Consumer Panel of the Dutch Consumer Union. This panel is representative for the members of the Dutch Consumer Union, but not fully representative for the Dutch Economy. The members of the consumer panel are on average somewhat older, and have a higher level of income and education than the average in the Netherlands.[28] The inclusion of demographic characteristics in the regression helps to correct for the effect of differences in age, income and education.

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[28] Consumentenbond (2004).

Giulietti et al. (2006) Redundant Regulation? Competition and Consumer Choice in Residential Energy Markets

Giulietti et al. estimates a model of consumer behaviour in the residential energy market in the UK and evaluates potential welfare effects of consumer switching costs. Their model of switching behaviour includes two equations: an equation describing consumer awareness about switching possibilities and an equation for switching probability conditional on being aware. With respect to awareness, the analysis has identified the following major factors influencing it: the stage of competition (increases awareness) and being a prepaid meter user or a pensioner (both reduce awareness).

With respect to switching, three groups of variables are distinguished: benefits of switching, search cost proxies and switching cost proxies respectively. Benefits of switching are related to potential savings that can be made by switching. Giulietti et al. find that potential savings increase switching only if they are expected to last in the long run. Among the search cost proxies, the analysis has shown that consumers in more densely populated areas are more likely to switch and that previous switching experiences affect switching positively. Among general consumer characteristics, the effect of education attainment is insignificant while the relationship to income is U-shaped. In addition, more low-income households consider switching more. Although pensioner households are less likely to be aware, they are not less likely to switch once aware. No evidence of different awareness or switching has been found among people with disabilities. The effect of switching cost proxies is significant: consumers viewing difficulty of switching as important and expecting switching to be time consuming are less likely to switch. Giulietti et al. provide estimation results both for actual switching behaviour, and for considering switching. The conclusions regarding the direction of effects are similar in both cases.

Furthermore, Giulietti et al. provide a 'back-of-the-envelope' computation regarding the scope for the possible price increases under the observed switching costs. They find that an increase up to 8 pounds per month (150 euro per year) would still be profitable, if a low customer response to price increases persists.

Finally, Giulietti et al. evaluate welfare effects of market opening under different scenarios. They obtain that in the pessimistic equilibrium (under the scenario in which entrants will eventually follow incumbent prices, in spite of customer switching in the beginning) welfare losses are significant and total consumer gains are negative. In contrast, in the optimistic equilibrium (under the scenario in which entrants charge at marginal cost, and incumbents match prices of entrants), the overall welfare loss due to the cost of entry is minor, while the total consumer gain is large and positive. In such a case, liberalisation of energy retail to consumers simply reallocates gains from supply companies to their customers and will be justified as long as society attaches a slightly higher weight to consumer surplus than to producer surplus. Under the interim scenario (currently observed), benefits to customers are not too high, while the companies' losses are somewhat higher than the consumer benefits. It is still unclear to which equilibrium the market will converge.

6.3.4 Switching decision

The dependant variable in our analysis is a dummy variable representing a switching decision. We will estimate several specifications of the model using different definitions for switching decisions.

Table 6.3 below summarises these different definitions. 6.1% of our sample have switched after July 1, 2004 – this includes switchers in either electricity (4.2%) or gas (2.8%), or both; 10% consider switching in the next six months. Taking these two groups together, we obtain that 15.6% of the sample either have switched or consider switching in the next half a year. It is also interesting to include switching decisions made prior to July 1, 2004, when only green market was liberalised. The respective percentages are reported in the last two rows of the table.

Table 6.3	Summary statistics on switching decisions		
Variable	Description	Number of observations	Percentage switchers
S2004	Switched after July 2004	1087	6.1
CS2004	Considers switching	1116	10.0
SCS2004	Switched after July 2004 or considers switching	1116	15.6
SS	Switched (either before or after July 2004)	1063	14.3
SSCS	Switched or considers switching	1069	22.1

The remainder of this paragraph explains our choice for these decision variables. In particular, we explain why it may be reasonable to pull together switching decisions on:

- Both electricity and gas
- Both switching and considering switching
- Both green and grey energy

First, decisions of changing gas or electricity supplier are likely to be taken together for the following reasons: (i) most customers used to have a single supplier for both gas and electricity and to receive a single bill; (ii) many suppliers are active in both markets; (iii) the information on prices of electricity and gas can be acquired from the same sources, e.g., can be found on the same websites. Therefore, we pool switching decisions on electricity and gas together. Our model treats all consumers who changed at least one provider (either for electricity or gas) as 'switchers'.

Second, our dataset was collected two and a half months after liberalisation of the retail energy market was completed. Since the period after liberalisation was very short, not all customers who wanted to consider switching supplier already did it. At the moment of the survey, only 4.2% of the respondents changed their electricity supplier, while 9% still had plans to consider switching in the next six months. Only one person from those who had already switched their supplier was considering changing supplier again within the next half a year. In gas, the respective percentages 2.6% and 8.8%, with no overlap between the group of respondents who already switched and those considering switching in the near future. Therefore, in addition to the model in which probability of switching is estimated based on the number of actual switches, we also estimate a model specification including also decisions 'to consider switching within next half a year'.

Third, given that cheap electricity suppliers are often 'green', the decision 'to switch electricity supplier' often means in practice that the customer will also switch to green electricity. Especially in the beginning of liberalisation of the green energy market, green energy was heavily subsidised by the state and the prices of green energy generally did not exceed those for grey energy. That price situation has caused that many Dutch customers

switched to green electricity.[29] By July 2004, 48% of Dutch residential customers had switched to green electricity,[30] however only 11% of them have chosen another supplier, while 37% stayed with their original supplier. Changing supplier of green electricity before full liberalisation is a similar decision to changing supplier for all energy products after full liberalisation. Therefore, we add a model specification which includes switches of green energy supplier that were made before July 2004. The inclusion of this specification allows us to overcome the problem that our data were collected soon after the market was fully liberalised.

6.3.5   Benefits of switching

Benefits of switching depend on potential savings to be made and on certain aspects of customer preferences. Here, potential savings are modelled as a function of energy use, price gap with the cheapest supplier, and consumer expectations regarding the future (competitive or non-competitive) behaviour of the current supplier. Among the aspects that characterise consumer preferences, we include the importance of the price and the importance of having the same supplier for both electricity and gas.

Energy use

 The more energy a respondent uses, the larger savings can be made by switching to a cheaper company. Based on the data from the annual energy bills that were reported by the respondents, we construct the variables reflecting the yearly use of electricity and gas by each household. The mean values of electricity and gas consumption in our sample, shown in Table 6.4, are close to the estimates of the Dutch Energy Regulator, DTe, according to which the respective figures for electricity and gas are equal to 3375 kWh and 1815 m^3.[31] The ratio of retail prices of 1 m^3 gas and 1 kWh of electricity is approximately 3.5. Therefore, we use this number as a weight in the expression for the overall energy use.[32]

Table 6.4	Summary statistics on energy consumption				
Variable	Observations	Mean	Std. Dev.	Min	Max
Consumption of electricity (kWh)	830	3787	2016	3	18262
Consumption of gas (m^3)	780	1827	986	2	8730
Energy use	766	10149	4533	9	36033

[29] See e.g. van Damme and Zwart (2003).

[30] According to the Consumentenbond (2004), the figure 48% is close to the reports of the branch organisation of energy companies.

[31] Source: www.dte.nl.

[32] Not all consumer have reported information from their bills on both products, therefore, we have a different number of observations on electricity and gas. Therefore, the maximum (minimum) of the total energy use reported in Table 6.6 is not equal to the weighted sum of the maximum (minimum) of gas consumption and the maximum (minimum) of electricity consumption.

Price gap with the cheapest supplier

Unfortunately, the information that we have regarding the type of the customer contract is insufficient to construct the exact value of the price gap between the respondent's contract and the cheapest contract available in the market. Therefore, we had to resort to a cruder indicator characterising the price gap for an average respondent, i.e. a respondent with the mean energy consumption as shown in Table 6.4. We have constructed such an indicator based on information on prices of contracts from the price comparing website www.energieprijzen.nl, by simply computing the ratio between the price charged by the respondent's supplier and the cheapest contract offered. The indicator however does not account for the differences in contract conditions. Also, it does not reflect the price gaps at the moment of switching. Given the problems with the construction of this variable, the results should be interpreted carefully. Therefore, we have also estimated a model excluding this variable. The inclusion of this variable makes little difference for the results for other variables.

Expected non-competitive behaviour

This is modelled by means of a variable taking value 1 if the consumer expects such behaviour of either gas or electricity supplier, and 0 otherwise. Here we assume that non-competitive behaviour means that the supplier is not inclined to follow prices of competitors.[33] This variable takes value 1 for about 7% of observations.

Importance of price

The respondents were asked how important they find the price of energy for their choice of supplier. The answers are ranged from 'absolutely unimportant' to 'very important' (five categories in total). The category in the middle corresponds to a neutral attitude: 'neither important nor unimportant'. The answers 'no opinion' have been also allocated to this category. We construct a dummy variable taking value 1 if the respondent's answer falls into the categories 'very important' and 'important to some extent,' and 0 otherwise. 93% of the respondents who provided the answers to this question find the price important.

Importance of having the same supplier for electricity and gas

This variable is constructed similarly to the variable above and is based on respondents' answers to the question if they find having the same supplier for both gas and electricity important. 39% of the respondents in our sample find it important.

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[33] The exact formulation of this question, as well as the questions underlying the construction of other variables is relegated to Appendix.

6.3.6 Switching cost

We consider two specifications of switching costs: using direct perceived switching costs, and using expected time and the ease of switching as proxies of switching costs. Here we describe each of these variables.

Perceived switching costs

The perceived switching costs are reflected in respondents' answers to the question regarding the amount per year that would induce them to switch supplier (as described in section 6.3.1). Based on this data, we constructed two variables: a dummy variable that corresponds to the answer 'do not know', and a categorical variable taking values from 1 to 10 for all the other answers respectively. Both answers 'savings play no role' and 'will never change' have been assigned to category 10.

Time needed to perform a switch

We use the answers of the respondents regarding the expected time needed for switching (see Table 6.1). The respondents could choose out of 6 categories of answers: 'not more than 1 hour', 'some hours', 'a morning or an afternoon, the whole day', 'unable to give their estimate (more)' and 'other, namely…'. Based on the respondents answers that fall into the first four categories, we construct a proxy for the number of hours expected to be needed, which takes respectively the values 1, 2, 4 and 8 for the four first categories above. In addition to this, we construct a dummy variable for the last two categories, reflecting that the respondent were unable to give an estimate in hours.

Importance of the ease of switching

This variable is a dummy variable based on respondents' answers to the question regarding the importance of the ease of switching. It is constructed similarly to other variables reflecting the importance of certain attributes. In our sample, 49% of the respondents find the ease of switching important.

6.3.7 Search costs

Many empirical studies of switching costs include demographic characteristics such as age, income (as well as income squared), educational attainment, household tenure and certain attitudal variables to control for differences in search costs. See e.g., Calem and Meester (1995) and Giulietti et al (2006). Therefore, we also include similar variables in our analysis. In particular, we include a dummy variable that describes the behaviour of individuals in two other markets (the market for fixed phone services and the insurance market), a variable reflecting the consumer attitude to liberalisation of energy market, and demographic characteristics.

Experience with switching in another market

This is a dummy variable equal to 1 if the respondent switched either their fixed phone provider or the insurer of a car/home content or both, and 0 otherwise. In our sample, 46% of the respondents have such experiences.

Positive attitude to the liberalisation of energy markets

Another proxy for switching cost is a dummy variable reflecting the attitude to liberalisation of the energy market. 26% of consumers in our sample have a positive attitude.

Demographic characteristics

- 'Age 65+'. Pensioners may be a group of customers to be concerned about. It may be that they have less ability to access information and to switch supplier. We control for this group by introducing the dummy variable 'Age 65+'. 17% of the respondents in our sample are above 65 years old.
- 'Education'. This variable is 0 for people with relatively low education and 1 for people with higher education. In our sample, 57% have relatively high education (at least high school).
- 'Income' is a variable taking value from 1 to 4 for different income groups (see Table 6.5) ordered from the lowest to the highest. We also include income squared in order to reflect that people with very high income may be less concerned about their electricity bill. An average of the income groups for our sample is 3.14, which corresponds to yearly income around 30 thousand euros.
- 'Housing tenure' is 1 for homeowners and 0 otherwise. 80% of the respondents are homeowners, which is higher than the average in the Netherlands.

Table 6.5   Income Distribution

Categories of net income (euros)	Frequency	Percentage
<10 000	62	6
10 000 - 20 000	138	13
20 000 - 30 000	291	28
>30 000	394	38
No information	163	16
Total	1048	100

6.3.8 Estimation Results

We have estimated probit regressions using the five different definitions for the dependant variable discussed in the previous section. Two alternative specifications of the model have been estimated: using the direct consumer valuation of perceived switching costs and using switching cost proxies (time and easiness of switching). The results are shown in Table 6.6 and Table 6.7 respectively. We report only marginal effects[34] in order to save space. Below we discuss the results in more detail.

Table 6.6	Estimation results for direct valuation of perceived switching costs (marginal effects)				
Variable	S2004 'Switched after July 1,2004'	CS2004 'Considers switching next 6 months'	SCS2004 'Switched after 1 July, 2004 or consider switching'	SS 'Switched either before or after July 2004'	SSCS 'Switched or considers switching'
Price gap	− .842*	− .353	− 1.384*	− 3.736***	− 4.057***
Energy use	.003*	.001	.004	.004*	.005
Expected non-competitive behaviour	.014	− .022	− .009	.029	− .015
Importance of price	− .066*		.022	− .037	.049
Importance of the same provider	.000	− .045*	− .042	− .057**	− .100***
Perceived switching costs	− .006*	− .014**	− .019***	− .017***	− .026***
Dummy 'no answer' regarding perceived switching costs	− .033*	− .050	− .089**	− .076***	− .126**
Experience in other markets	− .002	.027	.026	.016	.045
Positive attitude	.032*	.078***	.109***	.040	.109***
Age 65+	− .001	− .032	− .016	.109***	.106**
Income	.036	.026	.103	.108	.182
Income^2	− .005	− .006	− .016	− .017	− .029
Housing tenure	− .017	.059*	.036	− .024	.029
Education	.017	− .023	− .008	− .006	− .037
Number of observations	544	513	552	536	539

Notes: * p<.1; ** p<.05; *** p<.01

[34] This means that the coefficients reported in Tables 6.6 and 6.7 should be interpreted as semi-elasticities in the case of continuous variables. In the case of discrete variables, the respective coefficients show by how much the switching probability changes if the dummy value changes from 0 to 1.

Table 6.7 **Estimation results for time and easiness of switching as switching costs proxies (marginal effects)**

Variable	S2004 'Switched after July 1, 2004'	CS2004 'Considers switching next 6 months'	SCS2004 'Switched after 1 July, 2004 or consider switching'	SS 'Switched either before or after July 2004'	SSCS 'Switched or considers switching'
Price gap (%)	− 1.277***	− 0.376	− 1.763**	− 4.144***	− 4.215***
Energy use (MWh)	.002	.001	.003	.003	.004
Expected non-competitive behaviour	.033	− .029	.004	.034	− .008
Importance of price	− .065		.013	− .025	.043
Importance of the same provider	.002	− .041	− .034	− .058**	− .098***
Hours needed	− 0.004	− .097	− .010	− .012**	− .017**
Time dummy (more than one day is needed or no estimate)	− .027	− .092***	− .113***	− .087***	− .162***
Importance of the ease of switching	.019	.041	.066**	.038	.081**
Experience in other markets	.189	.021	.027	.015	.040
Positive attitude	.002*	.059**	.092***	.029	.084**
Age 65+	.001	− .032	− .010	.088**	.088
Income	.061	.031	.134	.127	.202
Income^2	− .009	− .007	− .021	− .020	− .032
Housing tenure	− .009	.058*	.044	− .020	.031
Education	.027*	− .028	− .003	.0001	− .030
Number of observations	533	501	539	525	527

Notes: * p<.1; ** p<.05; *** p<.01

Benefits of switching

Potential consumer savings were modelled as a function of three variables: energy use, price gap between the current price and the cheapest price, and consumer expectation regarding supplier behaviour.[35] The effect of the price-gap variable is negative and significant in most regressions, except for the regression for 'considering switching' (*CS2004*). Recall that since data on price gaps faced by consumers at the moment of switching decisions were not available, we had to use a proxy that reflects the current price gap. Since the current price gap is affected by the consumer past behaviour, the price-gap variable that we use is endogenous by construction. A negative sign for the respective coefficient may indicate that people who have already switched face a lower price gap with the cheapest supplier. Only in the regressions for

[35] In an alternative specification, not shown here, we replaced the three variables that relate to potential savings by two: (1) a constructed value of potential savings as a product of price and energy use and (2) future potential saving constructed as a product of potential savings and the dummy of expected non-competitive behaviour. The latter specification has been used by Giulietti et al. Both saving variables appear to be insignificant in our regressions, while the remaining coefficients are close to those reported in this section. This may be because of problems with construction of the variables reflecting savings, as our indicator of price gaps does not capture the exact price gap at the moment of switching. Therefore, we prefer the specification that separates the effects of the three variables, which we include in the main text.

considering switching, the constructed price-gap represents the actual price gap existing at the moment of the decision to consider switching. In these two regressions this variable is insignificant. To solve the problem of endogeneity, we have also run regressions excluding this variable. However, the exclusion of this variable did not lead to large changes of the other coefficients, therefore, we have chosen to report the initial specification.

The sign for energy use is positive as expected: a higher energy use corresponds to a higher probability of switching. However, this coefficient is never highly significant, and 90%-significant only in some regressions.

We generally do not find a significant effect for the dummy reflecting the expected non-competitive behaviour. Also regarding the effect of the importance of price, we expected that customers that find the price important would be more willing to switch. However, we do not find this effect.

In contrast, the preference of customers to have a single supplier for both gas and electricity appears to be significant in many cases. The effect is stronger in the models that include switching decisions prior July 2004, when only green electricity suppliers could have been changed. The highest marginal impact of this variable is in the regressions shown in the last columns in Table 6.6 and Table 6.7 that include all decisions to switch as well as decisions to consider switching. The consumer preference for a single supplier significantly reduces switching probability in this case by 10%.

Switching cost

The results in Table 6.6 and Table 6.7 correspond to two alternative specifications of switching costs: expected savings needed to justify switching and expected time to be spent on switching.

Regressions in Table 6.6 use consumer perceived switching costs and the respective missing-value dummy. We typically obtain negative and highly significant effects for both variables. This indicates that higher switching costs reduce switching probability. In the most extreme case (the last regression in Table 6.6) the marginal effect of the missing-value dummy is somewhat above 12%.

Replacing the direct consumer valuation of the perceived costs by a less direct measure, reflecting the consumer expectation regarding the time needed for switching and the importance of the easiness of switching, we confirm our result with respect to the negative effect of switching costs on switching probability. With little exception, the coefficients of the time dummy are negative and significant. This dummy captures that the consumer either has no opinion regarding switching time or thinks that it is longer than one day. In the most extreme case (the last regression in Table 6.7) the marginal effect of the time dummy is 16%.

The effect of the other variable related to the time of switching (showing the number of hours needed to switch where it was available) is also negative. The coefficient is significant in

the last two regressions. It indicates that an extra hour needed to be spent reduces switching probability by 1-2 %.[36]

Finally, in contrast to our expectation, it appears that customers that find ease of switching important are more likely to switch. The respective coefficients are often significant. This result may be due to the fact that switching of energy supplier is generally not too difficult. On the other hand, it may also indicate that people who are willing to switch or to consider switching are more concerned about the ease of switching than people who are not wiling to do it.

Search cost

The main conclusion regarding this group of variables is that a positive attitude to the liberalisation of energy market affects switching positively. Up to 11% of switching probability may be attributed to this variable in some regressions.

Several other variables, the most important of which is 'Age 65+', are significant only under some specifications. We do not observe less switching among pensioners (65+). In fact, when we take both periods of liberalisation together (see column *SS*), we obtain a positive significant coefficient at this variable. This indicates a higher than average actual switching for this group of consumers. Also, the effect of education and of the house-tenure dummy is positive and significant in some cases.

6.3.9 Conclusions

Our main findings are as follows. First, consumers with high perceived switching costs are less likely to switch their provider. Especially those consumers who find it difficult to evaluate their expected switching costs have low switching probability. This result is derived in two alternative specifications of the econometric model: using a direct measure of perceived switching costs and using the expected time needed for switching as a proxy. Second, consumers that want the same supplier for electricity and gas are generally less likely to switch. The effect of this factor is especially high in regressions (6-10%) accounting for switching in the period when only the green electricity market was liberalised. Third, a positive attitude to liberalisation of energy markets increases the switching probability, by up to 11% in some regressions. Fourth, there is an inverse relation between the existing price gaps and actual switching, which may indicate a reduction of the price gap with the cheapest supplier after switching. Finally, we find no significant effect of demographic variables in most regressions. Only for the variable "65+" we obtain highly significant positive coefficients, but only in regressions that include the period of liberalisation of the green market.

Comparing to the results from Giulietti et al. for the UK, we notice that the direction of the effects is generally the same in both analyses. The main differences are that we find no

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[36] We also did a sensitivity analysis on the effect of the time needed to switch on the probability of switching. We replaced the two time variables that we use here by the variable that shows the number of the category picked by the respondent: 1 for 'less than 1 hour', 2 for '2 hours', 3 for 'half a day', 4 for 'the whole day' and 5 for 'more' or 'no opinion'. In such a case, we also find a negative and significant effect of the time variable on switching.

significant effect of expected future savings on switching probability and no significant effect of switching experiences in other markets. The other differences from Giulietti et al. are merely due to the differences in the model. In particular, we have used a different specification for expected benefits. We do not include an indicator of the importance of supplier reputation, on which we did not have data, while include an indicator of the importance of a single supplier for both electricity and gas, since this factor seems to be important in the Netherlands.

6.4   Step II: Entry and competition for market share

Before liberalisation, the Dutch residential energy market was served by about 20 regional energy suppliers. Several merges that took place after the adoption of the Electricity Act (1998) created three large utility holdings: Nuon, Essent and Eneco, who supplied the majority of residential customers. In 2001, the green electricity market was liberalised and several new companies entered the green electricity market. A favourable situation with green energy subsidies in that period allowed them to undercut the prices of incumbents. Since many consumers prefer green electricity for environmental reasons, they have considered switching to green energy. As prices of entrants were lower, some of those who wanted to switch to green energy were also wiling to switch supplier. Notice however that despite the prices of entrants were lower, only one quarter of switches to green energy resulted in switching supplier, which indicates the presence of switching costs.

Before full liberalisation, in order to supply to small users a supply company should have received a licence from DTe. Since the market for green energy has already been free for three years, quite a few companies have entered the market before the full liberalisation. Per July1, 2004, there were 34 licence holders supplying electricity to small customers and 25 gas licence holders, belonging to 23 and 18 mother-companies (holdings) respectively.[37]

Among the entrants into the Dutch energy market there are many large foreign utility companies. Some of the entrants were active in the Dutch energy market before (e.g., Electrabel and E.ON who have shares in Dutch generators), while some began to penetrate the market only recently (e.g. Greenchoice). Furthermore, there are companies that are expanding their activities in the Netherlands from one energy product to both gas and electricity (e.g., RWE Obragas and RWE Haarlemmermeergas). Still, the concentration in the Dutch market is relatively high, as most customers are still supplied by the three large incumbent energy companies.

Since the exact information on market shares of the companies is not available, we use historic information to reconstruct the market shares of the incumbent companies before the liberalisation of the residential market. The results of our computation based on the data of the respective network companies are shown in the second column of Table 6.8. Our estimates of the market share of the large three company's prior liberalisation are close to the estimates of DTe for that period. The last column shows the distribution across companies of customers in

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[37] Source: DTe (2004) 'Marktconcentratie op de kleinverbruikersmarkt voor elektriciteit en gas per 1 juli 2004.'

our sample in 2004. Based on our dataset, the share of the large three companies after liberalisation is somewhat lower than the initial, 9.3% of the market is served by new entrants, the most successful entrants being Oxxio and Greenchoice. As the members of the Dutch Consumer Union may be on average more active in the market, our estimate of the total market share of entrants is likely to overstate the actual situation at the time of the survey. However, according to some recent publications, the current market shares of Oxxio and Greenchoice possibly sum up to 8%,[38] which implies that our estimates may 'forecast' the current situation reasonably well.

The situation in gas is similar to electricity in the sense that the large three companies also supply the majority of customers (82% of our sample). However, the entrants' share is much smaller than in electricity, since the market has much shorter liberalisation history. Only few residential customers changed their gas companies (2.8% in our sample), hence, the market share of the incumbents did not change much.

6.5   Step III: Welfare consequences of switching costs

In this section, we address welfare consequences of switching costs. Following Giulietti et al. (2006), we first provide a 'back-of-envelope' computation of the impact of switching costs on incumbents' profitability if the incumbents keep prices above the prices of new entrants. Next, we evaluate the welfare consequences of liberalisation of energy supply to small customers in the Netherlands under two possible scenarios of the market development.

6.5.1   Effect of switching costs on incumbents' prices

We begin with the analysis of the effect of switching costs on profitability of incumbents. Our data allows us to observe for each respondent how much he would need to be able to save in order to switch. The respondents could choose among several possible ranges of potential savings: less than 25 euros, between 25 and 50 euros, between 50 and 75 euros, etc. (See section 6.3.1.) Using this information, we can assess if it is profitable for an incumbent to keep its price above the competitive level.

An important assumption underlying our computation is that entrants price at marginal cost. This assumption is theoretically reasonable: in competitive markets, equilibrium prices should equal marginal cost. Although in practice new entrants may temporarily price below marginal cost to gain market share, we ignore this possibility, as such a strategy cannot be feasible in the long run. Pricing above marginal costs is feasible. However, if entrants' prices are substantially

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[38] Oxxio is the most successful entrant in the Netherlands that has 0.5 mln connections, Greenchoice has above 0.1 mln connections (Source: Energiea, April 6, 2005).

above marginal costs then incumbents prices are even higher then in the case of marginal-cost pricing by entrants.[39]

Table 6.8   Market shares in the electricity market for small residential customers

	Market share based on data from network companies 2000, incorporating mergers among incumbents	Market share based on the data from consumer survey 2004, including green energy
	%	
Nuon companies	38.5	31.1
Eneco companies	24.6	21.8[a]
Essent companies	33.1	29.5
The large three together	93.1	82.4
Cogas	0.7	1.1
Delta	2.7	2.9
NRE	1.4	1.7
InfraMosane	0.6	0.3
ONS	0.5	1.1[b]
RENDO	0.4	0.3
Westland	0.6	0.5
Smaller incumbents together	6.9	7.9
Oxxio[c]		4.0
Electrabel		0.2
Energiedirect		0.7
Greenchoice		3.0
Intergas		0.5
Obragas		0.4
Other entrants		0.5
Entrants together		9.3

Notes: Market shares in the market for small customers are derived as the ratio of small customers of each company to the total number of small customers in the Netherlands. The estimates are given including recent mergers:

[a] Eneco and Shell Nederland

[b] ONS and Echte Energie

[c] Energiebedrijf.com, Durion and Evolta, now under the name Oxxio.

Source: Own computation based on data on distribution companies from DTe decisions 'BOB definitieve efficiencykortingen (X-factoren) ihkv Project Correctie Besluiten d.d. 23-08-02, bijlage 1' and from the consumer surveys of the Dutch Consumer Union.

Table 6.9 below shows the results of our computation of the possible effect of price increases on profits of incumbents in the case of marginal pricing by entrants. From the answers of the respondents, we know how many of them will switch and how many will stay with their

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[39] In practice, prices of entrants can be somewhat above marginal costs. In the latter case, the incumbent's loss from additional switchers is larger than in Table 6.10. However, as long as entrants' markups are small, the incumbent profit will be still maximised at a price discrepancy of at least 75 euros. Only if markups are substantial (at least 6% of the current price) the incumbent profit is maximised at a smaller price discrepancy. However, the incumbent's price is still higher in the latter case.

supplier for different ranges of price discrepancies. The gains from raising the price by the amounts given in the first column of the table are computed as a product of the number of remaining customers and the respective price change. Losses are equal to the forgone profit from additional switchers. The last column shows the net gain of raising the price to the next level. As long as the net gain is positive, it is profitable for an incumbent to raise its price.

According to the table, this is still the case if price differentials are at least 75 euros per year. Only 30% would switch for such an amount (other things being equal). Based on discrete information on additional switchers for price increases of 25 euros, we observe that the incumbent profit is increasing at a price discrepancy of 75 euros, and it is decreasing at a price discrepancy of 100 euros. Therefore, the exact amount at which the incumbent profit is maximised is between 75 and 100 euros.

Table 6.9	Benefits for incumbents of keeping prices above competitive level					
Expected saving per year in euros	Would switch[a,b]	Would stay	Additional switchers	Gains from raising price	Losses from additional switchers	Net gains
25	20	905	20	22625	0	22625
50	142	783	122	19575	3050	16525
75	281	644	139	16100	6950	9150
100	450	475	169	11875	12675	– 800
150	648	277	198	13850	19800	– 5950
200	699	226	51	11300	7650	3650
250	747	178	48	8900	9600	– 700
300	771	154	24	7700	6000	1700
300+	806	119	35			
Never & savings play no role		51				
Total	925					

Notes:

[a] We assume that nobody leaves until the price is raised by 25 euros per year, at which point 20 customers switch. Therefore losses from additional switchers are 0 for a price increase just below 25. This is an artificial assumption, which ignores that in reality some customers may be leaving at lower price increases. The same assumption is also used in the rest of the table, since we have only discrete information on the distribution of the expected savings.

[b] In addition to the answer reported in the table, 174 respondents have answered 'don't know'. We treat these answers as missing observations. Another possibility would be to add them to the group who will never change their supplier. This however would be unrealistic: if such a large group of customers would never respond to price signals, it would always be profitable for incumbents to keep raising prices.

Source: Direct computation from survey data, based on the methodology from Giulietti et al. (2006).

We have done an exercise similar to that in Table 6.9 based on data from another survey of the Dutch Consumer Union, which was conducted in 2001 for the same consumer panel.[40] The difference in formulation of the question on expected savings in the two surveys was that in the survey of 2001 the respondents were asked to report the amount for which they would switch supplier, while in 2004, they had to pick a range to which this amount would belong.

[40] We refer to the survey 'Weggaan of blijven' used in chapter 5.

Interestingly, from the comparison of the results from 2001 and 2004, it appears that in 2001 more respondents (45%) were ready to leave their company to save 75 euros. A computation similar to that in Table 6.9, but for the data set of 2001,[41] shows that the potential net gains are positive until the price discrepancy reaches 34 euros (75 guilders), and become negative at 40 euros (89 guilders). Such a large difference between the results for 2001 and 2004 is unlikely to be fully explained by differences in framing and in the selection of respondents. It may be that in 2001, when the choice of supplier was still hypothetical, consumers had lower estimates of their switching costs. However, after liberalisation, when such a choice became real, they actually need larger savings in order to justify efforts of switching supplier. Notice that for the UK, Giulietti et al. (2006) obtain the threshold amount of 8 pounds per month (150 euros per year) – twice the amount in the Netherlands. Only 45% of the UK consumers would be willing to switch at this amount.

6.5.2 Welfare effects

Next, we assess potential welfare effects of switching costs for the Netherlands under two alternative scenarios: optimistic and pessimistic. In the optimistic scenario, we assume that the switching costs are strongly reduced, so that the willingness to switch increases. This reduces the prices of incumbents to the level of entrants. In the pessimistic scenario, the switching costs remain at the current level and the willingness to switch does not change. In such a case, it is profitable for incumbents to raise prices. We estimate the consumer welfare gains (or losses) of market provision of energy in these two scenarios compared to the case of regulated monopoly.

Scenarios and the assumptions used in the welfare analysis

- Optimistic scenario: the prices of incumbents follow the prices of new entrants. All suppliers charge competitive price. The percentage of switchers does not have to increase under such a scenario. Therefore, we assume a 10%-level of switching, which is close to the currently observed level.[42]

- Pessimistic scenario: maximum price differentials between the incumbents and entrants. The entrants price competitively, while the incumbents charge 75 euros above the entrants. It has been shown in the previous section that such a difference in prices maximises incumbents' profit. At this amount, 30% of population switches, while the rest stay with their supplier.

Notice that we maintain the assumption of marginal-cost pricing by entrants. If the entrants price above marginal cost, then the overall price level is higher than in the case of marginal-cost pricing by entrants. This would lead to a large loss of consumer welfare if a pessimistic scenario is realised.

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[41] Not shown here. More details are available upon request.

[42] 9.3% of consumers in our sample receive electricity from a new entrant.

Average switching costs are assumed to be 40 euros. This estimate is obtained by a linear interpolation from the data. Table 6.2 shows that 2% of customers would switch for 25 euros per year, and 13% would switch for 50 euros per year. The amount consistent with the 10% switching level (see our assumption in the optimistic scenario) is about 40 euros per year. Hence, we assume this to be the initial price difference between incumbents and entrants that corresponds to the case of regulated monopoly.[43]

Results

Since the price-elasticity of the demand of small consumers for energy is small, the price changes have little effect on demand. Therefore the effect of liberalisation of this market segment on total welfare, i.e. the sum of consumer and producer surplus, is small.[44,45] The most important effect of liberalisation *in this market segment* is a reallocation of welfare between supply companies and consumers. Society typically attaches higher weight to consumer welfare than to producer welfare (Laffont and Tirole, 1993), therefore welfare reallocation towards consumers is good from the total welfare prospective.

Table 6.10 summarises potential effects on consumer welfare for both scenarios. We distinguish welfare effects for switchers and for non-switchers. Switchers benefit from liberalisation under both scenarios, however, for non-switchers the effect can be either positive or negative.

Table 6.10   Welfare effects under different scenarios

Scenario	Optimistic	Pessimistic
	%	
% Market switched	10	30
% Paying competitive price	100	30
	mln euros	
Transfer of welfare from companies to switchers	28	84
Transfer of welfare from companies to non-switchers	252	– 172
Total transfer from companies to consumers	280	– 88

Source: Direct computation from survey data.

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[43] Notice that here we assume for simplicity that all companies face the same allocation of consumer switching costs, which may not be the case in practice. For example according to the estimates of DTe, the maximum price discrepancy is about 150 euros.

[44] According to Baker et al. (1989), price elasticity of residential demand for gas is -0.34.

[45] Here we ignore the cost of entry. Although entry is costly, these costs are sunk, and are unimportant in the long run. Giulietti et al. (2006) assumes entrants' initial cost to be 12.5 pounds (18 euros) per year per switcher. This cost will be recovered over the next years, which means that the prices will eventually be a bit higher than it would be without such costs. However, allocated over several years, the effect on price is small.

In the optimistic scenario, both consumer groups benefit from price decreases and liberalisation brings large benefits in terms of welfare reallocation from companies to consumers. However, in the pessimistic scenario, when 30% switches while the rest stays with incumbents who raise prices 75 euros above entrants, the effect on consumer surplus is negative. Notice also, that if entrants indeed price competitively, then 75 euros is on the lower boundary of possible estimates of the profitable price increase. If larger prices are profitable, then the consumer welfare loss in this scenario is also larger. For example, the consumer loss would be two times larger if the price gap would increase to 90 euros. The results of our computation imply that while liberalisation is justified in the first scenario, it may be better to return to a regulated monopoly if the second scenario is realised.[46]

Above, we focused on prices and ignored other aspects. In practice, not only is price important to customers, but also quality of service provided by suppliers. Liberalisation may intensify competition on quality, which would bring extra benefits to the customers comparing to the case of a regulated monopoly. In the recently liberalised market, government policy aims at shifting the market situation towards an optimistic scenario.

6.5.3 Conclusions

From the analysis in this section it appears that given the distribution of consumer perceived switching costs and provided that entrants charge at marginal cost, it may be optimal for incumbents to keep prices at least 75 euros per year above entrants. 30% of consumers would switch for such an amount, but the rest would stay, so that the profit made on those who stays will outweigh the loss associated with loosing market share.

Given the low elasticity of demand, the static effect of retail competition on social welfare consists mainly in reallocation of surplus between supply companies and consumers. The allocation of surplus depends on the scenario realised. Here we considered two possible scenarios: optimistic and pessimistic. Under the pessimistic scenario, in which incumbents raise prices by 75 euros above the competitive level, consumers lose about 88 mln euros compared to the initial situation. However, if incumbents follow entrants' prices, the consumers would gain about 280 mln euros. In addition, competition may achieve some dynamic gains, e.g. better service quality.

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[46] Here, we consider only effect of switching costs and leave aside some other arguments from the economic literature that may cast doubt on the effectiveness of competition in the small customer segment. See Joskow et al. (2004) and Newbery (2002) for more detail.

6.6 Policy options

In this section, we discuss policy options that address switching costs and their effects.

6.6.1 Need for policy?

According to DTe[47], the maximum savings which could have been made by an average household in the fourth quarter of 2004 by switching from the most expensive supplier to the cheapest was 150 euros on annual basis, which is about 10% of the total energy bill paid by an average consumer (i.e., including network charges and taxes). If we take data from a price-comparing website and roughly compare prices across companies, we see that for entrants the price gap with the cheapest is on average somewhat smaller than for incumbents. In fact, most cheapest suppliers are entrants.

Since incumbents are likely to retain customers with higher switching costs, the price gap between incumbents and entrants may become more pronounced. Persisting or increasing price gaps between incumbents and entrants would signal the development towards a pessimistic scenario, as discussed in section 6.5. Policies that address switching costs reduce the risk of such a development.

6.6.2 Measures that lower switching costs

In the theoretical chapter, we discussed policy options that lower switching costs in different markets. For this market we specifically address: reducing switching fees, raising quality of price comparing websites, educating public and standard contracts.

Reducing switching fees

Some companies in the Netherlands charge customers fees for breaking contracts. Such fees are possible only for fixed-term contracts, such as one-, two- and three-year contracts. They are meant to compensate companies for the cost they incur when a contract has to be ended prematurely. (DTe, 2004a.). Since July 1, 2006, DTe caps the maximum compensations that companies can charge for interruption of such a contract before its end. The maximum compensations depend on the remaining time of the contract. For one-year contracts, the switching fee cannot exceed 50 euros. For contracts with a longer term, the maximum compensation is 25 euros per half a year of the remaining contract length. Additionally, a company can charge a customer up to 50 euros to compensate for the welcome received by the customer upon signing the contract. In the case if a contract has been extended silently, a consumer who wants to interrupt such a contract can face a maximal fine of 25 euros. (DTe 2005.)

At present, DTe makes no distinction between the contract with fixed prices and contracts with variable prices. Switching fees are useful for fixed price contracts to prevent that

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[47] Source: DTe, press release of 3.12.2004 "Besparing op energie kan oplopen tot 150 euros."

consumers would go away during market price decreases, while they would stay with the company during market price increases, when the market price exceeds the fixed price. Without switching fees, contracts with fixed price would not be offered, or would be offered at much higher prices. This is not the case for contracts with variable prices, where price can be adjusted in accordance with the market value. For such contracts, switching fees are not strictly necessary and therefore can be abolished.[48] Switching fees are also not justified in the case of a silent extension of these contracts. Therefore, when prolonging such contracts for the next period, it would be reasonable to convert them into indefinite-time contracts, for which switching fees are prohibited by law.

Raising website quality

Good-quality websites that compare tariffs and provide switching services are essential to reduce switching costs. Such websites have been rapidly developing. Control over the website quality is an important task of the regulator.

In 2004, DTe investigated the quality of the price-comparing websites for energy products. It was found that the information provided by some websites was insufficiently correct, complete and independent, especially for gas, where the liberalisation history was shorter. Several websites, notably those that related by ownership to an energy company or took information from an engine related to an energy company, scored low on completeness, and in some cases on correctness. (DTe, 2004.) For example, not independent websites left some information out so that prices of their affiliated companies looked more attractive. In some cases, they provided prices of affiliated companies including price discounts, while the prices of other companies without discounts.

Price-comparing websites take the information on tariffs from computation engines. Therefore, the quality of the information on the price-comparing websites is determined by the quality of the engines. During the DTe investigation of 2004, there were five such engines in the Netherlands, only one of which scored good on correctness, completeness and independence. The information from the other engines was incomplete. Some of them were not independent or provided incorrect information. Recently, DTe investigated the website quality again, focusing on the quality of computation engines (DTe, 2005). It appears that the number of engines decreased to three, however, two of them score well on correctness, completeness and independence.

Educating public

Also, psychological costs play role. Our empirical analysis has shown that consumers with high perceived switching costs are less likely to switch. Many customers do not have switching experience in this market. They will rely on information regarding other people experiences.

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[48] Notice also that too frequent switching is prevented by law, which allows the term of 30 days for ending a contract. (Article 95m/10 of the Electricity Law.)

Given that media is more likely to pick on negative experiences, companies' mistakes in handling switching create a negative externality for those who have not had switching experience in this market yet. Therefore, educating the public may help to fight the existing misperceptions regarding the risks and the costs associated with switching and to increase the willingness of consumers to consider switching.

Standard contracts

Consumer switching may be deterred by the increased complexity of choice because companies begin to differentiate their products. For example, at present customers have to choose between fixed prices over 1, 2 or 3 years, or a variable price. Some companies offer 'budget', 'standard' or 'standard-plus' contracts (differentiating across users with high and low energy consumption), and/or 'evening-active' and 'standard peak-low tariffs' (differentiating across consumers with different consumption patterns). This development is similar to that in the telecom market.

The effect of product differentiation on welfare is ambiguous. On one hand, differentiated products serve the customer needs better. On the other hand, product differentiation allows companies to extract more consumer surplus and increases consumer switching costs, as it becomes more difficult to compare across contracts.

Standardisation of contracts would help to increase transparency and to reduce switching costs. However, compulsory standardisation has the drawback that it reduces freedom of choice and slows down innovations in contract forms. Therefore, lighter forms of standardisation may be more suitable. For example, such a form of standardisation has been applied in Norway, where the Norwegian Competition Authority compares several contract types on their website. (Norwegian Competition Authority, 2003.) The companies can still offer other types of contracts to their customers, but they now need to make such contracts more attractive to customers than the standard contracts.

6.6.3 Measures that alleviate the consequences of switching costs

Here we discuss two measures that reduce the consequences of switching costs, decreasing the probability of regret and compliance.

Lowering probability of regret

As said, there are switching fees on the energy market that may deter switching. When signing the contract consumers are not always fully aware of the consequences of switching before the contract ends. The information regarding fines may not be properly communicated to them. Even though there is an article in the Electricity Law which obliges companies to provide consumers with this information in the contracts, consumers may not expect that they may be fined when they want to leave the company. Therefore, they may miss this information. Making

a consumer more aware of such possible consequences will put a consumer in a better position and will lower the probability of regret.

Compliance

Since the discrepancy of consumer expected savings is very large, and few customers are ready to change their supplier more often than once a year (there was virtually no overlap between the group of respondents who switched within three months after liberalisation and wanted to consider switching in the next six months), there seems to be a relatively large group of 'captive' customers, whose willingness to switch is very low. Extra switching costs for customers may arise due to companies' mistakes in processing switching, e.g., double bills. Such mistakes may deter customers from switching in the future. As a consequence of switching costs, the quality of service may deteriorate (e.g., non-timely billing and slow reaction to customer complaints). Therefore, the usual monitoring of compliance with the standard licence conditions and investigating unfair trade practices may be necessary.

6.7   Conclusions

In this case study, we have addressed switching costs and switching behaviour in the recently liberalised Dutch residential energy market.

Based on data from the consumer survey of the Dutch Consumer Union, it appears that 6.1% of Dutch consumers switched their electricity or gas provider during three months after the energy market was fully liberalised on July1, 2004. Counting all switches since the liberalisation of the green energy market on July 1, 2001, the total percentage of switchers in our sample is about 16 %, and the percentage of those who buy electricity from new entrants is 9.3%. Still the residential energy market remains rather concentrated: the majority of consumers receive their energy from one of the three largest incumbent suppliers.

Although the number of switches is relatively large, there is still a concern regarding the effect of switching costs in this market, because of relatively high switching costs for some proportion of consumers. The analysis of switching costs shows that switching costs are not homogeneous. About 25% of consumers either unable to estimate their switching costs or perceive switching costs to be very high. Different types of switching costs play role, such as switching fees, consumer time and effort needed for switching, product differentiation and the risk of mistakes in processing switching requests by firms.

Following the methodology from Giulietti et al. (2006), we have conducted an econometric analysis of the effect of different factors on switching. We have found that consumers with high perceived switching costs are less likely to switch their provider. Especially those consumers who find it difficult to evaluate their expected switching costs have low switching probability. Also consumers who express a strong preference for the same supplier for electricity and gas are generally less likely to switch. In contrast, a positive attitude to liberalisation of energy

markets increases the switching probability, by up to 11% in some regressions. We observe an inverse relation between the existing price gaps and actual switching, indicating a reduction of the price gap with the cheapest supplier after switching. Finally, we find no significant effect of demographic variables in most regressions. Only for the variable 'age 65+' we obtain highly significant positive coefficients, but only in regressions that include the period of liberalisation of the green market.

With respect to welfare effects of switching costs, it appears that given the distribution of consumer perceived switching costs and provided that entrants charge at marginal cost, it may be optimal for incumbents to keep prices at least 75 euros per year above entrants. 30% of consumers would switch for such an amount, but the rest would stay, so that the profit made on those who stay will outweigh the loss associated with loosing market share.

Since the demand elasticity is low, the main welfare effect of retail competition in the consumer segment consists mainly in reallocation of surplus between supply companies and consumers. The allocation of surplus depends on the scenario realised. Under the pessimistic scenario, in which incumbents raise prices by 75 euro above the competitive level, consumers loose 88 mln euro compared to the initial situation. However, if incumbents follow entrants' prices, the consumers would gain about 280 mln euro. In addition, competition may achieve some dynamic gains, e.g. better service quality.

Since at this stage it is still unclear towards which scenario the market may develop and there is a risk that the pessimistic scenario may manifest as a result of switching costs, policies addressing switching costs and their effects should not be neglected. Given a high percentage of customers who have relatively poor knowledge regarding switching (e.g. unable to estimate the expected time they needed to complete the procedure) and a potentially large negative effect of this lack of knowledge on switching, educating the public regarding the aspects of switching remains an important policy measure. In addition, other measures can be applied, namely those directed at tackling switching fees or their effects, improving quality of websites that provide customers with information on prices, facilitating comparison by means of standard contracts, and monitoring the compliance of the companies with the existing regulations.

Appendix: Questions from the consumer survey used in the construction of variables

Perceived switching costs

What is the minimum amount per year that you would like to save on your energy expenses to want to change supplier?

The respondents could choose from the categories that are listed in Table 6.2.

Expected time needed for switching

How much time you think would be needed to find a new supplier and to sign up there?

The respondents could choose from the categories that are listed in Table 6.1.

Expected non-competitive behaviour of supplier

Imagine that a number of supply companies change their prices for electricity and gas, do you think that your supplier will follow? (more answers are possible in the case if you have different expectations regarding your electricity supplier and your gas supplier)

1. Yes, I think that my supplier will be strongly inclined to follow the prices of other supply companies
2. Yes, I think that my supplier will be somewhat inclined to follow the prices of other supply companies
3. No, I do not think that my supplier will be inclined to follow the prices of other supply companies
4. Another answer, namely…
5. Do not know/No opinion

Importance of price, Importance of ease

Would you indicate the degree of importance for you of the following aspects:

- Price of energy that I have to pay
- The ease of changing supplier
- <other aspects>

6. Very important
7. Important to some extent
8. Neither important nor unimportant
9. Unimportant to some extent

10. Absolutely unimportant

11. Do not know/No opinion

Importance of the same supplier

Do you find it important to have the same supplier for both electricity and gas?

12. Very important

13. Reasonably important

14. Neither important nor unimportant

15. Reasonably unimportant

16. Absolutely unimportant

17. Do not know/No opinion

Positive attitude to liberalisation

To what extent do you agree with the following statement: "Liberalisation of energy market works in favour of consumer"?

18. Agree

19. Agree to some extent

20. Neither agree or disagree

21. Disagree to some extent

22. Disagree

23. Do not know/No opinion

Experience with switching in another market

Have you contracted another provider than KPN for your fixed phone?

Have you during the last two years changed your insurer for a car and/or home contents?

24. Yes

25. No

26. Do not know

27. This does not apply

7 Switching in social health insurance

7.1 Introduction

The health-care sector in the Netherlands is characterised by ubiquitous price and quantity regulation and a lack of competition. It has long been felt that this model leads to inefficiency and a neglect of patients' needs, showing up *inter alia* in long waiting lists. Dissatisfaction with the existing model has prompted a wide ranging reform of the health care system. The reform, which started to take effect in 2005, amounts to a form of managed competition. Health insurers will be given more room and more incentives to bargain with health providers for better quality and/or lower price. In order to avoid negative side-effects of competition, the reforms will be accompanied by measures such as open enrolment, community rated premiums, risk-equalisation and greater transparency of the quality of health care. In addition, a sector-specific regulator is created with the task of actively promoting competition in health care.

Competition between health insurance firms is an important prerequisite if the reforms are to succeed in reducing unnecessary costs to the insured while maintaining or even improving the quality of health care. Has this condition been satisfied? Is competition between health insurers sufficiently intensive to induce health insurance to invest in more efficient purchasing methods and to pass these benefits on to consumers? This depends to a large extent on the willingness and the ability of consumers to switch health insurers when faced with differences in insurance premiums and quality. In this chapter we review the available evidence on switching behaviour and consumer switching costs in health insurance. We also discuss policy options for reducing switching costs.

We will apply the analytical framework developed in chapter 2. The chapter is structured as follows. The next section presents a brief overview of the Dutch market for health insurance and of the reforms that are underway. In section 7.3 we assess whether switching costs are high or low. In section 7.4 we assess whether there is fierce competition for market share. Section 7.5 presents a rough calculation of the implications of the low sensitivity of consumers to price for price-cost margins and thus for (static) consumer welfare. Section 7.6 discusses policy options for reducing switching costs. Section 7.7 concludes.

7.2 Health Insurance in the Netherlands

The institutional setting before the reforms

Until 2006, the Dutch market for health insurance consists of two segments. The first segment, covering about 60 percent of the population, is characterised by compulsory insurance for workers and their dependents with incomes below a certain threshold (currently euro 32 600). This segment is served exclusively by so-called sickness funds i.e. not-for-profit health insurers. Until 2006, private for-profit firms are banned from this part of the market; these firms serve

exclusively individuals (and their dependents) with incomes above the income threshold of euro 32 600. Until 2006 health insurers have only limited room for bargaining over price and quality with health providers.

The regulatory regime differs in important respects between the two segments of the health insurance market. Sickness funds face a number of restrictions that do not apply to private insurers. In particular, sickness funds must:

- Offer a standardised basic policy defined by the government.
- Contract with any health provider; conversely, health providers had to contract with every sickness fund at equal terms.[49]
- Take part in a risk-equalisation scheme run by the government.
- Accept every citizen at the same price (community rating), irrespective of expected health costs (open enrolment).

As far as the basic insurance policy is concerned, sickness funds are financed partly through wage-related premiums set by the government and paid by the employer, and partly by so-called nominal premiums set by the sickness funds themselves. Currently the nominal premium accounts for about 15 - 20% of the total premium. By varying the nominal premium, sickness funds are able to compete on price in the market for basic insurance.

Sickness funds also sell supplementary insurance, covering *inter alia* dental care and alternative medicine. None of the above restrictions apply to supplementary insurance. Sickness funds have to cover the costs of supplementary insurance entirely out of premiums charged.

The 2006 reforms

The current system is gradually being replaced by a model of managed competition. Prices and entry of health providers will gradually be liberalised. In 2004 prices of physiotherapists were liberalised followed in 2005 by prices for about 8% of hospital revenue. Depending on the consequences of this initial round of price liberalisation, this percentage will gradually be raised in future years. In addition to price liberalisation, health insurers will no longer be obliged to contract with every provider of health care and vice versa.

Another element of the reforms relates to the distinction between sickness funds and private for-profit insurers. This distinction will be abolished in 2006. For-profit insurers will be allowed to enter the market that is now the exclusive domain of sickness funds and vice versa. Open enrolment for the basic package of health insurance and mandatory participation in a risk equalisation scheme will remain in place after the reform.

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[49] There is one exception to this rule. Since 1992 sickness funds are no longer under a legal obligation to contract with every primary care physician (PCP). This could act as a barrier to switching: if the PCP of choice is not contracted by the new health insurer, then this could act as a barrier to switching to another health insurer. However, survey evidence reported in Abrams (2004) indicates that this plays no role (yet). She presents survey evidence on 1100 subjects with health insurance. None of the respondents indicated that this factor was a barrier to switching health insurers.

7.3   Step I: are switching costs high?

In this section we summarise the evidence on switching costs in social health insurance. At first sight, switching costs in social health insurance seem low. Each insured is free to switch to another health insurer once a year (open enrolment), and each insurer has to accept every insured at equal terms. Nevertheless, switching costs for basic health insurance may still be substantial. This is because of two reasons: search costs and the peculiarities of supplementary insurance.

We start with search costs. Search costs in this market include the costs of collecting and comparing data on the prices of different sickness funds. There may also be high psychological aversion to the paperwork involved in switching. Financial products including health insurance tend to be 'low interest products'(see chapter 5), although this may change under influence of the publicity surrounding the new health system.

Turning to supplementary insurance as a source of switching costs, we already indicated that most insured (over 90%) buy supplementary insurance for health care costs not covered by the basic health insurance policy. Open enrolment does not apply to this supplementary insurance and most health insurance firms offer supplementary insurance only on the condition of also purchasing basic health insurance (tied sales). In addition, supplementary insurance policies are not standardised across firms. Indeed most health insurers offer a wide range of supplementary policies, differing in coverage, premium, and level of coinsurance. In 2004, Schut et al. (2004) counted 114 different policies, offered by 23 sickness funds. In 1996 this figure was 56, so product differentiation is clearly on the rise. As a result of these features, the risk of being turned away for a supplementary policy and the lack of transparency of supplementary policies may result in substantial switching costs, and this may affect competition in the market for the basic policy.

Evidence on the risk of being denied supplementary insurance
The available evidence suggests that the risk of being denied supplementary insurance is not very high in practice. In one study, based on a survey among 956 households, Delnoij and Van de Schee (2003) find that 30 households switched to another sickness fund in the period October 2002 – March 2003 (this encompasses the annual open enrolment season). Another 19 households tried to switch but did not succeed. In 4 of these 19 cases, supplementary insurance played a role (other factors mentioned were: too much paperwork; little difference in premiums, better deal current insurer; too late). Based on this small sample, the conclusion would be that actual switching would have been about 13% (4/30) higher without the risk of being denied for supplementary insurance. A second study, based on another survey among about 1000 households, reached similar conclusions (Schut et al. 2004). They find that in 2004 9% of those who considered switching did not do so because they expected to be denied supplementary insurance. Of those who did not consider switching, 6.5 % expected to be denied supplementary

insurance. Only one respondent indicated that he had actually been denied supplementary insurance. However, even if people have seldom been turned down, supplementary insurance may still raise switching costs through negative effects on transparency.

Direct evidence on switching behaviour

Laske-Aldershof and Schut (2002) estimate the determinants of switching intentions and actual switching behaviour for a sample of 947 insured in Dutch sickness funds. Explanatory variables include age, gender, education, health status, and a variable that measures understanding of the health system. Premium is not included as an explanatory variable. Their main results are as follows:

- About 6% of all respondents had actually switched to another sickness fund in the three years following March 1, 1998. This yields an average switching percentage of 2% per year.
- There are large differences in switching probabilities between groups of insured, ranging from 0.6% (healthy, low educated male, 45-55 years old) to 25.8% (healthy, highly educated male, 25-35 years old).[50]
- Consumers who are better informed about the rules of the game (e.g. open enrolment, pricing rules etc.) are substantially more likely to switch.

Kerssens and Groenewegen (2003) use survey data from a stratified sample of about 900 insured at a large Dutch insurer. The stratification was designed in such a way that the sample included roughly equal groups of stayers, leavers and entrants. Due to non-response the final sample available for analysis included 468 subjects. They find that the prime motivation for switching is limited coverage of supplementary insurance (mentioned by 33% of all respondents). Other reasons mentioned are dissatisfaction about the service level (about 15%), change of employment (about 13%) and price (about 15%).

    Abrams (2004), using survey data for 1108 households of which about 60% is insured by a sickness fund, finds that during the three year period 2002-2004 8% of all households insured by a sickness fund switched to another insurer, on average 2.7% per year. For those with private insurance the switching rate was twice as high. The prime motivation for switching sickness funds according to her respondents is price (51 out of 52 switchers mention this as the most important reasons for switching). For the privately insured, this answer was given in only 22 out of 60 cases. Broader coverage was the second most important motivation for switching (25 out of 52 cases).

Laske-Aldershof (2005) looks at changes in the determinants of switching in the Netherlands between 2001 en 2004. An interesting finding is that differences in price have become more important as a determinant of switching over this period. While this was a relevant factor for

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[50] Switching probabilities for females were somewhat higher, but the differences between males and females were not significant.

only 14% of the group who considered switching to another sickness fund in 2001, this had risen to 38% in 2004. She also finds that coverage of supplementary insurance was a relevant factor for 20% of the group who considered switching. Employment-based group contracts became much less important during this period, from 13% to 7% in her sample.

All in all, while the percentage of insured who switches to another sickness fund differs substantially across different studies, all authors conclude that the number of switchers is rather low. However, this low amount of switching does not constitute evidence that switching costs are high. If most insured are happy with their current choice, there will be little switching even if there are no switching costs.[51] This suggests that we should look at switching behaviour in response to differences in price (after correcting for differences in quality).

Evidence on (potential) switching in response to price differentials

A common measure of the sensitivity of consumer demand to price differentials between different suppliers is the so-called elasticity of residual demand. This elasticity is defined as the percentage drop in sales that an individual firm will experience after raising price by 1%, assuming other firms keep their prices unchanged. If switching costs are high, then the elasticity of residual demand will be low, at least at small price differentials. Thus, if we find low elasticities of residual demand this points to high switching costs.[52]

In summarising the empirical literature on elasticities of residual demand, it is important to stress that most studies look at the elasticity of demand with respect to the *out of pocket premium* (the part of the premium directly paid by the insured). From the insurer-perspective, what matters is the total-premium elasticity of residual demand. This measures what happens to demand at firm X when it raises its premium by 1%, assuming all other firms keep their prices unchanged. In the US, the out-of-pocket premium usually covers only 10 – 20 percent of the total premium, in Germany the share is about 50% while in the Netherlands, on average out of pocket premiums amount to 10-15% of the total medical expenses (Schut and Hassink, 2002). In the Netherlands, employers pay a certain income-related amount irrespective of the sickness fund chosen. This implies that at the margin consumers pay the full price differential between health insurers. This is different from the situation in Germany and the US where consumers pay only a percentage of the price differential, although in the US the situation is changing (Schut et al., 2003).

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[51] If switching costs are zero, then potential switching is high but actual switching may be very low since suppliers know that they have to keep prices close to those of competitors. At the other extreme, with very high switching costs, actual switching will also be very low but also potential switching will be almost zero. Thus, the highest amount of actual switching will occur at intermediate levels of switching costs. This suggests an inverse-U shaped relation between switching costs and actual switching.

[52] Strictly speaking this conclusion is only warranted if we can rule out other determinants of low elasticities of residual demand. However, there are no plausible alternative explanations (recall that our broad definition of switching costs includes search costs and that we are dealing with a homogenous product).

Table 7.1 summarises recent estimates from the literature of the elasticity of residual demand.[53] Clearly, estimates differ widely, not only between countries but also within countries. Elasticity estimates for the Netherlands are low compared to Germany and the US. Indeed, Schut and Hassink (2002) show that their estimation results imply that raising the premium for basic insurance is a profitable strategy for an average sickness firm, at least in the short run (Schut and Hassink, 2002, p. 1023).

One possible explanation for the large differences in price elasticities between the Netherlands and Germany is the fact that price differences are much larger in Germany. For example, in 2001 the out-of-pocket difference for basic coverage between the most expensive and the cheapest sickness fund in Germany was six times as high as in the Netherlands (407 versus 66 Euro per year, Schut et al., 2003, p. 134). Also the larger role of employers in choosing between health insurers, the fact that in the Netherlands sickness funds used to be regional monopolists; and the relatively short history of choice in the Netherlands may explain some of the differences between the two countries.

Table 7.1   Out-of-pocket elasticities of demand for health insurance: literature survey

Author	Period	Out-of-pocket elasticities
The Netherlands		
Schut and Hassink (2002), basic insurance	1996-1998	− 0.3
Schut and Hassink (2002, supplementary insurance	1996-1998	− 0.8
Schut and Hassink (2002), basic + supplementary insurance	1996-1998	− 0.4
Schut et al. (2003)[a]	1996-2000	− 0.0 - − 0.4
Germany		
Schut et al. (2002)[b]	1996-2000	0.4 - − 5.3
US		
Strombon et al. (2002)[c]	1994	− 0.2 - − 1.7
Royalty and Solomon (1999)[d]	1994-1995	− 0.1 - − 1.5

[a] Most estimates are insignificant, the only exception being pensioners where a significant coefficient is found for supplementary insurance (the elasticity is − 0.36).

[b] Positive elasticity applies to pensioners; not significant.

[c] Strombom et al. (2002) estimate total premium elasticities from which we have calculated out-of-pocket premium elasticities; the highest elasticities apply to young and to newly hired workers.

[d] Higher elasticities for younger, healthier workers; Royalty and Solomon (1999) also present much higher estimates based on a model including fixed effects. However, these are unrepresentative for the whole population since fixed effects logits can only be estimated on the part of the population that has actually switched.

[53] Buchmueller and Feldstein (1997) study switching behaviour in response to price changes. However, they do not report price elasticities.

New evidence on response to price

In this section, we summarise new empirical findings based on an empirical analysis of the complete records of all insured of each sickness fund in the Netherlands (for more details see Van Dijk et al., 2005). These data allow us to estimate average price elasticities for basic and supplementary insurance over the period 1992-2002 for different age groups, gender, level of realised health costs and employment status. A summary of the results is presented in Table 7.2. The numbers in the table represent the loss in market share that would result if a firm kept its price 1% higher than its competitors during each of the years 1996-2002. Due to differences in data and methodology, this result cannot directly be compared to those in Table 7.1. However, the main message of the two tables is the same: price elasticities are very low.

Table 7.2   Price elasticities 1992-2002

	Women	Men
Age 25-34	− 0.30	− 0.38
Age 35-44	− 0.17	− 0.25
Age 45-55	− 0.14	− 0.22
Age 25-34	− 0.30	− 0.38
	Women	Men
Age 25-34	− 0.18	− 0.22
Age 35-44	− 0.13	− 0.17
Age 45-55	− 0.12	− 0.16
Age 55-64	− 0.10	− 0.14

Source: Van Dijk et al., 2005.

7.4   Step II: Competition for market share

If switching costs are a serious barrier to competition, then it will be difficult for new firms to enter successfully, especially in a non-growing market. In such a setting new firms would have to gain market share by luring customers away from existing firms and high switching costs would make this difficult. In health insurance, although the total market is growing only slowly (at the speed of the growth in the insured population), each year a new cohort enters the market as young adults starting in their first job have to choose their own health insurer (school going adolescents usually are covered by their parents' policies). This implies that even if new firms would be able to enter the market successfully, this would still not prove that switching costs are low: it is possible that they cater exclusively to first-time ensured.

During the 1990s, seven new sickness funds entered the market. Two of these new entrants had been taken over by an existing firm by 2002. The remaining five new firms did not succeed in achieving a substantial market share. Indeed two of these remaining firms had already left the market by 2002. In 2002, the combined market share of all new entrants during the 1990s

amounted to 1.5%. This is consistent with high switching costs, but it does not prove high switching costs. Another explanation runs in terms of scale economies. Wholey et al. (1996) report substantial economies of scale for HMOs in the US, but these are almost completely exhausted at an enrolment level of 20 000. Applying this figure to the Dutch context would imply that efficient scale is reached at 0.2% of the market. Kok et al. (2000) report higher thresholds - 40 000 to 80 000 insured - based on interviews with health insurers. Still, these numbers do not seem insurmountable for a new entrant. All in all, the available evidence suggests that technological factors such as large fixed costs do not inhibit entry in this market.[54] A third possible reason for the limited amount of entry is the exclusion of for-profit insurance companies from this market in the Netherlands. However, Kok et al. (2000) report very little entry in the for-profit section of the Dutch health insurance market as well. We conclude that the low level of successful entry probably indicates high switching costs.

7.5   Step III: Switching costs and consumer welfare

By softening competition, high switching costs may lead to higher prices. Since every Dutch citizen is obliged (by law) to buy health insurance, total demand will not be affected by higher prices. This means that the traditional measure of economic welfare, the sum of consumer surplus and producer surplus, will be unaffected by high switching costs (apart from the direct costs of switching). In technical terms, there are no Harberger triangles. However, high prices that are caused by a lack of competition imply a transfer from consumers to insurers. In order to illustrate that this effect may be large, we present calculations based on the well-known theoretical finding that the price-cost margin equals 1 divided by (minus) the elasticity of residual demand, assuming profit maximising firms (this is known as the Lerner index; see the Appendix for technical details). See Table 7.3. The table shows that at the elasticities reported in section 7.4 (out-of-pocket elasticities of about -0.5, corresponding to total premium elasticities of about -2.5), the excess of price over marginal costs would be very large if health insurers would follow a purely profit maximising strategy.

These calculations look only at the static effects on consumer welfare. Welfare losses may well be higher because of possible dynamic effects, e.g. weak incentives for health insurers to negotiate with health providers. Therefore the estimates presented here constitute a lower limit on possible welfare effects.

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[54] This assumes similar levels of fixed costs for sickness funds in the Netherlands and managed care organisations in the US. If anything, managed care organisations probably face larger fixed costs than Dutch sickness funds given that managed care requires investment in selective contracting and in developing tools for managing care.

Table 7.3   Elasticities and price-cost margins

	Out-of-pocket elasticity:			
	− 0.5	− 1.0	− 1.5	− 2.0
Total premium elasticity	− 2.5	− 5.0	− 7.5	− 10.0
Price-cost margin (Lerner index)	0.4	0.2	0.1	0.1

Note: Since the out-of-pocket elasticity covers only about 20-25 percent of the costs of insurance (basic + supplementary), the total premium elasticity for the compete package (basic + supplementary insurance) is roughly 4 to 5 times as large as the out-of-pocket elasticity. We use the most optimistic of these figures.

We do not observe actual price/cost margins, so we cannot directly check whether insurance firms do indeed behave in the manner implied by Table 7.3. However, we do know the difference between actual total costs per insured and total revenue per insured (this includes direct premiums paid by insured, and payments from the risk-equalisation fund). According to calculations reported in Vektis (2005) gross profits were at most a few percent of total premium income, much lower than would be possible given the elasticity estimates. What explains this apparent deviation from profit maximising behaviour? There are various possible answers to this question:

Explanation 1: Price elasticities are higher at larger price differentials
The available elasticity estimates are based on fairly small differences in price. At the time of writing, the maximum spread between the cheapest and the most expensive sickness fund amounts to about € 10 per insured per month; in earlier years, differences were even smaller. It is quite possible that the firm-level elasticity goes up as price differences increase. At very small price differences, almost all consumers may judge that the gain form switching is not worth the effort. The measured price elasticity is then approximately zero. However, if price differences pass a certain threshold, most consumers may find that the cost of switching is smaller than the gain from switching. As a result, the number of consumers who find switching worthwhile may go up sharply.

Explanation 2: Sickness funds do not aim at maximising profits
As pointed out already, sickness funds are barred from making profit. This may prevent them from exploiting market power. This begs the question of what it is that sickness funds are maximising, if they are maximising anything at all. One possibility is that sickness funds go for an easy life, and refrain from bargaining seriously with health providers. This would lead to higher marginal and/or fixed costs of health care. However, because most prices are regulated and because sickness funds had to contract with most health providers, they had very little influence on the costs and behaviour of health providers. All this will change after the 2006 reforms.

Explanation 3: Sickness funds anticipate policy intervention in case of abuse of market power

If health insurers tried to exploit their market power to the full extent possible, this would probably be detected. The reason is that the cost of health insurance is to a large extent known to policymakers because of way the risk equalisation scheme is operated. Substantial abuse of market power would lead to actions by the competition authorities or the Ministry of Health.

Explanation 4: Sickness funds may face a binding reserve limit

Sickness funds are currently not allowed to build up financial reserves in excess of a specified maximum. In theory, this could act as a break on exploiting market power. If the reserve maximum is binding, further increases in reserves have to be handed back to the insured in the form of lower premiums. However, in practice this ceiling has not been binding except for a few funds in a few years.

A possible advantage of switching costs: incentives for prevention

High switching costs lead to a captive insured population. This has one possible advantage. Faced with large numbers of switching customers, insurers who invest heavily in prevention would risk that their insured switch to another insurer before the insurer benefits through lower future health costs from the investment in prevention. This may lead to a hold-up problem in which insurance firms find it impossible to recoup their investment in prevention. High switching costs could alleviate this hold-up problem.

Evidence from the US, where there is much more switching in health insurance than in the Netherlands, indicates that some preventive programs that have been shown to work are used only sparingly (Cutler 2004). For example, smoking cessation programs aimed at pregnant women have been shown to be quite successful (smoking during pregnancy is an important risk factor for low birth weight), but are seldom being implemented. Other examples are under use of mammography screening for women at risk for cancer, and cholesterol testing for people at risk for cardiovascular disease (ib.).

However, it is not clear that these cases of underinvestment in prevention are caused by excessive switching. Moreover, it is also possible that lower switching cost will stimulate investment in these types of preventive action. If consumers are willing to pay for prevention, then competition will induce insurance companies to invest in these services.

And even if lower switching costs cause a decline in investment by insurers in prevention, this could be partly countered by including specific preventive measures in the coverage of the basic insurance policy. In this connection, it is relevant to note that many preventive services are contractible, for example immunisation or physical examinations such as mammography for all women over 50 (Newhouse, 2002).

It is also important to note that despite the examples just mentioned, for an important class of preventive actions such as taking exercise, quitting smoking, and other lifestyle causes of ill-health, efforts by physicians such as counselling aimed at changes in lifestyle have not been

very effective (Cutler, 2002). If such lifestyle changes cannot be induced by doctors, then there is little point in fearing that lowering switching costs will stop insurance firms from investing in these types of prevention.

Moreover, even if the insured hardly switch, the incentives for insurers to invest in prevention may be small. This is because risk equalisation: if prevention leads to healthier insured, then this will lead to lower prospective payments out of the risk adjustment system.

To conclude, low switching costs may entail a risk of underinvestment in prevention by health insurance firms. How serious this risk is in practice is unknown. Indeed, lower switching costs may even stimulate rather than inhibit investment in prevention if investment in prevention improves the competitive position of a health insurance firm vis-à-vis its competitors. This suggests that the appropriate policy response to the risk of underinvestment in prevention is not keeping switching costs high. The fact that many preventive actions are contractible points in a different direction. First, preventive actions that have been shown to be cost-effective could be included in the government defined basic policy. Second, providers and/or insurance companies could be paid extra for providing such preventive services (this is proposed by Cutler (2004)).

7.6 Policy options for lowering switching costs

Is there a need for policy?

Existing regulation in the Netherlands already goes a long way towards ensuring easy switching between health insurers. As pointed out above, standardisation of the basic package along with annual open enrolment in basic health insurance should facilitate switching. Moreover, from 2006 group insurance will b stimulated by allowing discounts of up to 10% on the premium for basic insurance (currently such discounts are forbidden in social health insurance). If this induces employers to become active buyers of health insurance on behalf of their employees, then this may introduce a desirable dose of competition in this market.

Is there a need for additional policy measures? As a first step towards answering this question, we note is that the available evidence points to high switching costs, even though the evidence is not conclusive. This follows from the low level of switching observed in the market, low price elasticities of residual demand and the slow growth of new entrants in the health insurance market.

Are the consequences of high switching costs in health insurance sufficiently serious to warrant additional policy measures? In answering this it is important to distinguish the current institutional setting from the post-reform setting. There are three important differences. First, currently there is a ceiling on the financial reserves of non-profit insurers. This limits their ability to exploit any market power that they may have. Second, for-profit insurance firms will no longer be confined to the higher income groups. For- profits may have a greater incentive to exploit market power. Third, it may become more difficult to compare insurance policies across

insurers. This is because the new health insurance law allows for more differentiation of the basic insurance policy than the old law (more on this below).

All in all, there are good reasons for investigating additional policy measures for reducing switching costs in health insurance. In discussing the various policy options, we start with (almost) no-regret options. These could be implemented soon – indeed, most of these policies are already envisaged in some form or another in the reform plans. If, despite these measures, early experience still indicates a lack of competition due to high switching costs, then other policy options may be considered.

Improving transparency in the market for health insurance

In this market, improving transparency is a no-regret option.[55] Various policy initiatives are already underway to improve transparency in health insurance. For example, the government offers financial support for a website (kiesbeter.nl) that enables consumers to compare basic and supplementary insurance. The information on this website includes prices and various indicators of quality. Of course, such a policy will only increase transparency if the information is presented in an accessible way, and fits in with the needs of consumers.

Improving transparency of health providers

As pointed out in section 7.2, the reform plans will increase the scope for selective contracting by insurance companies with health providers. This will help insurance companies to negotiate competitive prices from health providers. However, it is important to make sure that the insured do not interpret a low price as a reflection of low quality. If the insured hold such a belief, insurance firms will have few incentives to contract selectively or to pass low costs on to consumers. In order to avoid this scenario, it would be helpful if quality differences between health providers would be made more transparent. Better still, the set of quality of indicators of health insurers could be expanded to include quality indicators for the contracted health providers.

In this connection, recent research for the US based on patients' willingness to travel is negatively correlated with actual post-operative mortality data (Kessler 2005) Apparently consumers' do respond to important indicators of health care quality. However, other recent research (again for the US) finds that health consumers primarily respond to subjective quality assessments of other consumers, and not to objective indicators such as mammography (screening for breast cancer). Moreover, subjective and objective measures are hardly correlated (Dafny and Dranove, 2005). This led these researchers to wonder whether quality information

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[55] In general, increasing transparency may facilitate collusion because transparency makes it easier to detect (and thus punish) deviators. However, in this market firms already know exactly what prices other firms are charging.

gives providers the right incentives. All in all, we conclude that there is a strong need for research on the type of information consumers find useful in choosing their health provider.

Another potential problem with more transparency is that incomplete quality information may lead to something akin to teaching to the test in education. By improving transparency for some quality measures but not for others (e.g., because these are hard to measure), health insurers and health providers have an incentive to focus on what is measured and neglect what is not.

Finally, if published performance measures are not adjusted for differences in patient severity, improving transparency may lead to selection of patients in order to improve quality ratings. Dranove et al. (2003) argue that this is what happened after the introduction of health report cards for cardiac surgery in New York and Pennsylvania: cost went up and health outcomes deteriorated, in particular for sicker patients. This suggests another important line for research, on the impact of quality information on provider behaviour.

Further standardisation of the new basic insurance policy

As indicated in section 7.2, in the new system insurers will be allowed to offer a greater menu of different policies for basic insurance than is currently the case. This may lead to greater choice in two dimensions: the size of the deductible (the annual expenditure on health care an insured has to pay out of his own pocket before the insurance firm takes over the bill) and the freedom of choice of health provider (depending on whether the insured has bought an indemnity policy or a preferred provider policy). Insurance firms will be allowed to offer policies with annual deductibles of € 0, 100, 200,300, 400 or 500 per insured.

The flipside of a larger menu of options to choose from, is a decline in transparency. Thus, there is a trade-off between freedom of choice and transparency. Do the reform plans incorporate the right choice on this trade-off? To begin with, allowing insurers to offer preferred provider policies is certainly a good idea, as this will enable insurance firms to bargain successfully with health providers. If health insurance firms would not be ale to steer their customers in some way, then there would be no need for health providers to enter into serious negotiations with health insurers.

However, in the case of deductibles, the answer is not so clear. Although the number of options has been restricted to six sizes of deductible, this may still lead to difficulties in comparing insurers, especially if not all insurers offer the full range. Thus, there may be a case for further restricting the range of deductibles.

Collective contracts

As was pointed out in section 7.4, one explanation for the much larger consumer sensitivity to price in Germany compared to the Netherlands is the greater role of German employers in choosing a health insurer. Premium discounts on collective contracts could elicit greater involvement of Dutch employers (or other parties, e.g. consumer organisations or labour

unions) in selecting health insurance companies. The fact that in the Netherlands, collective contracts figure much more prominently in private heath insurance (where discounts are allowed) than in social health insurance (where they are not), indicates that such a policy might be quite effective.

This option has been much debated in the Netherlands. In this debate, critics have pointed out that allowing unrestricted discounts would enable insurers to focus exclusively on the market for collective contracts. An insurance company could achieve this by setting a very high premium in the individual market and offering large discounts for collective contracts. If all insurance companies would follow the strategy just described, then consumers not covered by collective contracts would be forced to pay higher premiums. In effect, these consumers would be subsidising those insured under collective contracts.

For these reasons, the maximum discount for collective contracts has been set at 10% of the price in the individual market, which will amount to about 100 euro per insured. The 10% ceiling only applies to the basic policy. Insurers are allowed to offer unlimited discounts on supplementary policies. Given the fact that most consumers purchase supplementary insurance, this offers room for increasing the attractiveness of collective contracts. Moreover, the discount may apply only to the out-of-pocket premium paid by the consumer: employers do not benefit in the form of lower employer contributions to health insurance (although in the longer run employers may benefit if lower insurance premiums reduce wage demands). An added advantage of the maximum discount of 10% is that this may reduce prices in the market for individual contracts. This would happen if the 10% restriction became binding, if competition would force firms to lower prices for collective contracts and if collective contracts were profitable at larger discounts than 10% for insurance firms. Evidence for the US suggests that the last condition may well be fulfilled: discounts on collective contracts tend to be much larger than 10% (Newhouse, 2002).

Example setting by the government-as-employer

A possible disadvantage of collective contracts that has not featured in the debate in the Netherlands is that consumers may protest if they discover that their insurer restricts their choice of health provider, under a so-called preferred provider contract. Such consumer protest against employer-induced restriction in the choice of health provider has been an important factor behind the failure of managed care in the US. A suggested remedy is that employers offer a menu of contracts, including a preferred provider policy and an unrestricted policy (Enthoven 2003). The government as an employer could set an example in this respect, similar to the Federal Government in the US which for many years has been using this menu-approach under the Federal Employees Health Benefits Program. As an important side effect, this policy has also increased the transparency of the health insurance market for federal civil servants. This was achieved by a website that allows consumers to compare different health insurers (see http://www.opm.gov/insure/health).

Broadening the coverage of basic insurance

As argued above, switching costs may be caused by supplementary insurance. Open enrolment and standardisation of polices across insurers do not extend to supplementary insurance. These features of supplementary insurers are a (potential) source of switching costs if most consumers buy supplementary insurance. One way of reducing the number of consumers who opt for supplementary insurance would be to broaden the scope of the basic package. However, the benefits of such a policy in terms of reduced switching costs have to set against a number of disadvantages. First, this policy would reduce the freedom of choice. The minority of consumers who currently choose not to buy a supplementary policy would no longer have this option. Second, basic insurance is probably to a larger extent perceived as a tax on wages than supplementary insurance were there is a clear relationship between individual payment and individual benefit. Hence, basic insurance may lead to a larger disincentive to work than supplementary insurance.

Switching subsidies for consumers

Schut and Hassink (2002) find that the self employed who were forced in 2001 to choose a health insurer (they used to be privately insured) displayed a much larger sensitivity to price than others. A switching subsidy, if large enough, might have the same effect as forced choice. Since it is hard to predict the effects of a given switching subsidy, a limited policy experiment might be useful in order to explore the potential costs and benefits of such a policy. Such an experiment should focus on measuring the effect of a switching subsidy on actual switching and on the price elasticity of switchers. Only if a fairly modest switching subsidy leads to a large number of additional switchers *and* if these additional switchers have a high price elasticity will such a policy be worthwhile.

Extending open enrolment to supplementary insurance

A final policy option is to extend mandatory open enrolment to supplementary insurance. As has been argued above, the lack of transparency and the risk of being denied access to supplementary insurance, coupled with tying of basic and supplementary insurance, may lead to serious barriers to switching.

The fact that a small number of insurance firms have adopted such a policy voluntarily suggests that untying basic and supplementary insurance is technically feasible (i.e. efficiencies from economies of scope are probably small). However, implementing this option may nevertheless lead to various problems. First of all, there are probably serious legal barriers arising from the European insurance directives that make it impossible to impose open enrolment in supplementary insurance (Thomson and Mossialos, 2004). Second, it will be difficult to extend risk equalisation to supplementary insurance given the heterogeneity of supplementary insurance.

7.7   Switching costs in health insurance: concluding remarks

Although health insurers are not allowed to charge switching fees (as is the case in energy markets), there may still be significant switching costs in social health insurance. These costs could arise for two main reasons. First, search costs may be substantial since comparing policies of different insurers is not straightforward due to product differentiation. At the moment this mainly applies to supplementary insurance, but after the reforms there will be substantial scope for differentiation of basic policies as well. Second, since most insurers only offer supplementary insurance on the condition of purchasing basic insurance, high switching costs in supplementary insurance may reduce competition in the market for basic insurance.

Evidence on switching costs in social health insurance is mostly indirect. The annual number of switchers is low, consumers are not very sensitive to differences in price, and new firms find it hard to achieve a substantial market share (even if they set very competitive prices). On the basis of this evidence, we conclude that the losses in consumer welfare due to switching costs could be substantial. Therefore, policies to reduce switching costs in this market are warranted.

We have discussed various policy options for reducing switching costs, over and above the measures already included in the government plans. Each of these policies has serious costs and drawbacks which must be set against potential benefits in terms of lower switching costs. These policies should only be considered if transparency-improving policies turn out to be insufficiently effective. To determine this at an early stage, close monitoring of the nature and intensity of competition in the market for health insurance is recommended.

Appendix   The firm level elasticity and the price-cost margin

In deriving the results in table 5 in the text, we used the following theoretical relationship between the price-cost margin and the firm level elasticity of demand (see Motta, 2004, p. 133):

$$\frac{p-c}{p} = \frac{1}{-\varepsilon} \qquad (1)$$

The left hand side of this equation is the price-cost margin and ε equals the firm level or residual elasticity of demand. Eq. 1 follows directly from the first order condition of a profit maximising firm that:

a. Produces one differentiated good
b. Competes in prices and not quality
c. Has constant marginal costs.

Furthermore, we assume that in equilibrium, each firm takes prices of all other firms as given. This assumption corresponds to the Nash bargaining solution. With these assumptions in place, we proceed as follows. We start with the definition of firm profit:

$$\Pi = (p - c) \cdot q + C \qquad (2)$$

where:

Π	=	profits
p	=	price
c	=	marginal cost (assumed constant)
q	=	quantity (in this case, number of insurer)
C	=	fixed cost

Differentiating with respect to price and setting the result equal to zero yields the first order condition for profit maximisation:

$$\frac{d\Pi}{dp} = (p - c)\frac{dq}{dp} + q = 0 \qquad (3)$$

Rewriting yields the equation we used in the text:

$$\frac{p - c}{p} = \frac{dq}{dp}\frac{p}{q} = \frac{1}{-\varepsilon} \qquad (4).$$

8   Concluding remarks

High switching costs may have substantial effects on competition. The literature summarised in chapter 4 of this report sometimes finds significant effects of switching costs on prices and profits in different industries and countries. For example, in telecommunications in the US, some estimates indicate that prices have been 14% higher as results of switching costs. Other research finds that price-cost margins for gasoline in the US may have been 30% higher due to switching costs. Switching costs may have raised profits from retail lending by bank in Norway by16%.

In this report we presented and implemented a framework for assessing whether consumer switching costs are likely to have large implications for consumer welfare. The framework consists of three steps:

Step I.   Assess whether switching costs in the market under study are large. This will usually involve an analysis of the determinants of switching costs. If switching costs are small, there is no need for policy and the analysis can stop here. Otherwise continue to step II.

Step II.   Determine whether there is fierce competition for market share. An important criterion for judging this is the amount of new entry and the growth of new entrants. If competition for market share is fierce, then large negative effects of switching costs on consumer welfare are unlikely and the analysis can stop here. There is no need for government policy. Otherwise, continue to step III.

Step III: Estimate the loss in consumer welfare due to switching costs. Before deciding that there is a potential role for government policy in reducing switching costs or their consequences, we need some idea of the welfare effects of switching costs. Overall welfare losses due lower demand as a result of higher prices (the so-called Harberger-triangles) tend to be small. Therefore, the welfare costs of switching costs consist primarily of a transfer from consumers to firms. In addition switching costs may have dynamic effects that work through innovation and incentives to reduce costs. If the loss in consumer welfare is small, then the analysis can stop here. There is no need for government policy. Else continue to an analysis of policy options aimed at alleviating the consequences of switching costs.

The framework has been applied in two case studies for the Netherlands: the residential energy market and the market for social health insurance. The case study on energy shows that consumers perceive that switching costs are fairly high in the newly liberalised market for energy. The second case study indicates that switching in response to differences in price is

very limited in the market for social health insurance. Thus, consumer switching costs in these markets warrant special attention from policymakers.

In addition to these two case studies, we have also studied switching behaviour of a sample of consumers in different markets. Our empirical findings suggest that there are large differences in switching behaviour across markets. We also find that these differences are related to expected search and switching costs. Financial products can be characterised as low-interest products. This may warrant special attention of policymakers to these markets.

Measured household characteristics such as age, income and education do not have much power in explaining differences in switching behaviour, but unmeasured household characteristics do play a role. Unobserved characteristics that may affect switching could be aversion to paperwork, membership of consumer organisations or the amount of leisure. However, since by definition we do not know what the role of each of the unobserved factors is, this finding cannot be used as a basis for policy.

Turning to policy options for dealing with switching costs, our analysis indicates that there is no magic bullet. The appropriate policy response depends on the causes of switching costs and on the detailed institutional setting. For example, in cases where switching costs are due to restrictive contract terms (e.g. long-term contracts) the policy response will be different from cases in which switching costs are due to a lack of transparency. In determining the appropriate policy response for dealing with switching costs, it is also important to realise that switching costs may sometimes have advantages as well as disadvantages from the point of view of consumer welfare. These advantages are of three types.

- First, contracts with high switching costs may offer consumers protection against changes in prices. Examples are life insurance, mortgages, and energy contract with fixed prices. In these cases, if consumers could freely terminate these contracts in case of a fall in price, firms would only be willing to offer these contracts at higher prices (if at all).
- Second, switching costs may sometimes alleviate a hold-up problem, which arises if firms are uncertain whether they will reap the future returns from their investments. For example, health insurance firms may cut back on their investment in prevention activities if consumers frequently switch to another health insurer.
- Third, if consumers respond to incomplete information, lowering switching costs may lead firms to focus on characteristics on which consumers have information to the detriment of other characteristics. This may lower consumer welfare.

In cases where these advantages are substantial, it may be possible to achieve these beneficial effects of switching costs by other means. For example, the hold-up problem mentioned above may be alleviated by including specific prevention activities in the government-defined basic policy. Moreover, even if there are substantial advantages of higher switching costs, these must

be set against the often substantial disadvantages: less freedom choice, less scope for correcting errors in decision making, less competition and hence less innovation.

A final remark concerns the need for further research on transparency. As indicated at several points in this report, policymakers often seek to lower switching costs by improving transparency of prices and quality. This is understandable, since the costs of increasing transparency are often (but not always) low and since increasing transparency need not interfere with the freedom of firms to do business. However, little is known about the effectiveness of policies aimed at improving transparency. Do these policies really work? What type of information do consumers use in making their choices? What does this imply for the incentives facing firms? These are important topics for future research.

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