Search and Switching across Relationship Markets

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Abstract

We explore consumer behaviour in regulated and newly deregulated markets, using a specially commissioned consumer survey to analyse the way in which consumers search and switch in markets where they have an ongoing default relationship with their supplier. We use consumers' own expectations of savings to explain their anticipated gains from activity in the market and explore the factors which affect the costs of search and switching. We identify those related to individual characteristics, and to markets, and distinguish separately the effect on search and switching costs across eight markets, drawing policy conclusions for regulatory authorities from our findings.

Key words: consumer behaviour, sectoral regulation, deregulation

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1. Introduction

Consumers play an important rôle in maintaining the efficient workings of markets. The ability of consumers to compare between alternative market deals and select the one that best suits their needs is a key determinant in providing the incentives for firms to compete and yet, all too often, this ability is impaired. Socially damaging market power effects can result when consumers are unaware of the possibility of choosing between alternatives suppliers, when consumers face difficulty in identifying suppliers' product-price offerings (high search costs) or when consumers find it costly to change between different firms (high switching costs)[2]. Understanding exactly how this ability is impaired is vital for policymakers in several regards. Firstly, the optimal policy response may differ substantially between different types of problems. Improving consumers' access to information to reduce search costs and to improve awareness is quite different from reducing switching costs by for example, ensuring that consumers can open and close new bank accounts quickly and easily. Secondly, policy may need to be targeted to specific groups of consumers if certain consumer groups are more impaired than others or if certain groups play a more important role in the market than others. Finally, the problems may only exist in certain types of markets and so it is useful to know which markets suffer most, and moreover which sort of market characteristics have the largest impact in hindering consumer activity. This paper aims to improve current policy advice on these issues by separately analysing the search and switching decisions of a sample of consumers across a series of regulated and newly deregulated markets in the UK. The form and institutional arrangements for regulatory oversight vary considerably between the sectors examined, and our analysis provides and interesting perspective on such differences.

In the next section of the paper we discuss previous research on this topic, before offering an overview of the survey and the data in section 3. In section 4 the econometric methodology is discussed. Section 5 presents the results before section 6 discusses policy implications and concludes.

2. Literature

The empirical analysis of search and switching behaviour has largely consisted of two separate streams of literature that focus on the effects of either search or switching costs in isolation, while only a small set of papers has considered both of the costs.

Investigations into search behaviour for new products suggest that most consumers search surprisingly little. Individual level studies suggest, for example, that consumers search an average of 1.2 or 1.3 internet sites when considering buying a book or CD (Johnson et al., 2004) or approximately three dealers when looking for a new car (Moorthy et al., 1997). Recent work combines market level data with restrictions from theoretical models to recover estimates of the market distribution of search costs (Hortaçsu and Syverson, 2004; Hong and Shum, forthcoming). In the online market for memory chips, Moraga-González and Wildenbeest (2006) estimate that around

[2] See Baye et al (forthcoming) for a review of the potentially anti-competitive effects of search costs, and Farrell and Klemperer (2006) for switching costs. Wilson (2006) considers the effects of the two costs when consumers may face both costs.

20-30 % consumers search only once, 60-70% search two or three times and only 10% search all alternatives.

The empirical effects of switching costs have been analysed in many settings, as reviewed by Farrell and Klemperer (2006). Typically, individual level analyses find that consumer demographics explain very little of observed switching activity (Chen and Hitt, 2002; Kiser, 2002) and that switching costs can vary between firms, as also confirmed from studies using market level data (Shy, 2002; Kim et al., 2003).

More relevant for the purposes of this paper is the set of studies that consider both search and switching costs. Aside from Moshkin and Shachar (2002), these papers uses survey level data to understand more about consumers' decisions and the relative effects of search and switching costs[3]. Typically, the decision to switch suppliers is estimated as a function of the gains available from doing so and a set of demographic and individual variables to proxy search and switching costs. With the use of a survey of over 700 consumers in the UK gas market Giulietti et al. (2005) find that switching cost proxies appear to be the most influential factor in the decision to switch suppliers. While employing individually calculated measures for the monetary gains available from switching and controlling for the possibility that some consumers were not aware of the option to switch, they find that the effects of consumers' expectations of both the time it would take to switch and of the difficulty of switching were larger than the effects of search cost proxies or demographic variables. Rangel (2005) utilises a similar methodology across a series of nine different product markets in Holland. Rangel's approach provides the advantage of being able to compare switching behaviour across markets while allowing for unobserved consumer effects, but is limited in that the controls for the gains available only extend to a measure of whether each consumer considered the gains to be high or not. Rangel finds that search cost factors appear to be insignificant in the decision to switch. While these two studies are useful, their results, unlike Sturluson's (2002), are restricted by the inability to separate the decision to search from the decision to switch. Sturluson (2002) suggests the probability of switching is over four times higher for those consumers who have actively searched and that in contrast to Giulietti et al (2005), search costs exert a much larger effect than switching costs. However, this study is limited by the use of a questionable methodology to construct a measure of consumers' expectations of the savings available from switching.

By drawing on the strengths of each of the previous studies, this paper aims to provide a deeper understanding of consumer search and switching behaviour in several respects. To aid policymakers in understanding whether they should focus on attempts to reduce search or switching costs, like Sturluson (2002), the data allows us to identify separately consumers' decisions to search from their decisions to switch. Secondly, in order to help target policy at specific types of consumers and markets, like Rangel (2005), we can compare behaviours and decisions across a range of different markets. Finally, by using an estimate of consumers' expectations, we are

[3] Moshkin and Shachar (2002) introduce and implement a methodology to identify the how consumers are relatively constrained by the two costs. With only the use of panel dataset of US television viewers' choices they show that 71% of consumers' behaviour is more consistent with the existence of search costs.

able to control for the gains available from each decision in a way that is more rigorous than in some previous attempts.

3. The Survey and Data

The data we use are from a specially commissioned large scale survey administered in the summer of 2005**.** The survey was conducted by Market and Opinion Research International and carried out among a nationally representative (Great Britain, i.e. excluding Northern Ireland) sample of 2027 adults aged 16 or over, interviewed face-to-face, in-home, in 167 sampling points across Great Britain. The survey used quota sampling which followed the Government Office Region's set quota on demographics (age, gender, class etc.)

Respondents were asked which products the household consumed and paid for, from a list comprising gas, electricity, mobile phone, fixed phone line rental, national and overseas calls, broadband, house contents insurance, car insurance, mortgage, current bank account and piped water supply. These markets are similar in that they all require a 'relationship' between supplier and consumers which the consumer needs to sever in order to switch. But they differ in the degree of homogeneity of the product and the nature of regulatory oversight, the transparency of pricing structures and the information that consumers are likely to have about the charges levied by their own suppliers and others. Respondents were then asked whether they had a choice of supplier for each product in their region, to test their awareness of competition in the market. Virtually all respondents had a choice for all products, except for water, where no choice was available. The correct answer to the question about choice in water ("no") was used as a binary indicator of more general awareness, labelled 'savvy'. Analysis reported in this paper is restricted to those who were aware that they did have a choice in each relevant market (other than water), though we report on tests of robustness for this restriction. Respondents were selected if they were solely or jointly responsible for making decisions on who supplied the product in each market.

Further questions were asked about all these markets except gas and household insurance. In particular, for our purposes, respondents were asked about whether they had searched around for better deals and whether they had switched supplier in each market during the previous three years (other than when moving house). All respondents were asked how much they thought they could save in each market if they shopped around, and what potential gain would tempt them to search around for better deals.

We analyse each household and market as an individual observation, i.e. we regard our data as a panel across households and products. Each such household/market observation was included only if all the relevant variables were known for that case. Households were thus omitted if they did not provide one of the relevant demographic variables, in particular income, a question which 956 respondents (almost half the sample) either refused or responded 'don't know'. Household/market observations were omitted if the household did not have and pay for a particular product or if the respondent was not solely or jointly responsible for the choice of supplier in that market or did not provide a figure for the maximum expected gain which would trigger search. Our main analysis is also restricted to those who were aware of choice

for each product. For these reasons the number of observations included in the regressions reported below are much lower than the 2027 potential for each market, and the 14,189 cases across markets. Table 12 (in the appendix) compares the characteristics of the full samples (as far as they are known) with those which we have analysed. Although there were some consistent differences between the samples, none is significant at the 10% level**.**

Overview of Consumer Behaviour

A first perspective of consumers' market behaviour is presented in Table 1. Table 1 firstly lists the percentages of consumers who claimed to be aware of the possibility to switch suppliers in each market. Although 86% of consumers are aware of such a possibility on average across markets, policymakers may be concerned about the fraction of consumers who are not aware and especially the 32% who claim to be unaware in the broadband market.

Throughout the paper, we view the search and switching process as an investment decision. Consumers are assumed to decide to switch having either previously actively searched across some number of alternatives or having made no search at all beyond their chosen option. Thus, once consumers are aware of the possibility of choosing between alternatives, consumers face a two-stage choice problem – firstly whether or not to search and secondly whether or not to switch. The chosen outcomes of this choice problem are presented in the second part of Table 1, illustrating consumers' stated search and switching behaviour for each market (conditioning on consumers' awareness that choice exists). In aggregate only 23% of consumers made an effort to actively search in a market and only 16% actually chose to switch. These proportions vary quite widely across markets. Around 40% (30%) of consumers searched (switched) in the car insurance market, compared to only 8% (5%) in the market for current bank accounts. A perhaps surprisingly high proportion, 2.5%, of consumers switched providers without searching for the best deal.

Before providing a more detailed investigation of the determinants of such behaviour, in section 5, we can briefly offer some insights by considering the costs and benefits of searching. Informally, a consumer should decide to participate in active search if the expected savings from discovering better offers are larger than the associated search and switching costs[4]. Two questions in the survey allow us to compare consumers' estimates of the costs and benefits of search.

[4] Wilson (2006) presents this more precisely suggesting that the marginal search decision should depend on the expected savings, the cost of search and the cost of switching, conditional on the probability of finding a suitable switching alternative.

Table 1. Descriptive summary of levels of awareness, search and switching

Market (Market particpants, % aware)	% Searched?	Switched? Yes	No	Total
Avg Across Markets	Yes	14.3	8.8	23.1
(1178, 86%)	No	2.5	74.4	76.9
	Total	16.8	83.2	100.0
Electricity	Yes	20.0	8.0	27.9
(1559, 88%)	No	4.1	68.0	72.1
	Total	24.1	75.9	100.0
Mobile Phone	Yes	19.9	9.4	29.3
(1534, 90%)	No	4.1	66.6	70.7
	Total	24.0	76.0	100.0
Fixed Line	Yes	7.1	6.8	13.9
(1387, 84%)	No	1.3	84.9	86.1
	Total	8.3	91.7	100.0
Nat/Overseas Calls	Yes	10.8	6.6	17.4
(1289, 82%)	No	2.4	80.2	82.6
	Total	13.2	86.8	100.0
Broadband Internet	Yes	13.2	12.9	26.1
(555, 68%)	No	3.9	70.0	73.9
	Total	17.1	82.9	100.0
Car Insurance	Yes	26.9	13.2	40.1
(1016, 85%)	No	2.2	57.7	59.9
	Total	29.1	70.9	100.0
Mortgage	Yes	12.3	9.9	22.2
(597, 78%)	No	1.3	76.6	77.8
	Total	13.5	86.5	100.0
Bank	Yes	4.2	4.0	8.2
(1484, 93%)	No	0.7	91.2	91.8
	Total	4.8	95.2	100.0

Firstly, a proxy for the associated costs of searching and switching can be gained by using the responses obtained from asking the consumers for their estimate of the monthly levels of savings that would tempt them to begin searching the market for a new supplier. At such a level of savings – the reservation level of savings - expected benefits from searching are viewed by the consumer as just being equal to the associated costs of searching and switching. Table 2 reports consumers' responses across markets and compares their values with each market's average bill size.

Table 2: Reservation Levels of Savings and Bills across Markets

		reservation level of savings (£/month)		bill expenditure (£/month)	res level / average bill
Market	obs	average	(stdev)	average	
Avg Across Markets	4321	15.14	(17.59)	55.08	0.42
Electricity	775	11.63	(12.82)	35.82	0.32
Mobile Phone	821	10.01	(9.88)	25.69	0.39
Fixed Line	654	8.91	(8.80)	22.27	0.40
Nat/Overseas Calls	535	8.82	(9.57)	16.79	0.53
Broadband Internet	285	7.39	(5.19)	19.63	0.38
Car Insurance	594	19.54	(26.14)	53.90	0.36
Mortgage	322	67.20	(77.96)	427.89	0.16
Bank	335	6.89	(14.89)	7.32	0.94

The figure which consumers thought was the most they could save from 'shopping around' (in £s per month) was treated as the expected gain from search and switching in the regression analysis. Because we are interested in explaining consumer search and switching behaviour it is more relevant to use these values, as reported by the respondents, than actual or potential savings in the market, although the information we have on expenditure levels and current and previous suppliers enables us to make some calculations on actual and potential savings. We recognise that those who searched and/or switched are likely to have a more realistic estimate of such potential gains because of their experience; and there may be an element of resolving cognitive dissonance for those who have not searched, and particularly those who have not switched, to understate the potential savings from their (in) action. Nevertheless we believe that this expectation of potential gain variable is useful to explain consumers' engagement in search and switching behaviour.

We analysed switching behaviour across markets and in each market separately, and used a variable indicating whether the household had switched supplier in at least one other market in our survey as an independent variable, following the literature. Other independent variables were 'savvy' indicating that the respondent knew that there was no choice of supplier in piped water supply, and the usual demographic variables, including age, gender, education to bachelor degree level, household income, household structure and size, and whether the household is a pensioner household, lives in a rural area or was in receipt of a disability benefit. These last three categories encompass households whose needs some UK regulators have a statutory (but unspecified) responsibility to take into account. The other group whose needs they must take account of (added under recent legislation) is low income households.

We recognise that some of these independent variables are likely to be interdependent. In particular switching in other markets is, by our own argument and that of others in the literature, likely to be determined by some of these demographic variables. Some types of people are more likely to switch in several markets, or, put another way, those who do not switch in any markets are likely to have particular demographic characteristics. This may be because of intrinsic characteristics, or because they are targeted or more exposed to supplier marketing and/or more able to exercise choice and engage in search and switching activity. Such interdependencies are likely to emerge in our cross market analysis. Including the dummy which shows switching in another market allows identification of the particular demographic characteristics which affect search and switching in each particular market. Excluding it reveals a broader picture of who is likely to search and switch. Each is likely to be relevant for different policy purposes, and we compare our results for the two markets whose analysis we report with and without the 'switching in other markets' dummy.

Table 2 suggests that search and switching costs are largest in absolute terms in the markets for car insurance and mortgages, respectively requiring an average monthly saving of £19.54 and £67.20 for consumers to believe that search would be worthwhile. These figures compare with the other markets where reservation levels range between six and twelve pounds. Consumers will rarely choose to search if their monthly expenditure is insufficiently large to compensate for incurring high search and switching costs. Perhaps explaining the very low proportion of consumers choosing to switch bank accounts, the last column of Table 2 suggests that the average level of search and switching costs may equate to 94% of monthly

expenditure. The estimates in other markets are also fairly large, constituting between thirty and fifty percent of monthly expenditure, although costs in the mortgage market appear relatively low, at only 16% of monthly expenditure.

Consumers' estimates of the benefits from search were also reported in the survey, when consumers were asked for their expectations of the maximum monthly savings that could be obtained by shopping around for the best deal. Table 3 presents the responses to this question and compares them to average bill expenditure.

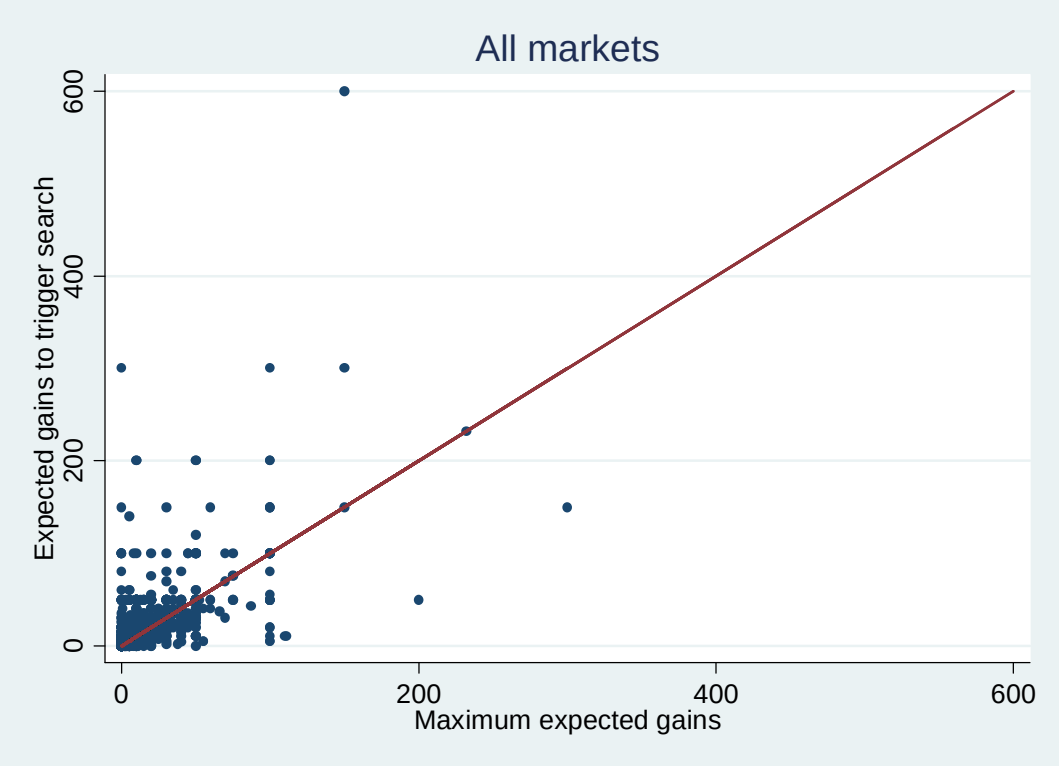
Table 3: Average Expected Savings from Searching and Switching

Market	obs	expected maximum gains (£/month) average	(stdev)	exp gains / average bill
Avg Across Markets	2999	9.38	(12.68)	0.29
Electricity	518	7.74	(10.40)	0.22
Mobile Phone	601	7.99	(11.17)	0.31
Fixed Line	420	6.03	(8.12)	0.27
Nat/Overseas Calls	352	6.60	(8.71)	0.39
Broadband Internet	218	5.69	(6.92)	0.29
Car Insurance	392	11.97	(16.42)	0.22
Mortgage	196	37.89	(43.60)	0.09
Bank	302	3.66	(9.81)	0.50

In comparison to Table 2, Table 3 shows that not only do the car insurance and mortgage markets have apparently high search and switching costs, they also appear to have high expected benefits from searching and switching. As a proportion of average expenditure, search appears most worthwhile in the bank account and national and overseas calls markets.

Depicting the responses to these two questions across markets in Figure 1 provides an overview of consumers' decisions. Consumers located below the 45° line would be expected to find it worthwhile to search (their reservation savings levels are exceeded by their expected gains) while those represented above the 45° line would not find search worthwhile (the expected gains are not inadequate to offset the anticipated search and switching costs).

Figure 1: Reservation Savings Levels vs. Maximum Expected Gains



The remaining sections of the paper investigate consumers' decisions further by separately estimating the determinants of choices to search and switch across markets.

4. Econometric model

Given that the default position is that consumers stay with their current suppliers, we view consumer change of supplier as a three-stage process, encompassing first awareness, secondly search, and thirdly switching. We analyse this three-stage process in the eight markets, ($k = 8$), listed above, by modelling the switching decision of a consumer as a two-stage decision process conditioned on awareness that a choice of suppliers exists in each market. The underlying process of search and switching decisions is represented by the latent variable model described in the following relationships,

$$y^*_{ik1} = X'_{ik1}\beta_1 + \varepsilon_{ik1} \quad (1)$$

$$y^*_{ik2} = X'_{ik2}\beta_2 + \varepsilon_{ik2} \quad (2)$$

where *ik* indicates the *i*th consumer in the *k*th market, the subscript 1 relates to the search decision and the subscript 2 to the switching decision. The error terms, ε_{ik1} and ε_{ik2} are assumed to be normally distributed but not necessarily independent of each other. The column vector X_{ik1} in equation (1) identifies a set of factors affecting search decision and the vector X_{ik2} in equation (2) represents factors affecting the decision to change supplier. Since the two decisions are believed to be closely

correlated, the model includes the same set of variables as factors affecting search and switching decisions.

Consumers who have searched are observed as $y_{ik1}=1$ if $y^{*}_{ik1}>0$, and those who have switched suppliers are observed as $y_{ik2}=1$ if $y^{*}_{ik2}>0$. We analyse the search and switching decision process using a bivariate probit model, allowing some degree of correlation between the unobserved factors affecting the two stages of the decision captured in ε_{ik1} and ε_{ik2}.

The likelihood function of this bivariate probit model (Greene 2002) is:

$$\begin{aligned}\ln L(\beta_1,\beta_2,\rho)=\sum_i\sum_k\{&y_{ik1}y_{ik2}\ln F(X_{ik}\beta_1,X_{ik}\beta_2;\rho)\\&+y_{ik1}(1-y_{ik2})\ln\left[\Phi(X_{ik}\beta)-F(X_{ik}\beta_1,X_{ik}\beta_2;\rho)\right]\\&+(1-y_{ik1})\ln\Phi(-X_{ik}\beta)\}\end{aligned}\tag{3}$$

The joint probability that individual *i* in the *k*th market searches between alternative suppliers and switches to another supplier is

$$P(y_{ik1}=1,y_{ik2}=1)=\Phi_2(X'_{ik}\beta_1,X'_{ik}\beta_2,\rho)\tag{4}$$

where Φ_2 is the cumulative distribution function of the bivariate standard normal and ρ indicates the degree of correlation between the error terms ε_{ik1} and ε_{ik2}. The unconditional probability that a consumer will search is:

$$P(y_{ik1}=1)=\Phi(X'_{ik}\beta_1)\tag{5}$$

The marginal effects of different factors on the probability of searching and switching supplier are calculated based on the probability of changing supplier, conditional on having searched around for alternative suppliers.

$$P(y_{ik2}=1|y_{ik1}=1)=\Phi_2(X'_{ik}\beta_1,X'_{ik}\beta_2,\rho)/\Phi(X'_{ik}\beta_1)\tag{6}$$

Although we obtain the marginal effects of each factor only for those who have both searched and switched supplier, $P(y_{ik2}=1|y_{ik1}=1)$, probabilities of other combinations are predicted from the estimation, viz: not searching and switching $P(y_{ik2}=1|y_{ik1}=0)$; searching but not switching $P(y_{ik2}=0|y_{ik1}=1)$; and neither searching nor switching $P(y_{ik2}=0|y_{ik1}=0)$.

Our measure of expected gains is that reported by consumers. We do not use direct measures for individuals' search/switching costs, but we follow the literature in this area by proxying the anticipated costs of such activity by a series of demographic variables which have been shown to be related to search and switching costs in

previous studies. These include consumer characteristics which are measured by the usual demographic variables, and we later distinguish between those which are individual characteristics, and likely to be constant across markets for each consumer, and those which are market related because of the nature of the product. We refer to these as intrinsic or market characteristics. This latter classification includes the activity of suppliers, even though their activity may be targeted at particular groups of individuals within that market (see Giulietti et al. (2005) for a fuller discussion of this distinction in the gas market). We also include the variable 'savvy' as a characteristic to identify the effect of a householder's more general knowledge about market choice (or lack of it) in water, which we believe would increase awareness of choice in other markets, and may lower search costs, but which might not necessarily affect switching costs. We also include a dummy to show whether consumers have switched in at least one other market in our study, which we would expect to lower the costs of switching in the market under consideration because of the experience of the switching process gained. In the cross market comparison, this dummy represents whether consumers have switched supplier in more than one such market.

Table 4 summarises the variables of both market activity indicators and demographic characteristics.

Table 4: Summary Statistics of Market and Demographic Variables

Variable	Description	Mean	(Std Dev)	Min	Max
Activity in any individual market:					
awyes	Aware of choice	0.83	(0.37)	0.00	1.00
seyes	Searched	0.13	(0.34)	0.00	1.00
swyes	Switched	0.10	(0.30)	0.00	1.00
swother	Switched in other markets (yes=1)	0.40	(0.49)	0.00	1.00
Demographics:					
age	Age (divided by 100)	0.43	(0.18)	0.15	0.99
agesq	Age squared	0.22	(0.17)	0.02	0.98
gender	Gender (male=1)	0.47	(0.50)	0.00	1.00
eduuni	University educated	0.19	(0.39)	0.00	1.00
hincc	Household income (annual, divided by 100(	13.05	(18.64)	0.00	120.0
hinccsq	Household income squared	518	(1396)	0.00	14400
htpension	Pensioner household	0.16	(0.36)	0.00	1.00
htsingle	Single household	0.18	(0.38)	0.00	1.00
htadultsonly	Adults only household	0.38	(0.49)	0.00	1.00
htsingparent	Single parent household	0.10	(0.30)	0.00	1.00
disben	Disability benefit recipient	0.08	(0.27)	0.00	1.00
rural	Rural household	0.15	(0.35)	0.00	1.00
savvy	Proxy for knowledge/sense	0.40	(0.49)	0.00	1.00
Sample size		16216			

5. Results

We report the results across the markets, and for two markets individually - electricity, which showed the highest rate of switching, but with comparatively low potential gains, and the mortgage market, which had a lower rate of switching, but with potentially high gains from doing so.

Estimations of the model were made, selectively identifying the best use of demographic variables by comparing the likelihood ratios and the goodness of the fit measured by the McFadden's likelihood ratio index (LRI). Goodness of fit, although relatively low, is comparable to similar studies (Giulietti *et al.* (2005)). Firstly, the estimations for the electricity and mortgage markets are reported in Tables 5 and 6 respectively.

In the electricity market, reported in table 5, we observe that those consumers who attained university level education or above and who have switched in other markets are more likely to search and more likely to switch. In contrast, age and gender appear to affect only switching. The age effect on switching is significant and presents a U-shaped relationship with a turning point at the age of 40, though the inclusion of pensioners in the estimation, even though the associated coefficients are not significant, means we should interpret this result with care. Males are also less likely to switch which coincides with the results of Sturluson (2002) for switching given search, but contrasts with Moshkin and Shachar (2002) who suggest women have significantly higher search and switching costs. Further, the expected maximum gains appear to have a positive effect on switching although the impact on search is not significant, perhaps because consumer's estimates of the gains are more certain at the time of the switching decision. This result is in line with the findings in Giulietti *et al.* (2005), Rangel (2005) and Sturluson (2002). We note that where the same factors affect both search and switching costs (education and switching in another market), the coefficients in the two equations are not significantly different from each other.

The results for mortgages in Table 6, where switching levels are lower than in electricity, contrast in two main respects with the results in table 5. Firstly, expected maximum gains have insignificant effects on both search and switching. Consumers' decisions seem motivated by other unknown factors that do not relate to their expectation of the monetary savings available. This would be relevant if official campaigns emphasise potential savings from switching, which our results suggest would have little affect in encouraging consumer activity. Secondly, the age effect now shows an *inverted* U-shaped relationship for switching, with a turning point at age 37. This effect is made somewhat more complicated by the positive coefficient for pensioner households, although very few pensioners had mortgages within the sample and an even smaller number had switched mortgage provider in the previous three years. As in the electricity market, we find the effect of switching experience in other markets for both search and switching is positive, and that the coefficients for each activity are not significantly different from each other.

Table 5: Estimations of Search and Switching in the Electricity Market [5]

	Search		*Switch*		*Marginal Effect Pr(seyes=1,swyes=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.009	1.53	0.013	2.07**	0.004	2.05**
	(0.006)		(0.006)		(0.002)	
age	-2.734	-1.04	-6.317	-2.28**	-1.565	-2.06**
	(2.639)		(2.770)		(0.759)	
agesq	3.066	1.02	7.861	2.49**	1.915	2.21**
	(3.012)		(3.155)		(0.865)	
gender	-0.153	-1.19	-0.232	-1.72*	-0.062	-1.71*
	(0.128)		(0.135)		(0.037)	
eduuni	0.339	2.36**	0.360	2.41**	0.114	2.48**
	(0.144)		(0.149)		(0.046)	
hincc	0.010	1.33	0.011	1.43	0.003	1.55
	(0.008)		(0.008)		(0.002)	
hinccsq	0.000	-1.18	0.000	-0.80	0.000	-1.04
	(0.000)		(0.000)		(0.000)	
htpension	0.006	0.02	-0.345	-1.06	-0.071	-0.92
	(0.316)		(0.326)		(0.078)	
htsingle	-0.067	-0.35	-0.064	-0.32	-0.019	-0.37
	(0.188)		(0.198)		(0.052)	
htadultsonly	-0.060	-0.39	-0.241	-1.46	-0.055	-1.27
	(0.155)		(0.164)		(0.043)	
htsingparent	-0.172	-0.78	0.007	0.03	-0.018	-0.30
	(0.220)		(0.226)		(0.060)	
disben	0.259	1.15	0.109	0.45	0.048	0.67
	(0.226)		(0.240)		(0.072)	
savvy	0.145	1.17	0.118	0.92	0.039	1.08
	(0.123)		(0.129)		(0.036)	
rural	0.149	0.88	0.224	1.29	0.064	1.20
	(0.169)		(0.174)		(0.053)	
swother	0.558	4.51***	0.664	5.11***	0.194	5.34***
	(0.124)		(0.130)		(0.036)	
constant	-0.321	-0.55	-0.023	-0.04	-	-
	(0.579)		(0.604)		-	

Summary Statistics	
n	490
Log-Lik	-473.9
LR(30)	67.3***
McF R2	0.07
rho	0.86
LR	181***

Predicted Outcomes		
	Switched?	
Searched?	Yes	No
Yes	0.24	0.12
No	0.04	0.60

[5] Unless otherwise stated all tables refer to significance levels by using * to denote difference from zero at 10% significance; ** at 5% and *** at 1%. The LR(.) statistic refers to a likelihood ratio test for the joint significance of all coefficients. Rho refers to the estimate of the correlation between the two equation's error terms, whose difference from zero is denoted by LR. The default consumer is female, living in a non-pensioner household of adults and children in an urban area having not switched in more than one other market.

Table 6: Estimations of Search and Switching in the Mortgage Market

	Search		*Switch*		*Marginal Effect Pr(seyes=1,swyes=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.001	0.46	-0.002	-0.75	0.000	-0.67
	(0.002)		(0.003)		(0.001)	
age	8.528	1.04	23.094	2.09**	5.041	2.11**
	(8.217)		(11.054)		(2.391)	
agesq	-13.535	-1.34	-30.768	-2.19**	-6.762	-2.24**
	(10.136)		(14.031)		(3.014)	
gender	-0.003	-0.01	-0.269	-1.11	-0.056	-1.05
	(0.212)		(0.242)		(0.053)	
eduuni	-0.245	-0.98	-0.145	-0.53	-0.035	-0.62
	(0.251)		(0.276)		(0.056)	
hincc	-0.004	-0.44	0.013	1.08	0.003	0.98
	(0.010)		(0.012)		(0.003)	
hinccsq	0.000	0.77	0.000	-0.68	0.000	-0.60
	(0.000)		(0.000)		(0.000)	
htpension	0.134	0.15	2.212	2.01**	0.193	0.62
	(0.882)		(1.102)		(0.310)	
htsingle	0.321	0.95	0.460	1.29	0.120	1.15
	(0.339)		(0.357)		(0.104)	
htadultsonly	-0.334	-1.37	-0.397	-1.44	-0.085	-1.54
	(0.244)		(0.276)		(0.055)	
htsingparent	0.166	0.36	-0.252	-0.41	-0.049	-0.44
	(0.467)		(0.623)		(0.111)	
disben	0.093	0.19	0.138	0.27	0.033	0.25
	(0.485)		(0.516)		(0.132)	
savvy	0.105	0.50	-0.048	-0.21	-0.008	-0.16
	(0.211)		(0.234)		(0.052)	
rural	0.344	1.28	0.453	1.57	0.118	1.41
	(0.268)		(0.289)		(0.084)	
swother	0.706	3.12***	0.970	3.54***	0.188	4.16***
	(0.226)		(0.274)		(0.045)	
constant	-2.126	-1.29	-5.616	-2.58	-	-
	(1.643)		(2.173)		-	

Summary Statistics	
n	193
Log-Lik	-147.91
LR(30)	52.9***
McF R2	0.15
rho	0.95
LR	68.8***

Predicted Outcomes		
	Switched?	
Searched?	Yes	No
Yes	0.19	0.12
No	0.02	0.67

Having considered the two separate markets, electricity and mortgage, we now turn to a cross-market comparison, including the responses from all the survey's product markets. Table 7 shows the results across markets for consumers aware of choice in each market.

Table 7: Estimations of Search and Switching Across All Markets (Electricity – Default)

	Search		*Switch*		*Marginal Effect Pr(seyes=1,swyes=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.003	1.71*	0.001	0.74	0.000	1.11
	(0.002)		(0.002)		(0.000)	
age	-2.274	-2.07**	-3.525	-3.05***	-0.836	-3.03***
	(1.101)		(1.155)		(0.276)	
agesq	1.109	0.85	3.106	2.28**	0.665	2.04**
	(1.301)		(1.363)		(0.325)	
gender	0.030	0.57	-0.027	-0.48	-0.003	-0.19
	(0.053)		(0.056)		(0.013)	
eduuni	0.108	1.76*	0.120	1.86*	0.032	1.95*
	(0.061)		(0.064)		(0.016)	
hincc	0.001	0.40	0.004	1.32	0.001	1.17
	(0.003)		(0.003)		(0.001)	
hinccsq	0.000	1.12	0.000	-0.70	0.000	-0.21
	(0.000)		(0.000)		(0.000)	
htpension	0.108	0.75	-0.065	-0.43	-0.005	-0.14
	(0.143)		(0.150)		(0.036)	
htsingle	0.064	0.76	0.019	0.21	0.009	0.39
	(0.085)		(0.091)		(0.022)	
htadultsonly	0.066	1.05	0.023	0.34	0.010	0.60
	(0.063)		(0.066)		(0.016)	
htsingparent	-0.017	-0.16	0.091	0.84	0.015	0.56
	(0.104)		(0.109)		(0.027)	
disben	0.073	0.71	0.146	1.36	0.034	1.22
	(0.103)		(0.108)		(0.028)	
savvy	0.068	1.25	0.010	0.17	0.007	0.53
	(0.055)		(0.058)		(0.014)	
rural	0.124	1.68*	0.212	2.76***	0.052	2.53**
	(0.074)		(0.077)		(0.020)	
swother	0.603	11.28***	0.797	13.74***	0.197	14.31***
	(0.053)		(0.058)		(0.014)	
mobile	0.116	1.42	0.147	1.74*	0.038	1.73*
	(0.081)		(0.085)		(0.022)	
fixed line	-0.474	-4.97***	-0.599	-5.76***	-0.121	-7.74***
	(0.095)		(0.104)		(0.016)	
nat/oversea	-0.361	-3.66***	-0.349	-3.34***	-0.081	-4.40***
	(0.099)		(0.104)		(0.019)	
broadband	-0.292	-2.59***	-0.309	-2.57***	-0.071	-3.26***
	(0.113)		(0.120)		(0.022)	
car insur	0.435	4.86***	0.264	2.86***	0.091	3.33***
	(0.090)		(0.092)		(0.027)	
mortgage	-0.394	-3.12***	-0.490	-3.60***	-0.100	-4.84***
	(0.126)		(0.136)		(0.021)	
bank	-0.920	-7.81***	-1.092	-7.89***	-0.177	-15.09***
	(0.118)		(0.138)		(0.012)	
constant	-0.100	-0.42	-0.256	-1.02	-	-
	(0.239)		(0.251)		-	

Summary Statistics	
n	2843
Log-Lik	-2542
LR(44)	551***
McF R2	0.10
rho	0.84
LR	891***

Predicted Outcomes		
	Switched?	
Searched?	Yes	No
Yes	0.21	0.12
No	0.03	0.63

Table 7 does not include any interaction terms, which we will include in future analysis, where we will identify parsimonious equations, taking account of the different patters identified within each individual market. The effect of age is one such factor, with its contrasting effect on the mortgage and electricity markets. However we expect some of the results from the simplified model reported in table 7 to be replicated.

We observe that as in the single market results, most demographic and all market variables affect search and switching decisions similarly. The market dummy variables appear to explain a large proportion of consumers' decisions – there appear to be both high search and high switching costs in the markets for fixed line phone services, national and overseas calls, broadband, mortgage and bank accounts relative to the default electricity market. Although we cannot from our results directly suggest which features of these markets provide higher costs to discourage consumer search and switching, such results can guide policymakers to these markets when attempting looking to stimulate consumer decision making. .

The demographic variables appear to explain little of consumers' decisions, as found in previous research. Policy may be best targeted at specific markets rather than specific consumer groups. The effects of age remain significant for the switching decision providing a U-shaped relationship with a turning point at age 57, around retirement. Given the different effects in the mortgage market, we will explore further the effect of age and pensioner households, using interaction terms, in developing this analysis. The results in table 7 suggest that older people also have higher search costs. Education level is again significant and positive for both search and switching. Those who reside in a rural area are more likely to search and switch and experience of switching in more than one market also has a positive impact on both search and switching.

Across markets, expected maximum gains have a significant and positive impact on search, as expected, but the size of the impact is rather small, whilst the impact on switching is insignificant, as are the marginal effects of expected gains on the combined activity.

To assess the robustness of these findings, Table 8 in the appendix reports the results of estimating the cross-market regression using both the consumers who claimed to be aware of the ability to choose suppliers as well as those who were unaware. Aside from the effects of education, the results are very similar to those previously reported. However, the size of each effect appears weaker when using both samples, showing the improved predictability of only using the aware sample of consumers.

As a further test of robustness, and to address some concerns over the interpretation of the coefficient on the variable 'swother', which indicates switching experience in other markets, we repeated the estimations reported in Table 5 to 7, but excluding the swother and the disability benefit variable (=disben) (which had showed no significance or sizeable impact in our earlier analysis). The results are shown in the appendix, tables 9-11. The variable swother is likely to be jointly determined by the other explanatory demographic variables and its inclusion may obscure other effects. As anticipated, some other demographic variables do indeed become significant, while most previously significant variables remain unaffected. Household income

now plays a positive effect in both search and switching within the electricity market while the 'savvy' variable becomes significant in search across markets in Table 11.

All our results show a high positive correlation between the residuals of the two paired equations, as expected, indicating that both search and switching costs are dependent on variables omitted from our analysis.

6. Policy Implications and Conclusions

We have assumed that increased consumer activity in markets is beneficial. If authorities wish to increase such behaviour they can do so by raising consumer expectation of gains, or by reducing the anticipated costs of search and switching. The former raises the difficult issue of interpreting large potential gains. These might arise because markets are working well dynamically, but it might equally mean that there is an incumbent mark up reflecting market power. Conversely very similar prices (and few potential gains) might reflect healthy competition, or lackadaisical rivalry and collusion, either explicit or tacit. This was reflected in the different situations in the newly deregulated UK electricity market (Salies and Waddams Price 2004). From a welfare perspective, large gains available because of strong rivalry from entrants which puts downward pressure on prices is advantageous; while high gains because of incumbency power may facilitate co-ordination within the market and lead to higher prices. Thus while large rewards for switching may increase consumer activity, their presence in the market may be beneficial or harmful, depending on their source.

If consumers are to be more active in changing suppliers, the expected gain from such activity needs to outweigh anticipated costs. These are indicated by the reservation, or 'trigger' value of savings required to initiate search. Consumer activity will increase as this reservation value falls, relative to expected available gains. As a proportion of the bill, this value is highest (on average) for current bank accounts, explaining the very low level of switching in this market. In contrast, the high absolute reservation value for mortgages represents a relatively low proportion of most people's commitments in that market. Our analyses help to identify what raises these reservation values for different consumers and in different markets.

We investigated the effect of awareness, and the costs of search and of switching on consumer activity. The similarity of results when we include consumers who are unaware of choice in our analysis suggests that this does not make a great deal of difference, and so increasing awareness is unlikely to be sufficient to increase consumer activity. However the lower costs for those who are aware suggest that some work in this area may be beneficial. We also find that that increasing general awareness of choice possibilities lowers search and switching costs, so some general education about markets is likely to be beneficial.

In terms of the costs themselves, authorities need to identify where search or switching costs are high, which of these seems to be affecting the level of consumer activity, and whether these characteristics are intrinsic, in which case specific groups might be targeted to reduce individual's costs; or whether they are market related, so that a more general campaign, or change of behaviour by suppliers, might increase consumer search and switching.

Some characteristics, for example age and living in a rural area, sometimes affect switching but not search costs, suggesting that the mechanics of switching could be made easier for certain groups. Of the groups for which regulators have specific responsibility, namely pensioners, the disabled and chronically sick, those living in rural areas and low income households, those living in rural areas seem to have lower costs, while low income groups sometimes seem to face more barriers. Other factors, particularly experience of switching in another market, seem to lower both search and switching costs by similar amounts. We also find that the factors which affect market specific costs have a similar impact on both cost categories. Action to reduce barriers which are specific to markets or related to consumer experience are therefore likely to lower both search and switching costs.

Our analysis of intrinsic characteristics which affect the costs of activity in the markets suggests that particular age groups could be targeted to lower both search and switching costs, though the age groups who incur higher costs seem to vary, partly because of different consumption patterns within markets. We also found that men sometimes have higher switching costs than women, again suggesting guidance for targeted education and assistance.

In terms of factors which raise the costs of activity for different markets, we find that costs are highest in the current account sector, and lowest for fixed telephone lines. Since switching in one market is so influential in lowering costs elsewhere, authorities might feel that encouraging switching in comparatively 'low cost' markets would be a useful way of spreading the practice across several markets. We also note a great deal of similarity between search and switching behaviour in the mobile telecoms and electricity market, which may provide a useful lever for increasing consumer activity in both.

The ways in which regulators intervene depend on the industry and the regulatory institutions. In the UK, the energy and telecoms regulators have been directly involved in deregulation of the industries and encouraging consumer choice, while the financial services regulator has been concerned with different issues. Levels of awareness of choice do not differ consistently between energy/telecoms and the financial sector, but, apart from car insurance, search and switching costs are higher for consumers in financial markets than in electricity, although choice has been available in them for much longer. Since the current chairman of the financial regulatory body was formerly the energy regulator, he may be able to facilitate the transfer of good practice in this regard.

In common with other studies we have assumed that more consumer activity is beneficial, and our analysis has focused on its costs. Our results provide information about the personal burdens which consumers incur, and this can help authorities (government and regulators) assess the merits of increasing consumer participation in markets. On the one hand, efficient search and switching disciplines the market, so that price levels are likely to be lower, benefiting all consumers (though not necessarily equally, even in proportion to their consumption). On the other hand, consumers incur individual costs in undertaking such activity, and so there is a balance to be struck between benefits and costs, both overall and in terms of which individuals are likely to incur the highest costs. In targeting limited resources, authorities could either encourage activity amongst those with lowest costs, or reduce

the barriers which consumers with high costs face. Moreover it is not clear how much switching is 'enough' to discipline suppliers, nor how this figure varies between markets. In developing this paper we will examine the direct measure of consumer costs to shed further light on these questions.

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Appendix:

Table 8: Estimations of Search and Switching Across All Markets with Both Aware and Unaware Consumers

	Search		*Switch*		*Marginal Effect Pr(se=1,sw=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.003	1.73*	0.002	0.92	0.000	1.27
	(0.002)		(0.002)		(0.000)	
age	-2.294	-2.14**	-3.404	-3.03***	-0.797	-3.04***
	(1.071)		(1.125)		(0.262)	
agesq	1.077	0.85	2.963	2.24**	0.621	2.01**
	(1.263)		(1.326)		(0.309)	
gender	0.055	1.06	-0.007	-0.12	0.003	0.25
	(0.052)		(0.055)		(0.013)	
eduuni	0.088	1.47	0.096	1.52	0.025	1.61
	(0.060)		(0.063)		(0.015)	
hincc	0.001	0.20	0.003	1.06	0.001	0.90
	(0.003)		(0.003)		(0.001)	
hinccsq	0.000	1.27	0.000	-0.47	0.000	0.03
	(0.000)		(0.000)		(0.000)	
htpension	0.126	0.92	-0.068	-0.47	-0.004	-0.13
	(0.138)		(0.146)		(0.034)	
htsingle	0.087	1.05	0.058	0.66	0.018	0.82
	(0.083)		(0.089)		(0.022)	
htadultsonly	0.069	1.12	0.028	0.43	0.010	0.69
	(0.061)		(0.065)		(0.015)	
htsingparent	-0.017	-0.16	0.088	0.83	0.014	0.55
	(0.102)		(0.107)		(0.026)	
disben	0.085	0.85	0.132	1.27	0.032	1.20
	(0.099)		(0.104)		(0.027)	
savvy	0.074	1.38	0.018	0.31	0.009	0.68
	(0.053)		(0.056)		(0.013)	
rural	0.106	1.48	0.190	2.53**	0.045	2.31**
	(0.072)		(0.075)		(0.019)	
swother	0.623	11.92***	0.813	14.29***	0.198	14.87***
	(0.052)		(0.057)		(0.013)	
mobile	0.146	1.82*	0.164	1.96**	0.043	2.01**
	(0.080)		(0.084)		(0.021)	
fixed line	-0.502	-5.42***	-0.623	-6.18***	-0.122	-8.41***
	(0.093)		(0.101)		(0.015)	
nat/oversea	-0.332	-3.49***	-0.365	-3.60***	-0.080	-4.57***
	(0.095)		(0.101)		(0.018)	
broadband	-0.226	-2.07**	-0.292	-2.5**	-0.063	-2.96***
	(0.109)		(0.117)		(0.021)	
car insur	0.462	5.24***	0.277	3.04***	0.094	3.53***
	(0.088)		(0.091)		(0.027)	
mortgage	-0.372	-2.97***	-0.464	-3.45***	-0.093	-4.58***
	(0.125)		(0.134)		(0.020)	
bank	-0.865	-7.49***	-1.019	-7.63***	-0.165	-14.17***
	(0.115)		(0.134)		(0.012)	
constant	-0.139	-0.60	-0.311	-1.27	-	-
	(0.233)		(0.245)		-	

Summary Statistics	
n	2999
Log-Lik	-2643.8
LR(40)	576.3***
McF R2	0.10
rho	0.84
LR	934***

Predicted Outcomes		
	Switched?	
Searched?	Yes	No
Yes	0.21	0.12
No	0.03	0.64

Table 9: Estimations of Search and Switching in the Electricity Market without SWOTHER and DISBEN

	Search		*Switch*		*Marginal Effect* *Pr(seyes=1,swyes=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.010	1.64	0.014	2.26**	0.004	2.22**
	(0.006)		(0.006)		(0.002)	
age	-2.065	-0.80	-5.401	-2.01**	-1.339	-1.76*
	(2.591)		(2.684)		(0.760)	
agesq	2.082	0.71	6.502	2.13**	1.570	1.82*
	(2.952)		(3.046)		(0.864)	
gender	-0.169	-1.34	-0.227	-1.74*	-0.065	-1.77*
	(0.126)		(0.131)		(0.037)	
eduuni	0.391	2.77***	0.427	2.93***	0.138	2.97***
	(0.141)		(0.146)		(0.047)	
hincc	0.012	1.59	0.013	1.79*	0.004	1.89*
	(0.007)		(0.007)		(0.002)	
hinccsq	0.000	-1.24	0.000	-0.92	0.000	-1.15
	(0.000)		(0.000)		(0.000)	
htpension	0.034	0.11	-0.275	-0.88	-0.057	-0.70
	(0.307)		(0.313)		(0.081)	
htsingle	-0.094	-0.51	-0.109	-0.57	-0.031	-0.62
	(0.183)		(0.191)		(0.051)	
htadultsonly	-0.047	-0.31	-0.220	-1.37	-0.050	-1.16
	(0.153)		(0.161)		(0.044)	
htsingparent	-0.214	-0.99	-0.038	-0.17	-0.032	-0.54
	(0.218)		(0.223)		(0.059)	
savvy	0.185	1.52	0.160	1.27	0.053	1.46
	(0.121)		(0.126)		(0.036)	
rural	0.139	0.84	0.222	1.30	0.063	1.19
	(0.166)		(0.170)		(0.053)	
constant	-0.167	-0.29	0.129	0.22	-	-
	(0.571)		(0.590)		-	

Summary Statistics	
n	490
Log-Lik	-489
LR(26)	36.51*
McF R2	0.04
rho	0.87
LR	199***

Predicted Outcomes

	Switched?	
Searched?	Yes	No
Yes	0.24	0.12
No	0.04	0.60

Table 10: Estimations of Search and Switching in the Mortgage Market without SWOTHER and DISBEN

	Search		*Switch*		*Marginal Effect*	
					Pr(seyes=1,swyes=1)	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.002	0.90	-0.001	-0.29	0.000	-0.19
	(0.002)		(0.003)		(0.001)	
age	8.017	0.99	22.309	2.11**	5.236	2.11**
	(8.106)		(10.592)		(2.483)	
agesq	-12.897	-1.29	-30.083	-2.23**	-7.109	-2.27**
	(10.012)		(13.497)		(3.139)	
gender	0.035	0.17	-0.124	-0.56	-0.027	-0.51
	(0.205)		(0.222)		(0.054)	
eduuni	-0.235	-0.97	-0.152	-0.58	-0.039	-0.67
	(0.244)		(0.261)		(0.058)	
hincc	-0.002	-0.23	0.016	1.38	0.004	1.26
	(0.010)		(0.012)		(0.003)	
hinccsq	0.000	0.53	0.000	-1.02	0.000	-0.92
	(0.000)		(0.000)		(0.000)	
htpension	0.238	0.27	2.307	2.13**	0.225	0.70
	(0.871)		(1.082)		(0.322)	
htsingle	0.167	0.51	0.251	0.75	0.065	0.70
	(0.326)		(0.336)		(0.094)	
htadultsonly	-0.317	-1.35	-0.334	-1.30	-0.079	-1.39
	(0.235)		(0.257)		(0.057)	
htsingparent	0.014	0.03	-0.397	-0.67	-0.079	-0.81
	(0.461)		(0.591)		(0.098)	
savvy	0.169	0.82	0.067	0.30	0.019	0.35
	(0.205)		(0.223)		(0.055)	
rural	0.314	1.20	0.394	1.43	0.108	1.31
	(0.262)		(0.275)		(0.082)	
constant	-1.614	-1.00	-4.869	-2.36**	-	-
	(1.608)		(2.061)		-	

Summary Statistics	
n	193
Log-Lik	-155.42
LR(26)	37.85*
McF R2	0.11
rho	0.96
LR	83.04***

Predicted Outcomes

	Switched?	
Searched?	Yes	No
Yes	0.19	0.12
No	0.02	0.67

Table 11: Estimations of Search and Switching Across All Markets without SWOTHER and DISBEN

	Search		*Switch*		*Marginal Effect Pr(seyes=1,swyes=1)*	
	Coefficient (Std Error)	z	Coefficient (Std Error)	z	dy/dx (Std Error)	z
expgainmax	0.003	2.23**	0.002	1.39	0.001	1.79*
	(0.002)		(0.002)		(0.000)	
age	-1.655	-1.53	-2.627	-2.33**	-0.649	-2.28**
	(1.084)		(1.126)		(0.285)	
agesq	0.482	0.38	2.191	1.65	0.462	1.38
	(1.281)		(1.326)		(0.335)	
gender	0.004	0.07	-0.054	-0.99	-0.010	-0.73
	(0.052)		(0.054)		(0.014)	
eduuni	0.163	2.72***	0.189	3.03***	0.053	3.08***
	(0.060)		(0.062)		(0.017)	
hincc	0.004	1.58	0.008	2.70***	0.002	2.60***
	(0.003)		(0.003)		(0.001)	
hinccsq	0.000	0.35	0.000	-1.59	0.000	-1.12
	(0.000)		(0.000)		(0.000)	
htpension	0.072	0.52	-0.118	-0.81	-0.018	-0.51
	(0.140)		(0.145)		(0.035)	
htsingle	0.002	0.02	-0.057	-0.65	-0.011	-0.51
	(0.082)		(0.088)		(0.022)	
htadultsonly	0.054	0.88	0.003	0.05	0.005	0.33
	(0.062)		(0.064)		(0.016)	
htsingparent	-0.071	-0.69	0.009	0.08	-0.005	-0.19
	(0.103)		(0.106)		(0.027)	
savvy	0.117	2.19**	0.080	1.44	0.026	1.80
	(0.053)		(0.056)		(0.014)	
rural	0.127	1.75*	0.214	2.89***	0.055	2.63***
	(0.072)		(0.074)		(0.021)	
mobile	0.078	0.97	0.094	1.14	0.026	1.16
	(0.080)		(0.083)		(0.022)	
fixed line	-0.399	-4.29***	-0.470	-4.72***	-0.107	-6.01***
	(0.093)		(0.100)		(0.018)	
nat/oversea	-0.316	-3.28***	-0.273	-2.72***	-0.072	-3.56***
	(0.096)		(0.100)		(0.020)	
broadband	-0.233	-2.11**	-0.213	-1.84*	-0.056	-2.32**
	(0.110)		(0.116)		(0.024)	
car insur	0.432	4.89***	0.271	3.00***	0.097	3.50***
	(0.088)		(0.090)		(0.028)	
mortgage	-0.315	-2.54**	-0.381	-2.88***	-0.087	-3.61***
	(0.124)		(0.132)		(0.024)	
bank	-0.853	-7.40***	-0.977	-7.33***	-0.179	-13.32***
	(0.115)		(0.133)		(0.013)	
constant	0.019	0.08	-0.089	-0.36	-	-
	(0.236)		(0.245)		-	

Summary Statistics	
n	2843
Log-Lik	-2650
LR(40)	336***
McF R2	0.06
rho	0.86
LR	1006***

Predicted Outcomes		
	Switched?	
Searched?	Yes	No
Yes	0.21	0.12
No	0.03	0.63

Table 12: Descriptive Statistics for the Included and Excluded Estimation Samples

Electricity:

	Useable Sample		Excluded Sample	
Variable	Mean	(Std Dev)	Mean	(Std Dev)
seyes	0.36	(0.48)	0.20	(0.40)
swyes	0.28	(0.45)	0.18	(0.38)
swother	0.45	(0.50)	0.33	(0.47)
age	0.44	(0.15)	0.44	(0.18)
gender	0.49	(0.50)	0.46	(0.50)
eduuni	0.25	(0.43)	0.17	(0.38)
hincc	16.38	(19.04)	12.49	(18.82)
htpension	0.14	(0.35)	0.17	(0.37)
htsingle	0.16	(0.37)	0.18	(0.38)
htadultsonly	0.36	(0.48)	0.38	(0.49)
htsingparent	0.11	(0.31)	0.09	(0.29)
disbenbi	0.08	(0.27)	0.08	(0.28)
savvy	0.45	(0.50)	0.41	(0.49)
rural	0.15	(0.35)	0.13	(0.33)
Sample size	490		1277	

Mortgage:

	Useable Sample		Excluded Sample	
Variable	Mean	(Std Dev)	Mean	(Std Dev)
seyes	0.31	(0.46)	0.05	(0.23)
swyes	0.20	(0.40)	0.03	(0.17)
swother	0.66	(0.48)	0.42	(0.49)
age	0.41	(0.11)	0.43	(0.17)
gender	0.50	(0.50)	0.48	(0.50)
eduuni	0.27	(0.44)	0.19	(0.39)
hincc	23.14	(23.25)	13.30	(18.57)
htpension	0.04	(0.19)	0.13	(0.34)
htsingle	0.14	(0.35)	0.16	(0.36)
htadultsonly	0.36	(0.48)	0.40	(0.49)
htsingparent	0.05	(0.21)	0.10	(0.30)
disbenbi	0.04	(0.20)	0.08	(0.28)
savvy	0.39	(0.49)	0.40	(0.49)
rural	0.17	(0.37)	0.12	(0.33)
Sample size	193		1372	

All Markets:

	Useable Sample		Excluded Sample	
Variable	Mean	(Std Dev)	Mean	(Std Dev)
seyes	0.34	(0.47)	0.11	(0.31)
swyes	0.25	(0.43)	0.08	(0.27)
swother	0.49	(0.50)	0.40	(0.49)
age	0.42	(0.15)	0.43	(0.17)
gender	0.51	(0.50)	0.47	(0.50)
eduuni	0.24	(0.43)	0.19	(0.39)
hincc	17.69	(20.22)	13.03	(18.81)
htpension	0.10	(0.30)	0.14	(0.35)
htsingle	0.14	(0.34)	0.16	(0.37)
htadultsonly	0.41	(0.49)	0.39	(0.49)
htsingparent	0.08	(0.27)	0.10	(0.30)
disbenbi	0.07	(0.26)	0.08	(0.27)
savvy	0.39	(0.49)	0.40	(0.49)
rural	0.15	(0.35)	0.13	(0.33)
Sample size	2843		10636	