ESRI Working Paper No. 782

June 2024

A behaviourally-informed app can encourage switching of financial products

Deirdre Robertson[a,b*], Olga Poluektova[a], Ciarán Lavin[a,c], Shane Timmons[a,b] & Pete Lunn[a,d]

a) Economic and Social Research Institute, Dublin, Ireland
b) School of Psychology, Trinity College Dublin, Dublin, Ireland
c) Sustainable Energy Authority of Ireland
d) Department of Economics, Trinity College Dublin, Dublin, Ireland

*Corresponding Author:
Dr Deirdre Robertson
Economic and Social Research Institute,
Whitaker Square, Sir John Rogerson's Quay,
Dublin, Ireland
Email: deirdre.robertson@esri.ie

Abstract

Customers who have financial products (e.g., bank accounts, loans, credit cards and mortgages) are unlikely to change to another provider or change the terms of the product within the same provider (i.e., to "switch"). Significant monetary gains can be made by switching, but switching rates tend to hover at only around 2-5% per year. Some of the reasons why consumers do not switch can be summarised as insensitivity to differences in seemingly small bank charges and interest rates, administrative burdens, and lack of previous experience that can be helpful in good habit adoption. Some work has shown that behavioural interventions can increase switching rates, but not by a large amount. Many of the behavioural interventions tested have either been informational, informing consumers that switching is an option, or changes to the choice architecture. However, diagnostic work on what predicts consumer switching behaviour suggests that past shopping around behaviour is the strongest predictor of switching. Interventions that target increased sensitivity to interest rate differences and build experience of some of the behaviours that are precedents to switching may be more effective. This paper reports the results of a randomised controlled field trial to test a behaviourally informed app designed to encourage switching. The app was designed following a nationally representative diagnostic survey of switching behaviours and two pilot trials. It was then tested in a sample of 1,239 consumers over 5 months. The app doubled the number of financial products being switched over the trial period. It also substantially increased the number of participants visiting comparison websites. The app did not increase comprehension, confidence or self-reported knowledge suggesting that it did not act purely as an informational intervention but may instead have acted as a type of behavioural rehearsal. Even if improved, any app will not dramatically increase switching rates. The overall numbers of switchers were still low, with only 2% of products being switched in the intervention. Yet the relative effect of the app on behaviour is far larger than previous nudge-style interventions to encourage switching. It was also carried out over a relatively short period of time. The effect of the app on visits to comparison websites may have future benefits as shopping around predicts future switching. In sum, the behaviourally informed app tested in this trial successfully increased real switching behaviour in a large sample of consumers in Ireland.

Introduction

A competitive market relies on firms having sufficient motivation to offer better value and prices to retain and attract new consumers. In theory, if enough consumers search for better deals and change to providers or products that offer them, then firms should become more competitive in their offerings to everyone. However, this theory relies on the assumption that consumers are able to recognise better deals and easily "switch" to them [1]. In reality, the number of consumers who switch financial products (e.g., their current account, credit card, personal loan or mortgage) is low [2-4].

At the outset of this paper, it is important to note that there is no 'optimal' or target rate of switching. Naturally, consumers should only switch if better deals are available and this will not be the case for all consumers. However, administrative data in Ireland shows that the proportion of consumers who would benefit from switching is far higher than the proportion who switch, implying that rates are presently too low and thus likely dampening competition [4]. Possible reasons for these low switching rates can be classified into at least three categories: (i) insensitivity to differences in seemingly small bank charges and interest rates, (ii) administrative burdens, and (iii) lack of previous experience that can be helpful in good habit adoption.

Inattention to bank account charges decreases likelihood of switching bank accounts, even when switching could offer savings of 40-65% of annual fees [5]. Consumers incur significant debt by not paying off high interest rate credit cards before low interest rate credit cards, suggesting insensitivity to the differences [6, 7]. Insensitivity to differences in interest rates may also influence low switching rates for mortgages and for loans [8, 9]. One study on mortgages found that consumers who were shown an information intervention showed increased awareness of differences in Annual Percentage Rate (APR) afterwards and were more inclined to switch [8]. However, there is relatively consistent evidence that financial literacy alone is not a strong predictor of actual switching behaviour [10, 11].

Administrative burdens and the cost of switching are other factors that may depress switching rates. However, uncertainty may be more of a barrier than hassle. One study on mortgages found that consumers who listed more of the steps involved in switching were more likely to switch, meaning that the main driver of aversion to the administrative aspect of switching was not perceived hassle but

uncertainty about the process [8]. Supporting this, a large scale diagnostic study investigating multiple factors that could influence real switching behaviour found that less than 3% of people who began the switching process did not complete it [11]. This suggests that once people begin the switching process, they are likely to continue despite the administrative burden. The same study found that significant barriers to switching were uncertainty about the process, uncertainty about the costs and benefits of switching and fear of making a mistake [11]. In further support of the evidence that uncertainty about the process is a barrier, a systematic review of interventions to increase consumer search and switching found that interventions that reduced administrative burden or changed the decision-making environment to make it easier to choose to switch were more effective than informational nudges alone [12].

Finally, in the diagnostic study of switching behaviour, the strongest predictor of actual switching was whether someone had shopped around for the financial product when they first purchased it [12]. This may be explained by several factors, including that those who shop around when first purchasing a product are more aware of market dispersion, the costs and benefits of switching and the steps involved. Another factor may be that searching and switching behaviours become habitual; those who shopped around before may be more likely to do so again simply because they have already. Relatedly, people who switch tend to be more satisfied with their financial products [11].

Based on the above evidence, low rates of switching behaviour may be caused by factors other than those that are targeted by some previous interventions. Many behavioural interventions are nudges that are either inform consumers that switching is an option for them or make changes to the choice architecture [12]. Other types of interventions that may be useful may include boosts to enhance competency, pre-commitments to bridge intention-action gaps and behavioural rehearsal [13-15].

This paper reports on the design and field trial of a behavioural intervention using some of these techniques to attempt to improve search and switch rates for four financial products: current accounts, personal loans, credit cards and mortgages. The research programme was funded by the Government of Ireland's Department of Finance with the aim of designing an intervention that could

be rolled out publicly, should it be helpful for consumers. The aim was to design a behaviourally informed app and webpage that would simultaneously target different barriers to switching based on the literature on switching and some pilot trials to inform the content. The final app was tested in a randomised controlled field trial measuring real switch and search behaviours as well as future intentions. The intervention was designed using an iterative process starting with a diagnostic study to look at correlates of switching behaviour, two online pilot studies and a field trial. The results of the diagnostic study have been reported elsewhere [11]. This paper summarises the findings from the online studies before reporting the results of the field trial.

Pilot Study 1 – Information Presentation

The aim of the first pilot study was to find an optimal way to present information about switching to motivate information-seeking and willingness to switch.

People respond differently to message content depending on how it is presented [16]. They pay more attention to and are more motivated to engage with the information deeply if they believe this information is of personal relevance or if there is an emotional appeal [17-19]. We used the literature on switching to develop four 'hooks' to encourage consumers to engage with information on switching. Based on the finding that people underestimate how much small differences in interest rates makes, the first hook focused on the large savings that can be made by switching, making the issue relevant. Other hooks appealed to emotions. The second hook associated switching with happiness, given that switchers are happier with their financial products. The third hook tried to counteract the uncertainty around switching and associated fear of making a mistake by highlighting that switching is easier than many people expect. The fourth exploited sense of belonging and used a collective theme to make it salient to people that switching is not just an individual behaviour but one that can be used to get better deals for everyone.

The experiment was undertaken online by a nationally representative sample of 1000 customers from around Ireland in Winter 2022. Participants took part online on phones, tablets or computers.

Participants were told that they would be given a choice to read some articles on different

topics. They were then directed to a webpage that had four widgets on screen, each giving a summary of an article. Participants could click on any of the summaries to read the full article. The four articles were on the best forms of exercise, data protection, the effects of climate change on weather and switching financial products. The articles on exercise, data protection and climate change were presented in the same way to all participants, but we varied the description of the article on switching. The aim was to test which of the above hooks are most engaging. Each article was described using a combination of two of the four hooks (e.g., an emphasis on the savings associated with switching and that switchers tend to be happier), giving six possible combinations (savings + happiness, savings + ease, savings + collective action, happiness + ease, happiness + collective action, ease + collective action). Each participant was randomly selected to see one of these combinations assigned to the article about switching financial products or a control version with no hook.

As this was a pilot study to inform the field trial, we do not report full results here but have provided figures and tables in the Appendix for further reading. In brief, no combination of hooks was more likely to encourage people to read information about switching. All six combinations reduced the perceived difficulty of switching on a scale of 1-7 compared to the control information. The combination that combined potential savings and ease of switching reduced perceived difficulty the most. When asked how engaging they thought the information on switching was, those who had seen the combination that combined potential savings with higher satisfaction of switchers thought the information was most engaging. There were no effects on willingness to switch, how much information people read or how much they understood switching.

The effects were not large but the combinations that used potential savings, satisfaction of switchers and ease of switching had some effect on subjective perceptions of switching. It is perhaps not surprising that merely altering the 'hook' on informative material would be insufficient to increase comprehension or willingness to switch. The results are nonetheless useful for informing what types of information to emphasise in an intervention to encourage people to engage with material that may have an impact on behaviour.

Pilot Study 2 – Format of Information

Information can take many forms. Simple text, formatted text, diagrams, interactive material, material with feedback and multimedia may have different results depending on the topic and how they are used. The second pilot study trialled different types of information provision on financial switching: a video, text, an interactive quiz and a personalised calculator with a visual output. The experiment was again undertaken online on phones, computers and tablets by a nationally representative sample of 500 participants in Ireland in Spring 2023.

Participants were first shown an animated video of just under 3 minutes that explained the switching process (more detail in later sections). They were then asked to answer some questions about how much they liked it and had engaged with the content. After this, they chose which of four products they wanted to read information on: current accounts, mortgages, credit cards or personal loans. We allowed this option so that people could choose the product most relevant to them. Participants were then randomly selected to either read textual information about the product they chose or to do a multiple-choice quiz that covered the same topics. The topics covered were APR, total product cost, market dispersion, the switching process, fees and refinancing. After answering each question, the participants were presented with the correct answer. Following this, participants who had chosen mortgages, loans or credit cards were randomly selected to see a calculator tool that showed them how different interest rates influenced the total cost of the product. Half of participants saw the calculator and half did not. For those who had chosen mortgages, everyone saw the calculator but were randomly selected to see two different versions; one was a bar chart that showed the impact of different interest rates on total cost of the mortgage, the other was an area chart that showed the difference between the two lowest interest rates on the market at the time over the lifetime of the mortgage to show how small differences add up. All participants then did a comprehension test and answered questions about how engaging they had found the information, how well informed they felt and how likely they were to shop around and switch.

As with the results of pilot study 1, we have put detailed results in the Appendix and report a summary here. Most participants liked the video, found it easy to follow and said they would use it. Participants who saw the quiz had better comprehension of credit cards but not mortgages, personal loans or current accounts. Participants who saw the quiz on current accounts had slightly reduced

comprehension compared to those who saw the text information. However, participants who saw the quiz were more engaged with the information and reported being more likely to shop around or switch some products. The calculator increased engagement, willingness to compare options and switch. Each of the elements tested had some positive effects. This gave us a rationale to decide what should be included in the final intervention. The positive response to the video, particularly the finding that people found it easy to follow, suggested that it should be used in the final tool. The quiz should be used to impart information about mortgages, credit cards and personal loans but not current accounts. The calculator had overall positive effects on the three products tested with the bar chart format most successful for mortgages. In conclusion, the different elements of the intervention that were under consideration had positive effects on objective comprehension, engagement and willingness to switch, all of which are important predictors of real-world switching. The results of the pilot study thus informed the elements that were included in the final intervention.

Field Trial Methods

Based on the results of the diagnostic study and the two pilot studies, we made the final design changes to the intervention and tested it in a randomised controlled field trial.

Design

This was a randomised controlled field trial. All participants were sent a baseline survey that asked questions about the financial products they held. Participants were then randomised to be in the control or intervention condition, with the half in the intervention condition given immediate access to the webpage and app. All participants were sent a follow-up survey that asked about changes to financial products they held 3-6 months later, depending on the date they completed the first survey. Participants in the control condition were then given access to the webpage and app. Further detail on participants and measures is in the sections that follow.

Participants

We employed two participant recruitment strategies. One sample of participants was recruited "organically", through advertisements in newspapers, social media posts by the authors and the authors' Institution, media articles and radio interviews. The advertisements asked people to sign up to take part in two 10-minute surveys on financial products. They were told that in return, they would be offered advanced access to a webpage and app designed to help them get better deals on financial products. A total of 870 completed the baseline sample, of which 717 completed the follow up survey - a return response rate of 82%.

An additional nationally representative sample of 1,000 was recruited using a market research company. These participants were paid €2 for participating in each survey and were also told they would have advanced access to the webpage and app. A total of 522 completed the follow up survey, a return response rate of 52%.

The use of two recruitment strategies was primarily to increase power but also because both had potential differences that may be informative. The organic sample is unlikely to be nationally representative but would be more likely to consist of people who would use this intervention, should it

be made publicly available. This sample contains a greater share of consumers from higher social grades (i.e., the chief income earner in the household works in an administrative, managerial or professional role rather than in a manual role or is unemployed) and with higher levels of educational attainment than would be expected from a nationally representative sample. The market research company sample is approximately nationally representative, but this advantage trades off against the fact that the intervention may be irrelevant to a proportion of the sample. For example, if people do not have some of the financial products listed or do not intend to get them in future, the intervention is unlikely to be of interest to them. Table 1 shows a detailed description of the samples. Statistical models include controls for sociodemographic characteristics.

Table 1. Characteristics of the sample

	Full sample	Completed T1 and T2	T1 & T2 Control (N = 642)	T1 & T2 Intervention (ITT) (N = 597)	T1 & T2 Intervention Treated (PP) (N = 248)
Male	48.5%	50.5%	51.6%	49.4%	49.4%
Degree+	N/A	N/A	72.0%	68.3%	77.4%
Has CA	98.6%	99.2%	99.2%	99.2%	99.2%
Has M	48.2%	50.4%	50.7%	50.2%	58.9%
Has PL	30.3%	27.7%	28.6%	26.9%	24.6%
Has CC	67.5%	70.3%	69.9%	70.6%	73.4%
Visited Flex App	N/A	20.1%	0%	20.1%	100%
Past switcher	33.1%	38.5%	37.9%	39.2%	47.6%
SG (ABC1)	81.2%	84.5%	84.6%	84.4%	90.3%
Fin. Lit. (*Std. Dev.*) 0 – 6 scale	3.6 (1.7)	3.8 (1.6)	3.9 (1.6)	3.8 (1.6)	4.1 (1.4)

Note. Education and visiting the Flex app were variables collected at T2. The first column shows the characteristics of the full sample, including those who did not complete the T2 survey. The second column shows the characteristics of the 1,239 people used in the analyses who completed both surveys. The third column shows the characteristics of the control group and the fourth, the characteristics of the intervention group. The final column shows the characteristics of the treated intervention group; those who were assigned to the intervention group and who looked at the Flex app. SG = social grade.

Intervention

The intervention tool was designed by the research team in collaboration with Safira Clinical Research Limited and programmed by them. The final tool consisted of a "web app", meaning that it can be used both on a web browser or as an app (see Figure 1). The web app is called "Flex". It contains 5 tasks for each of 4 financial products: credit cards, mortgages, current accounts and personal loans. Users can choose which financial products they want to see and can navigate between them at the bottom of the app. A progress wheel is shown at the top of the screen which tells users how many of the tasks they have completed. When a user completes all tasks for a product, they get celebratory confetti and a prompt to try another project. Given the importance of search behaviour for future switching behaviour, the aim of Flex is to motivate searching for future products as well as switching existing ones. We describe each of the tasks within the web app and the rationale behind them in the sections that follow.
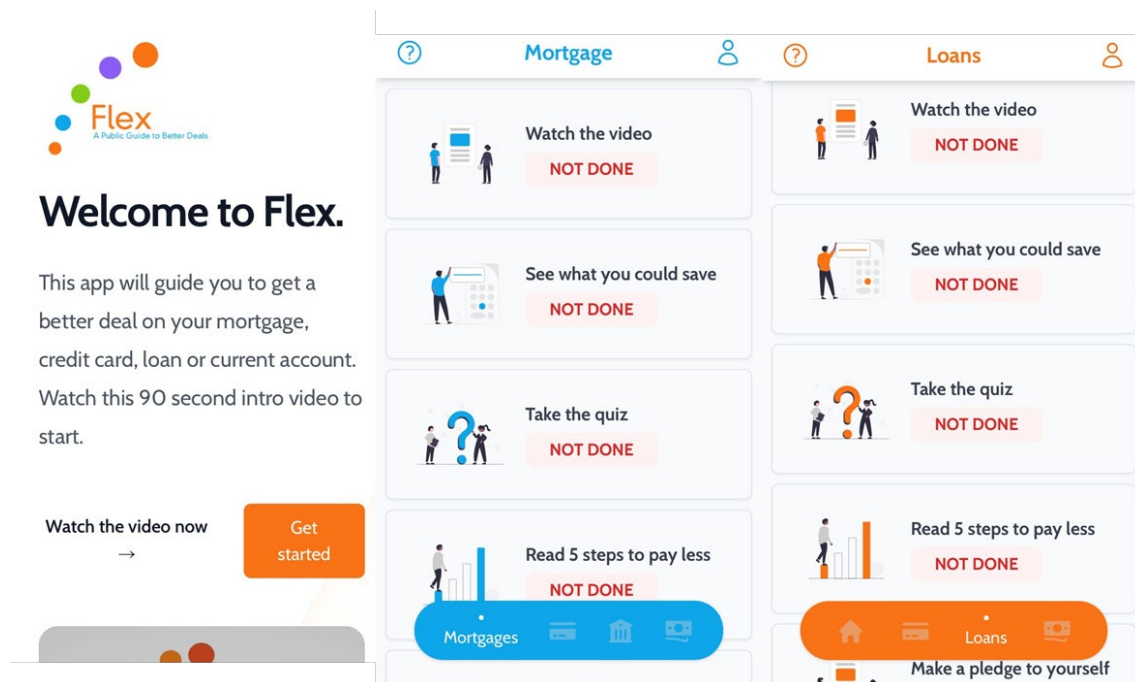

Figure 1. Three screenshots from Flex web app.

Video

The video content was designed by the research team and the visuals and animation were created by a professional animator and videographer, Social HQ Ltd. The aim of the video is to enhance the facilitators of switching that had been identified in earlier work: that consumers who shopped around when first purchasing the mortgage were more likely to switch later, and that people are not always aware of the benefits of switching. It also incorporates the elements that were most successful in the pilot study, naming highlighting potential savings and satisfaction of switchers. An additional aim is merely to inform consumers that switching is possible, because a sizeable minority of the population are not aware of this [11].

The video design uses best-practice principles for creating educational videos, including keeping them brief and targeted, using complementary audio and visual, using signalling to highlight important ideas, using a conversational, enthusiastic style and pairing with learning tasks rather than using them as a standalone instruction [20-22]. The video also uses analogy to illustrate why shopping around for financial products is desirable. Analogy can enhance comprehension and motivation to change behaviour [23-25]. We chose supermarket shopping as a familiar analogy to explain how customers can also shop around for financial products. The video also gives specific examples of the amounts of money that can be saved by switching to try to reduce insensitivity to interest rate differences and makes the possible uses of that money more salient by giving examples of what it could be spent on.

Calculator

The second task is a personalisable calculator tool that lets consumers input an outstanding balance on a mortgage, credit card or personal loan and the remaining term (mortgages and personal loans) or monthly repayment (credit cards). The aim is to increase sensitivity to differences in interest rates.

For mortgages and personal loans, the output is a graph that shows the total cost the consumer would pay over the term for each of a selection of interest rates currently available in the market. The

graph uses loss aversion to show how much difference small differences in interest rates make to the total cost the consumer pays [26]. It uses contrasting colours to increase salience, something known to drive attention [27, 28]. This calculator is not a comparison tool, as it does not name providers or show any options. Rather, it is purely a motivation tool that highlights how small differences in interest rates can make large differences to the total cost of a product. It aims to overcome the common belief that all providers offer the same or very similar rates and the misperceptions about how much can be saved by switching [29].

Quiz

A large body of research shows that quizzes and testing improve how well people recall new information [30, 31]. The third task gives the user 6 multiple-choice questions that they must select an answer to. They are told if their answer is correct or incorrect and get the correct information afterwards, as this type of feedback has been shown to aid recall [32]. At the end, confetti falls from the screen. Evidence suggests that this type of gamification of information provision can have positive effects on motivation and learning [33, 34]. Depending on the product, the topics in the quiz cover what APRs are, what the total cost of the product is, that providers can offer different rates, the switching process, fees and refinancing. Following the results of the second pilot trial which found a negative effect of the quiz on understanding of current accounts, we only included a quiz for mortgages, personal loans and credit cards in the app. For current accounts, users see an FAQ style sheet that poses a question and gives them the answer without the interactive element.

"5 steps to a better deal" guide

Much behavioural science research points to the power of simplification to help people process information and to motivate behaviour change [35]. The aim of this fourth task is to give users an overview of switching without overwhelming them with information. The aim is to target the uncertainty about the switching process that is one of the barriers to switching. The section breaks down the switching process for each product into 5 short steps. It links to the advice pages on a state-agency comparison website run by the Competition and Consumer Protection Commission (CCPC),

so that people can get more information on each step. The section also displays screenshots of the website in order to build familiarity with it before people visit, as this may motivate them to engage with it.

Make a pledge to yourself

Precommitment, or making a pledge to oneself, is a powerful motivator for behaviour change in other domains [36, 37]. As most people are aware that they can switch financial products but have either never considered it or considered it but never done anything about it, this fifth task aims to encourage action. It also acts as a reminder, something that the systematic review on interventions showed to be effective [12]. The power of the precommitment is that it induces a sense of accountability and therefore increases the likelihood that people will carry out the intended behaviour. This task gives users four actions that they can precommit to. These include completing all the tasks on the app, finding out information about their current product, finding out information about other products on the market and starting the switching process. Once users choose a pledge, they then choose a date by which they pledge to complete it. This then appears as a reminder on the app. When the user has completed the pledge, they can tick it off and choose a new one. The use of a to-do list combined with the precommitment aims to increase engagement with the app and the likelihood that users carry out their intended actions.

Measures

Time 1 (Baseline Survey)

Products owned

Participants answered questions about how many current accounts, mortgages, personal loans and credit cards they owned, then provided information on each of these products. Current account holders indicated their maintenance fees. Mortgage holders indicated their interest rates, type of mortgage, remaining years, and outstanding balance. Personal loan holders provided information on interest rates, remaining balance and loan duration. Credit card holders specified interest rates, introductory period status, credit card balance, and monthly repayment amount. Everyone indicated

how satisfied they were with their current product(s).

Shopping around, switching history and intentions

For each of the products owned, participants were asked whether they shopped around when they got the product. The responses were given on a categorical scale with six options: (1) I compared the options offered by different providers before applying (e.g. I used a price comparison website, I visited a few providers' websites, I used an independent broker or another way of comparing), (2) I looked at one bank and I compared the different options they offered, (3) I did not look at other options but chose a bank that I already banked with, (4) I got advice from family and friends and chose the bank that they advised, (5) I only looked at one option from one bank and chose that one, (6) I looked for the one with the best digital services (website, app). If a participant did not have a specific product, they were asked how likely they were to get one in the future and whether they would shop around when choosing it.

Further, participants answered if they had switched their product in the past. They responded on a 6-point scale (1 = I did not know I could switch, 2 = I knew I could switch, but never considered it, 3 = I thought about switching but never did anything, 4 = I looked into switching but didn't take it very far, 5 = I started the process of switching but did not complete it, 6 = I switched). They also answered how likely they were to switch in the future (1-7 scale) and estimated perceived savings from switching.

Finally, all participants were asked whether they considered getting a new current account, mortgage, personal loan and credit card. If they planned to get a new financial product, they were asked whether they would shop around to find one. The responses were given on a categorical scale with six options: (1) I will compare the options offered by different providers before applying (e.g. I used a price comparison website, I will visit a few providers' websites, I will use an independent broker or another way of comparing), (2) I will look at one bank and I will compare the different options they offer, (3) I will not look at other options but chose a bank that I already banked with, (4) I will get advice from family and friends and chose the bank that they advise, (5) I will only look at one option from one bank and chose that one, (6) I will look for the one with the best digital services

(website, app).

Financial literacy

We used the measure designed and described by the BRU team in the first diagnostic study [12] to assess participants' financial literacy. Participants were presented with six real-life scenarios describing a person dealing with a financial matter (e.g., taking out a loan, opening a savings account). They needed to choose one of the five response options that summarised the scenario best or that provided the best course of action. For example,

> *"Jenny takes out a 4-year loan to pay for a car. After 1 year, she decides that she could afford to increase her monthly repayments to pay the loan off at the end of 3 years instead of 4. Assuming the interest rate does not change, what will happen to the total cost of borrowing, i.e. how much it costs Jenny in total to borrow the money".*

- The cost of borrowing will be higher if she pays the loan off in 3 years instead of 4;
- The cost of borrowing will stay the same;
- The cost of borrowing will be lower if she pays the loan off in 3 years instead of 4;
- The cost of borrowing might be higher or lower – it depends on the type of loan;
- I don't know.

Perceived knowledge and confidence

Participants indicated on 7-point scales how well-informed they felt about different products and how confident they were that they would choose the best financial product for themselves if they had to choose one.

In addition, they answered question about how knowledgeable they felt about general financial matters and how confident they were about managing their money. These responses were

also given on 7-point rating scales.

Background measures

Participants indicated their gender, ethnicity, whether they lived in a rural or urban setting, their education and income.

Time 2 (Follow-up survey)

Switching Behaviour

Participants were shown each of the products they had in Time 1 and were asked if they still had them, had switched them or had closed them since the first survey. They answered on the same switching scale we used in the first survey (with six response options).

If a participant said they switched, they provided detailed information about the product they switched to: their new provider, maintenance fee (for current accounts), interest rates, remaining time and outstanding balance (mortgages and personal loans), interest rates, introductory period status, credit card balance, and monthly repayment amount (credit cards).

Searching Behaviour

Participants who switched were asked whether they shopped around for their new product. We used the same question as in the first survey.

Future Intentions

Participants were asked whether they considered getting a new current account, mortgage, personal loan and credit card. If they planned to get a new financial product, they were asked whether they would shop around to find one. We used the same scale for measuring intentions to shop around as in the first survey.

Knowledge

Participants indicated how knowledgeable they felt about financial products like current accounts, mortgages, personal loans and credit cards. They responded on a 7-point scale.

Confidence

Participants indicated how confident they felt about choosing financial products like current accounts, mortgages, personal loans and credit cards. Additionally, they rated their confidence in choosing the right financial product for themselves if they had to make that choice. They responded on a 7-point scale.

Use of price comparison websites

We asked whether, since they participated in the first survey, participants had visited any of three price comparison websites to compare financial products. The websites we asked about were CCPC.ie, Bonkers.ie, Switcher.ie.

Webapp use

Participants in the treatment group answered questions assessing how much they had used the Flex app and their perceptions of it. The indicated whether they visited the app (response options: (1) yes - once; (2) yes – more than once; (3) no). Those who said they visited the app at least once proceeded to answer other questions about the app. Participants rated the introductory video and the information presented in it on a 7-point scale, and answered whether they visited sections about current accounts, mortgages, personal loans and credit cards. If they said they visited these sections, they then answered questions about whether they had completed the tasks included in these sections, specifically, completing the quiz, making the pledge to themselves, using the calculator and reading the "5 Steps to a Better Deal" guide.

App metrics

In addition to collecting responses from our participants, we monitored app activity. We tracked the following metrics:

- Total number of visitors over the period of the trial (October 5th 2023 to March 10th 2024)

- Average engagement time (total and per session)

- Visits (total and per section)

- Taking a quiz (for each product group)

- Reading a "5 steps to a better deal" guide (for each product group)

- Using calculator (for each product group)

- Making a pledge (for each product group)

Results

The full analysis plan was pre-registered on OSF prior to analysis

(https://doi.org/10.17605/OSF.IO/3WXDH).[1]

We had a final sample of 1,239 who completed both surveys (hereafter T1 and T2). We list the characteristics of participants in Table 1.

We used the sample of those who completed T1 and T2 in our analyses. Because people can hold multiple financial products and may switch one but not others, there are two ways to measure switching behaviour: by the proportion of people who switched any product they hold and by the proportion of all products that were switched. Looking first at the proportion of people, 52 people (4.2%) switched one of their products between T1 and T2. This ranged from 1.2% of people with credit cards, 1.8% of people with current accounts, 2.4% of people with mortgages and 3.3% of people with personal loans. Most people had never considered switching.

Turning to the proportion of products, we analyse the number of observations (i.e., responses about individual products) in the dataset. We had 3,046 observations of financial products between T1 and T2. Switching behaviour at the product level is shown in Figure 2. Just under 2% of financial products were switched during the trial period.

---

[1] We depart from the pre-registered analysis plan only in the covariates included in analyses. We had planned to include age in the models but due to a technical error in collection of the age variable, we did not have sufficient participants with this variable to do so. As a result, the models we report exclude age, but we have run all models with age including only those for whom age was recorded as a sensitivity check. Unless otherwise noted, including age does not change the effect reported.
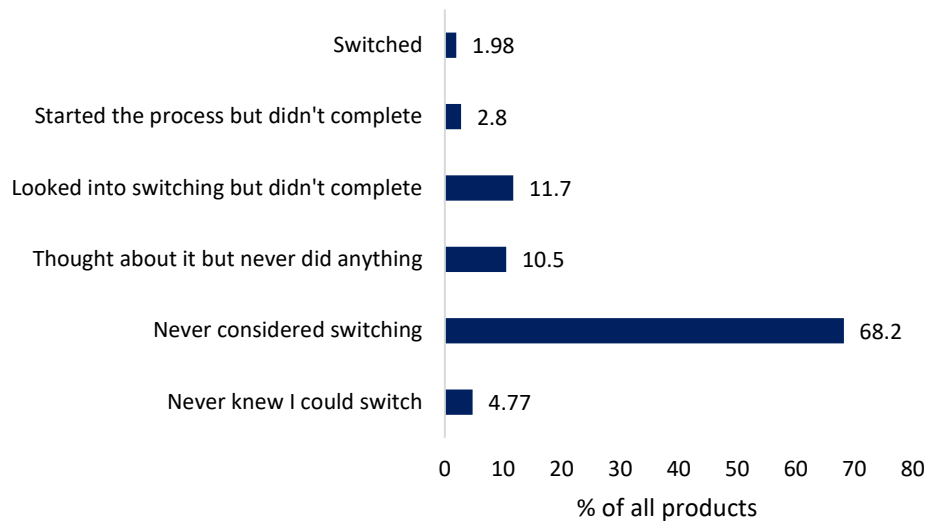
Figure 2. Products at each level of the switching scale

Did the intervention increase switching?

We ran an intention-to-treat multi-level logistic regression analysis to test whether the intervention had led to more people switching financial products between T1 and T2. The independent variables were treatment group, type of product, gender and education. We included a random effect for individual to account for multiple observations per individual and we clustered standard errors at the individual level. We ran an intention-to-treat analysis (Model 1, Table 2) in which we included everyone who had been in the intervention group, regardless of whether they looked at the Flex app or not, and a per-protocol analysis (Model 2, Table 2) where we only included those in the intervention group who had looked at the Flex app. Results from this per-protocol analysis needs to be interpreted carefully, because people who have a greater propensity to switch may have been more likely to look at the Flex app.

Participants in the intervention group were significantly more likely to have switched compared to participants in the control group in the intention-to-treat and the per-protocol analyses. The absolute numbers were small, with 3.3% of the control group and 5.2% of the intervention group having switched. Of all financial products observed, this equates to 1.2% of products held by those in the control group being switched compared to 2.2% of products held by those in the intervention group. This is not surprising given low switching rates in Ireland and the relatively short period of

time over which the survey was conducted. However, these point estimates equate to almost a doubling of switching rates among the intervention group.

Table 2. Models showing the intention-to-treat and the per-protocol effect of the intervention on switching and on the switching scale.

| Dependent Variable	(Model 1) ITT Switched	(Model 2) PP Switched	(Model 3) ITT Switching Scale	(Model 4) PP Switching Scale
	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)
Intervention (ref. Control)	0.69 (0.32)		0.06 (0.11)	
	p=0.015*+		p=0.30+	
Untreated (ref. Control)		0.71 (0.38)		-0.17 (0.13)
		p=0.06*		p=0.20
Treated (ref. Control)		0.67 (0.39)		0.34 (0.13)
		p=0.04*+		p=0.005**+
Mortgage (ref. CA)	0.31 (0.37)	0.32 (0.37)	0.53 (0.10)	0.53 (0.10)
	p=0.39	p=0.39	p=0.00***	p=0.00***
Personal Loan (ref. CA)	0.64 (0.42)	0.64 (0.42)	-2.07 (0.25)	-2.07 (0.25)
	p=0.13	p=0.13	p=0.00***	p=0.00***
Credit Card (ref. CA)	-0.63 (0.37)	-0.63 (0.37)	-0.43 (0.10)	-0.43 (0.09)
	p=0.08	p=0.08	p=0.00***	p=0.00***
Male	0.18 (0.31)	0.18 (0.31)	0.48 (0.11)	0.48 (0.11)
	p=0.56	p=0.56	p=0.00***	p=0.00***
Degree+	0.26 (0.37)	0.26 (0.37)	0.46 (0.12)	0.42 (0.12)
	p=0.48	p=0.48	p=0.00***	p=0.00***
Constant	-5.77 (0.62)	-5.77 (0.62)		
	p=0.00***	p=0.00***		
Random effect of individual	2.48 (1.07)	2.48 (1.05)	1.21 (0.21)	1.49 (0.42)
N	3000	3000	2886	2886

Note. *p<.05, **p<.01, ***p<.001. + denotes a one-tailed test so the p-value is halved. ITT = Intention-to-treat; PP = Per-Protocol. In the PP analyses, untreated refers to those in the intervention group who did not go onto the Flex app and treated refers to those who did. The sample size is larger than the number of participants because this model is run at the product

level and participants typically held multiple products.

Did the intervention increase search and switch activity?

To test whether people in the intervention group differed from people in the control group on where they were on the switching scale, we ran a multi-level ordinal logistic model with where people were on this scale as the dependent variable. The independent variables were as for the analysis of switching above. We included a random effect for individual and clustered standard errors at the level of the individual. There was no statistically significant effect of the intervention on switching activity (which includes considering to switch or searching for better offers) in the intention-to-treat analysis (Model 3, Table 2). The per-protocol analysis showed that participants in the intervention group who had not looked at the Flex app were no different to control but those who had looked at the Flex app were significantly more likely to be higher up on the switching scale (i.e. more likely to be considering switching or to have switched) than participants in the control group (Model 4, Table 2). Figure 3 shows predicted probabilities of being at each level of the switching scale for each of the three groups, after controlling for product type, gender, education and individual variation. Participants in the intervention group who had looked at the Flex app were more likely to have at least considered switching and taken some steps towards it than participants in the control condition.
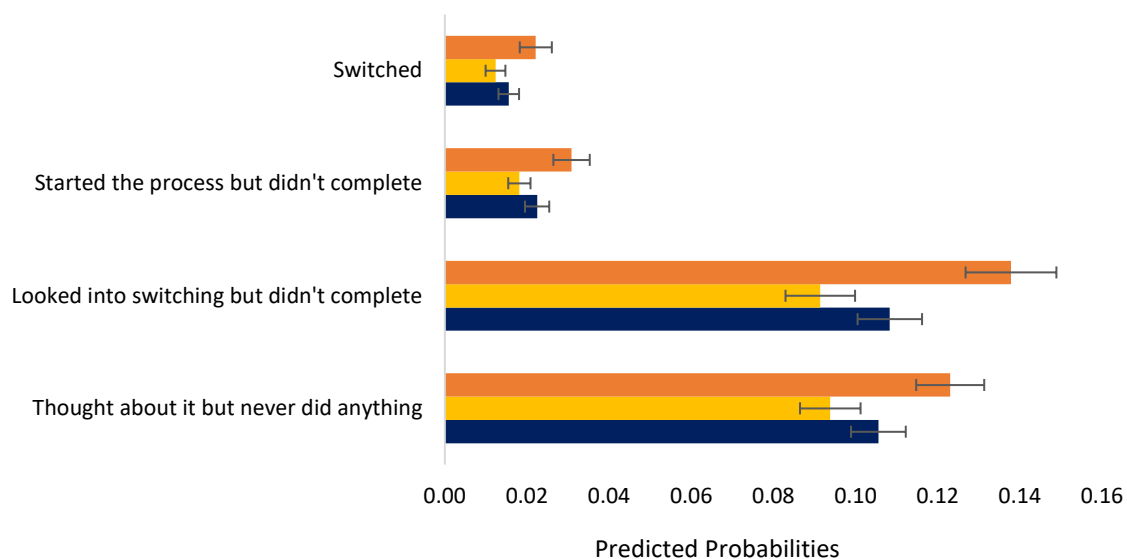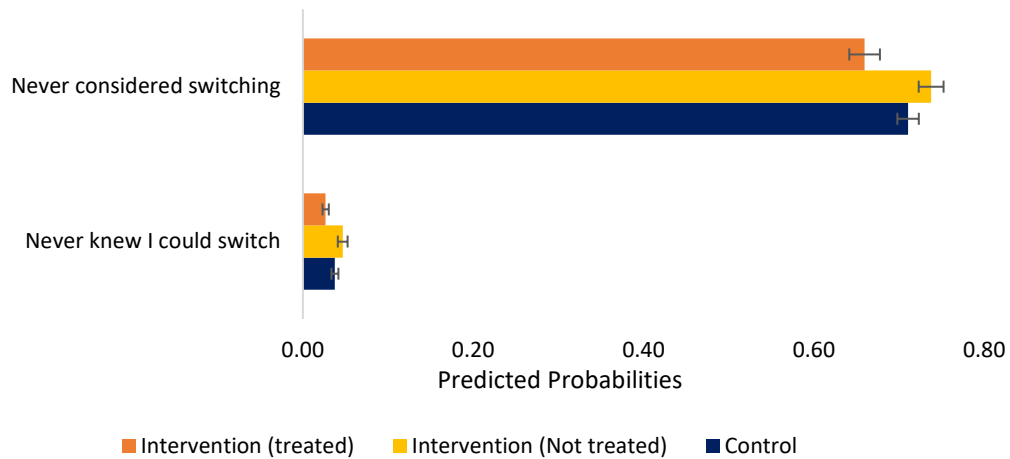
Figure 3. Predicted probability of being at each level of the switching scale

Note. The graph shows predicted probabilities from a multi-level regression with a random effect for individual and controlling for product type, gender and education. It shows the probability of each outcome for any financial product rather than the outcome per individual. This is why the switching rates are lower than the numbers per individual.

Did the intervention increase intention to switch?

To test whether people in the intervention group differed from people in the control group on intention to switch, we ran a multi-level ordinal logistic model where people were on a 1-7 scale of intention to switch in future. We included the same independent variables, random effects and clustered standard errors as in the earlier models. There was no effect of the intervention on future switching intentions in the intention-to-treat analysis (Model 1, Table 3). The per-protocol analysis showed that participants in the intervention group who had not looked at the Flex app were no different to control but those who looked at the Flex app were more likely to intend to switch in future compared to participants in the control group (Model 2, Table 3).

Table 3. Models showing the intention-to-treat and the per-protocol effect of the intervention on intention to switch in future.

	(1)	(2)
	ITT Intention to Switch	PP Intention to Switch

	Coef (SE)	Coef (SE)
Intervention (ref. Control)	0.09 (0.09)	
	p=0.15+	
Untreated (ref. Control)		0.02 (0.11)
		p=0.42
Treated (ref. Control)		0.18 (0.11)
		p=0.04*+
Male	0.10 (0.09)	0.10 (0.09)
	p=0.27	p=0.28
Degree+	0.28 (0.11)	0.26 (0.11)
	p=0.01*	p=0.02*
Mortgage (ref. CA)	0.77 (0.10)	0.77 (0.10)
	p=0.00***	p=0.00***
Personal Loan (ref. CA)	-1.07 (0.14)	-1.07 (0.14)
	p=0.00***	p=0.00***
Credit Card (ref. CA)	-0.07 (0.07)	-0.07 (0.07)
	p=0.30	p=0.30
Random effect of individual	1.32 (0.15)	1.32 (0.15)
	p=0.00***	p=0.00***
N	4267	4267

Note. *p<.05, **p<.01, ***p<.001. + denotes a one-tailed test so the p-value is halved. ITT = Intention-to-treat; PP = Per-Protocol. In the PP analyses, untreated refers to those in the intervention group who did not go onto the Flex app and treated refers to those who did.

Did the intervention increase how many people visited comparison websites between T1 and T2?

We asked participants whether they had visited common comparison websites to look at financial products since the first survey. We asked them if they had looked at bonkers.ie, CCPC.ie or switcher.ie. Just over half, 51.9% of participants had looked at bonkers.ie, 38.9% had looked at switcher.ie and 29.1% had looked at CCPC. Participants who had access to the Flex app and who had viewed it were more likely to have visited these websites compared to participants in the control condition (Figure 4 and Table 4). This was a large effect: over 63% of participants in the intervention group visited a price comparison site.
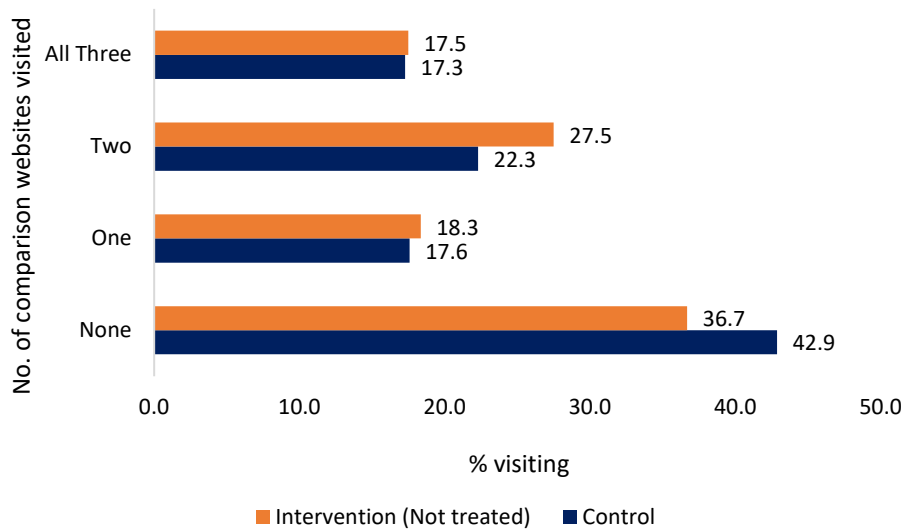
Figure 4. Number of comparison websites for financial products visited by intervention group.

Table 4. Models showing the intention-to-treat and the per-protocol effect of the intervention on visiting comparison websites.

	(Model 1) ITT Websites Coef (SE)	(Model 2) PP Websites Coef (SE)
Intervention (ref. Control)	0.25 (0.11) p=0.009**+	
Untreated (ref. Control)		-0.21 (0.13) p=0.10
Treated (ref. Control)		0.85 (0.14) p=0.00***+
Male	0.47 (0.11) p=0.00***	0.50 (0.11) p=0.00***
Degree+	0.93 (0.12) p=0.00***	0.86 (0.12) p=0.00***
N	1206	1206

Did the intervention increase self-reported knowledge, actual knowledge or confidence in choosing products?

Table 5 shows the results of these analyses. There was no effect of Flex on self-reported knowledge, actual knowledge or confidence in the intention-to-treat analysis. When we include age in the model, we find negative effects of the intervention on self-reported knowledge and confidence but not on objective knowledge. The per-protocol analysis shows that any advantage over the control group enjoyed by those who looked at the Flex app is counterbalanced by a disadvantage among those who did not look at the Flex app, implying that the difference is down to which people opted to look at the app, rather than the effect of looking at the app. Overall, this pattern of results suggests that the effects of the intervention on switching was unlikely to have been caused by boosting knowledge, competence or confidence.

Table 5. Models showing the intention-to-treat and the per-protocol effect of the intervention on self-reported knowledge, confidence in choosing products and comprehension.

	Model 1 ITT Self	Model 2 PP Self	Model 3 ITT Conf.	Model 4 PP Conf.	Model 5 ITT Comp.	Model 6 PP Comp.
	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)
Intervention (ref. Control)	-0.05 (0.10) p=0.30+		-0.06 (0.10) p=0.27+		-0.11 (0.10) p=0.14+	
Untreated (ref. Control)		-0.32 (0.12) p=0.01**		-0.24 (0.12) p=0.05*		-0.47 (0.12) p=0.00***
Treated (ref. Control)		0.29 (0.13) p=0.015*+		0.17 (0.13) p=0.10+		0.37 (0.14) p=0.004**+
Male	0.96 (0.11)	0.95 (0.11)	0.67 (0.10)	0.67 (0.10)	0.32 (0.11)	0.30 (0.11)

	p=0.00***	p=0.00***	p=0.00***	p=0.00***	p=0.003**	p=0.004***
Degree+	0.73 (0.12)	0.69 (0.12)	0.38 (0.11)	0.35 (0.12)	1.00 (0.12)	0.96
	p=0.00***	p=0.00***	p=0.001**	p=0.00***	p=0.00***	p=0.00***
N	1206	1206	1206	1206	1200	1200

Note. *p<.05, **p<.01, ***p<.001. + denotes a one-tailed test so the p-value is halved. ITT = Intention-to-treat; PP = Per-Protocol. In the PP analyses, untreated refers to those in the intervention group who did not go onto the Flex app and treated refers to those who did. Self = self-reported knowledge; Conf = confidence in choosing products; Comp = objective comprehension.

The sample of switchers was not large enough to further break them down into those who shopped around so we do not include those analyses.

App Metrics

The app data showed that 582 people landed on the main page of Myflex.ie in the period between October 5th 2023 and March 10th 2024. Of these 582, 378 users were active on the app, meaning that they went beyond the landing page and engaged with other parts of the app. The total number of active app visits during the period of the trial was 989, which means that an average user visited the app more than twice.

On average, participants spent 1 minute 45 seconds on the app in total across all their visits and about 51 seconds during one visit. However, as not every participant actively engaged with the app, the time spent interacting with the app is affected by the inclusion of people who were redirected to the landing page of Myflex.ie but did not engage with the app actively.

Current accounts

135 participants visited the section of the app dedicated to current accounts. Among them, 16 users made the pledge to themselves, averaging 1.5 pledges per user. Additionally, 25 individuals read the FAQs, while 16 checked out "5 Steps to a Better Deal" guide and 16 also read information about maintenance fees versus per-transaction fees.

Mortgages

348 users visited the mortgages page, with each user typically revisiting the section about mortgages twice. Among them, 46 participants completed the quiz on mortgages. Furthermore, 32 participants made pledges, averaging 1.3 pledges per participant. Additionally, 40 people read the "5 Steps to a Better Deal" guide and 40 users utilized the calculator tool.

Personal loans

127 individuals explored the "Personal Loans" page of the app. Among them, 17 completed the quiz, 14 engaged read the "5 Steps to a Better Deal" guide. Additionally, 13 users made pledges, with an average of 2 pledges per participant. 17 participants used the calculator.

Credit cards

150 individuals explored the "Credit Cards" section of the app, with an average of 2.4 visits per participant. Among them, 22 users completed the credit card quiz and 13 made pledges. Additionally, 16 users read the "5 Steps to a Better Deal" guide, and 20 utilized the calculator.

The samples who used different features of the app are too small to permit robust analysis of engagement. It is notable, however, that the quizzes and interactive calculators were the most popular features across the three credit products compared to the sections that permitted pledges or provided steps on how to achieve a better deal. For current accounts, the FAQs (themselves a sort of quiz) were the most popular features. As such, the more interactive elements of the app appear to be the most popular. **Discussion**

The Flex app increased switching. Despite running over a relatively short period of time, just 5 months, switching in the intervention group nearly doubled, moving from 1% of financial products in the control group to 2% of financial products in the intervention. Participants in the intervention group who used the Flex app were also more likely to have higher rates of switching activity, such as considering switching or looking for products compared to those in the control condition. We need to be careful interpreting this per-protocol analysis because there could be differences between those in the intervention who chose to look at the Flex app and those who did not. Because of random

assignment to treatment and control groups, both groups are likely to contain the same proportion of consumers who might be particularly interested in switching. It could be the case that those particularly interested in switching in the treatment group were more likely to engage with the Flex app but would have switched anyway. However, if this were the case, we would be likely to observe lower levels of switching activity among those in the intervention group who did not look at Flex compared to the control group (because they are particularly uninterested in switching). We do not find an equivalent difference in switching activity between the control group and those in the intervention who did not look at Flex, suggesting that the effect is not only due to a selection effect. There is some evidence that the Flex app may also have increased future intention to switch, although the result is not as strong. More tellingly, the Flex app did substantially increase the number of people visiting comparison websites. The Flex app directed people to the Competition and Consumer Protection Commission comparison website, so an effect of the intervention on visits to one comparison website may not be surprising, but people in the intervention group were also much more likely to visit other comparison websites for financial products.

We find no effect of the Flex app on self-reported knowledge, confidence in choosing financial products or objective comprehension. Participants in the intervention condition who used the Flex app had slightly higher scores on these measures, but this may be a selection effect, given the negative effect of being in the intervention but not looking at Flex. The lack of change in these outcomes suggests that boosting competency or knowledge about financial products was not the reason that the Flex increased switching.

The Flex app was not designed to boost competency so it is perhaps not surprising that we do not find effects through increased comprehension, although we thought we might find some. The Flex app may have been effective at increasing switching because it encouraged and enabled people to practice the behaviours necessary for switching. The first diagnostic study that informed this trial was an in-depth exploration of switching behaviour that was able to look at the relative strength of multiple predictors. It showed that previous shopping around behaviour was one of the strongest predictors of switching, much more so than financial literacy or any socio-demographic characteristics. Four of the five sections of the Flex app were designed with this in mind: the video

used an analogy to familiarise people with shopping around for financial products, the calculator allowed people to experience differences in interest rates, the pledge used the principle of pre-commitment to help bridge the gap between intentions and behaviour and the five steps to switching was intended to help people visualise the steps they would need to take to switch. Most of the app was therefore focussed on practicing a behaviour that is necessary for switching. A limitation of the study is that this field trial was not designed to determine which feature, or which combination of features, influenced switching; we can only hypothesise that the features acted as intended. However, from a policy perspective, this is arguably less important than knowing that Flex works as a package. It is also possible that different parts of the app influenced different people.

The strength of the Flex app is that it was designed using behavioural principles and followed multi-stage testing within the population in which it was to be trialled. The strength of the trial that tested the Flex app is that it was a large, randomised controlled field trial of real behaviour. We measured switching behaviour rather than just intention to switch. Importantly, we did not simply ask people to report on their switching history but measured it as accurately as possibly by feeding back to participants the list of financial products they had told us they had at T1 and asking follow-up questions about each of them at T2. This was inspired by established methods of aiding memory recall in longitudinal surveys where normal variation in memory may otherwise bias results [e.g. 38, 39]. The advantages were that we only asked participants to recall one financial product at any one time, instead of asking them whether they had switched any, which might have been error prone if people momentarily forgot a product they owned. Secondly, we removed any ambiguity about the products they had held at T1 by showing them what they had said, meaning that they did not have to remember when they got a product or when they had switched it. Furthermore, the specificity of the question and the neutral wording was designed to avoid experimenter demand that might have led participants in the intervention group to be more likely to report that they had switched a product when they had not. There are also limitations to the research. Despite collecting a large sample at baseline and having a high follow up response rate of 66%, the numbers of switchers was low. This was expected and is consistent with switching rates in the country and those reported in other research, particularly over a relatively short time, but it does mean that our statistical power to detect an effect for some measures

was reduced. That we asked each participant switching questions about every financial product they owned helped to increase our power because we had up to four responses per individual, one for each product type, and could analyse this using multi-level models. Nevertheless, our main outcome measure is a rare behaviour with only 4.2% of the population switching any financial product and only 1.9% of financial products held being switched. It might be useful for future research to collect a larger baseline sample and run a trial over a longer period.

Another limitation is that we cannot be sure what characteristics determined whether people in the intervention group looked at the Flex app or not. A select sample of people who were already interested in switching may have been more likely to look at Flex. For this reason, we have relied on the "gold standard" intention-to-treat analysis, which includes all participants in the intervention group regardless of whether they received the Flex app or not. This avoids bias caused by self-selection but is likely also to underestimate effects, particularly given that only 42% of our intervention group saw Flex and therefore could benefit from it. We report per protocol analyses with a caveat as well for this reason. The per protocol analysis may give a better idea of the strength of the effect of the intervention when people receive it but may also be confounded by self-selection into the group. Future work could consider employing a control app for the control condition or trying to increase the numbers of the intervention group accessing Flex. Finally, we were not able to use the objective app metrics to link individual app use to switching behaviour. We had to rely on self-reported use of Flex. The reason for this was practical because to link app use to switching behaviour would have required participants to create an account and log in to Flex. Instead, we prioritised making it easy for participants to access.

Even if improved, scaled up and rolled out, the Flex app alone will not quickly or dramatically increase switching in Ireland. The absolute numbers who switched products in this trial, even among those who used the app, remained low. However, the relative effect of the Flex app on switching behaviour is substantial; switching nearly doubled. This relative effect is far larger than typical nudge-style interventions, which have an average relative effect of (at best) 8% [40]. Had the trial been carried out over a longer period, we may have found larger effects. The effect of Flex on the number of people visiting comparison websites is also substantial and, given the finding that shopping

around initially is the strongest predictor of switching, it is possible that the Flex app could have an influence on switching behaviour further in the future. In sum, the behaviourally informed Flex app appears to have been successful in increasing the percentage of consumers looking around for or switching the financial products they hold.

References

1. Farrell, J. and P. Klemperer, *Chapter 31 Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in *Handbook of Industrial Organization*, M. Armstrong and R. Porter, Editors. 2007, Elsevier. p. 1967-2072.

2. Bajo, E. and M. Barbi, *Financial illiteracy and mortgage refinancing decisions.* Journal of Banking & Finance, 2018. **94**: p. 279-296.

3. Johnson, E.J., S. Meier, and O. Toubia, *What's the Catch? Suspicion of Bank Motives and Sluggish Refinancing.* The Review of Financial Studies, 2018. **32**(2): p. 467-495.

4. Department of Finance. *Consumer Banking Survey April 2022.* 2022; Available from: https://assets.gov.ie/226554/0cb391c5-d97f-499a-aed7-de6c1ef47415.pdf.

5. Branzoli, N., *Price dispersion and consumer inattention: evidence from the market of bank accounts.* Bank of Italy Temi di Discussione (Working Paper) No, 2016. **1082**.

6. Gathergood, J., et al., *How do individuals repay their debt? The balance-matching heuristic.* American Economic Review, 2019. **109**(3): p. 844-875.

7. Ponce, A., E. Seira, and G. Zamarripa, *Borrowing on the wrong credit card? Evidence from Mexico.* American Economic Review, 2017. **107**(4): p. 1335-1361.

8. Timmons, S., et al., *Official advice improves mortgage-holders' perceptions of switching: Experimental evidence.* 2020, Cambridge University Press.

9. Bertrand, M. and A. Morse, *Information disclosure, cognitive biases, and payday borrowing.* The Journal of Finance, 2011. **66**(6): p. 1865-1893.

10. Beere, B., et al., *The Great Account Migration: Lessons from Behavioural Economics.* 2022, Central Bank of Ireland.

11. Papadopoulos, A., et al., *Switching Activity in Retail Financial Markets in Ireland.* ESRI Research Series, 2023(161).

12. Vasas, Z., *Do nudges increase consumer search and switching? Evidence from financial markets.* Behavioural Public Policy, 2023. **7**(3): p. 808-824.

13. Hertwig, R. and T. Grüne-Yanoff, *Nudging and Boosting: Steering or Empowering Good Decisions.* Perspectives on Psychological Science, 2017. **12**(6): p. 973-986.

14. Strotz, R.H., *Myopia and Inconsistency in Dynamic Utility Maximization.* The Review of Economic Studies, 1955. **23**(3): p. 165-180.

15. Thaler, R.H. and H.M. Shefrin, *An Economic Theory of Self-Control.* Journal of Political Economy, 1981. **89**(2): p. 392-406.

16. Tversky, A. and D. Kahneman, *The framing of decisions and the psychology of choice.* Science, 1981. **211**(4481): p. 453-8.

17. Dolan, P., et al., *Influencing Financial Behavior: From Changing Minds to Changing Contexts.* Journal of Behavioral Finance, 2012. **13**(2): p. 126-142.

18. Petty, R.E., J.T. Cacioppo, and R. Goldman, *Personal involvement as a determinant of argument-based persuasion.* Journal of Personality and Social Psychology, 1981. **41**(5): p. 847-855.

19. Taylor, S., M. Graff, and R. Taylor, *How can you persuade me online? The impact of goal-driven motivations on attention to online information.* Computers in Human Behavior, 2020. **105**: p. 106210.

20. Brame, C.J., *Effective educational videos: Principles and guidelines for maximizing student learning from video content.* CBE—Life Sciences Education, 2016. **15**(4): p. es6.

21. Fyfield, M., M. Henderson, and M. Phillips, *Improving instructional video design: A systematic review.* Australasian Journal of Educational Technology, 2022. **38**(3): p. 155-183.

22. Krämer, A. and S. Böhrs, *The use of explainer videos as a learning tool: an internal and external view.* On the Line: Business Education in the Digital Age, 2018: p. 189-202.

23. Sopory, P. and J.P. Dillard, *The Persuasive Effects of Metaphor: A Meta-Analysis.* Human Communication Research, 2002. **28**(3): p. 382-419.

24. Keefer, L.A. and M.J. Landau, *Metaphor and analogy in everyday problem solving.* Wiley Interdiscip Rev Cogn Sci, 2016. **7**(6): p. 394-405.

25. Van Stee, S.K., *Meta-Analysis of the Persuasive Effects of Metaphorical vs. Literal Messages.* Communication Studies, 2018. **69**(5): p. 545-566.

26. Kahneman, D. and A. Tversky, *Prospect Theory: An Analysis of Decision under Risk.* Econometrica, 1979. **47**(2): p. 263-291.

27.   Elliot, A.J., *Color and psychological functioning: a review of theoretical and empirical work.* Front Psychol, 2015. **6**: p. 368.

28.   Pomerleau, V.J., et al., *Colour-specific differences in attentional deployment for equiluminant pop-out colours: evidence from lateralised potentials.* Int J Psychophysiol, 2014. **91**(3): p. 194-205.

29.   European Commission, *Bank Fees Behaviour Study.* 2012, European Commission: Brussels.

30.   Roediger, H.L., et al., *Test-enhanced learning in the classroom: long-term improvements from quizzing.* J Exp Psychol Appl, 2011. **17**(4): p. 382-95.

31.   Roediger, H.L. and J.D. Karpicke, *The Power of Testing Memory: Basic Research and Implications for Educational Practice.* Perspectives on Psychological Science, 2006. **1**(3): p. 181-210.

32.   Butler, A.C. and H.L. Roediger, *Feedback enhances the positive effects and reduces the negative effects of multiple-choice testing.* Memory & Cognition, 2008. **36**(3): p. 604-616.

33.   Manzano-León, A., et al., *Between level up and game over: A systematic literature review of gamification in education.* Sustainability, 2021. **13**(4): p. 2247.

34.   Sailer, M. and L. Homner, *The gamification of learning: A meta-analysis.* Educational Psychology Review, 2020. **32**(1): p. 77-112.

35.   Sunstein, C.R., *Nudging: a very short guide.* Journal of Consumer Policy, 2014. **37**: p. 583-588.

36.   Studer, B., et al., *Conquering the inner couch potato: precommitment is an effective strategy to enhance motivation for effortful actions.* Philosophical Transactions of the Royal Society B: Biological Sciences, 2019. **374**(1766): p. 20180131.

37.   Royer, H., M. Stehr, and J. Sydnor, *Incentives, Commitments, and Habit Formation in Exercise: Evidence from a Field Experiment with Workers at a Fortune-500 Company.* American Economic Journal: Applied Economics, 2015. **7**(3): p. 51-84.

38.   Kahneman, D., et al., *A survey method for characterizing daily life experience: the day reconstruction method.* Science, 2004. **306**(5702): p. 1776-80.

39.   Belli, R.F., W.L. Shay, and F.P. Stafford, *Event history calendars and question list surveys: A direct comparison of interviewing methods.* Public opinion quarterly, 2001. **65**(1): p. 45-74.

40.   DellaVigna, S. and E. Linos, *RCTs to Scale: Comprehensive Evidence From Two Nudge Units.* Econometrica, 2022. **90**(1): p. 81-116.

Appendix

Methods and Results of Pilot Study 1

Methods

This online study was undertaken by a nationally representative sample of 1000 customers from around Ireland.

We considered four hooks: 1) the large savings that can be made; 2) that switchers are more satisfied with their financial products [11]; 3) that switching is easier than many people expect; 4) that switching lowers high rates for everyone because it increases competition. We then created pairs of these four hooks, giving six versions of the information.

Participants took part online on phones or computers. They were told that they would be given a choice to read some articles on different topics. Participants were then directed to a webpage that had four widgets on screen, each giving a summary of an article. Participants could click on any of the summaries to read the full article. The four articles were on the best forms of exercise, data protection, the effects of climate change on weather and switching financial products. All participants saw the same information, but each participant was randomly selected to see one of the six versions of the information or a control version that had no hook.

The outcomes of interest were what articles people chose to read, how likely they were to choose to switch financial product, how they perceived and understood the information they had seen and how difficult they thought switching was. The aim was to assess whether one of the hooks was more successful at altering any of these outcomes.

Results

Does the hook encourage people to read information about switching?

Participants saw four topics and chose which one to read. They did this twice more so read a total of three articles. Just over 70% of participants chose to read the article on switching: 21% chose it first, 26.1% chose it second and 23.5% viewed it third. For analysis, we scored responses to produce a selection score in which participants were given a 3 if they selected the topic first, 2 for second, 1 for third and 0 if they never chose it. Figure A1 shows the average scores. There was no effect of hook on how likely people were to choose to read the switching information.

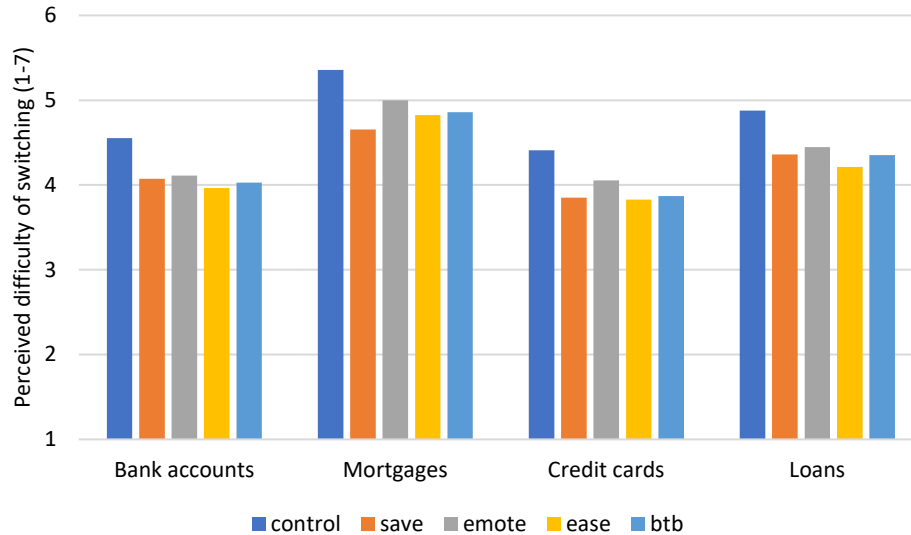Figure A1. Mean selection order of switching topic from list of four topics.
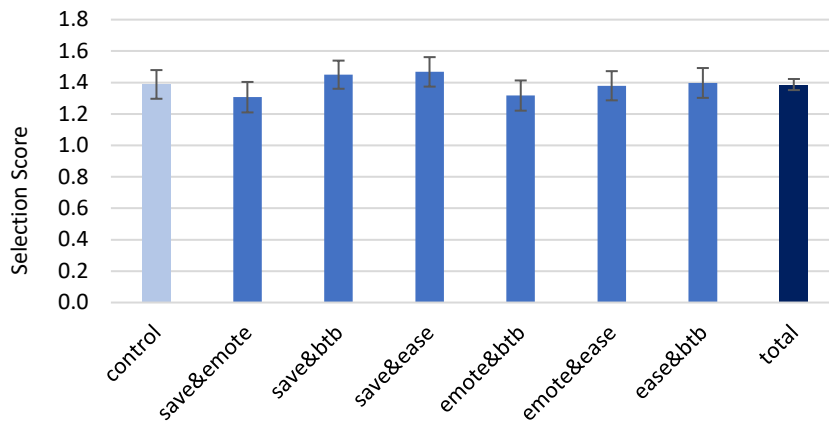
Note. Control = no hook; save = highlight savings; btb = highlight collective benefits of switching; ease = highlight ease of switching; emote = highlight switcher satisfaction.

Does the hook decrease perceived difficulty of the switching process?

Previous research identified perceived difficulty as a primary barrier to switching. We asked participants how much they agreed with the sentence 'switching is difficult and complicated' for each of the products that they owned. Overall, switching any product is perceived to be difficult – the average responses were above the midpoint of the rating scales. We ran ordered logistic regressions to check if the hooks had effects on perceived difficulty of switching product provider. All the hooks made the process of switching seem less complicated (see Figure A2). The hook that combined highlighting savings and the ease of switching had the strongest effect on perceived difficulty.

Figure A2. Average perceived difficulty of switching financial product by hook, where 1= completely disagree that it is difficult, and 7= completely agree that it is difficult.

Note. Control = no hook; save = highlight savings; btb = highlight collective benefits of switching; ease = highlight ease of switching; emote = highlight switcher satisfaction.

Does the hook affect how much information people read?

Participants were shown pages with frequently asked questions (FAQs) about switching each of the products they owned. There were seven questions for each product. Participants could click on as many or few of them as they liked to view the answers. We ran ordered logistic regressions to check if people in different conditions read different amounts of FAQs. We did not find any effects of framing.

Does the hook influence how willing people are to switch?

We asked participants to tell us the smallest reduction in product cost at which they would decide to switch to an alternative product. To test for an effect of framing on switching propensity, we standardised these responses and took the average across products before running a linear regression with condition as independent variable. No significant effects of framing were observed.

It was expected that increased engagement with the information due to framing would lead to higher propensity to switch. While there was no effect of framing, we checked to see if reading more of our FAQs was associated with higher reported switching propensity. This was true for all products. This suggests that if people can be encouraged to read simplified information, they may be more motivated to switch.

Does the hook influence how engaging people think information on switching is?

We asked participants how engaging they thought the information on switching was, and how likely they would be to search for more information. Participants who saw the hook that stressed savings potential and higher satisfaction among people who switch thought the information was more engaging compared to participants in the control condition (see Figure A3).

Figure A3. Effect of hook on subjective engagement with the information about switching

Note. Control = no hook; save = highlight savings; btb = highlight collective benefits of switching; ease = highlight ease of switching; emote = highlight switcher satisfaction.

Does the hook influence how much people understand switching?

Participants were asked several questions to check if they could recall and understand the information they had read in the FAQs. The questions covered procedural aspects of the switching process and requirements to qualify to switch. Some questions had multiple correct answers to select. The mean correct percentage of responses for bank account questions was 73.5%; for mortgages questions it was 59.6%; for credit card questions it was 64.4%; and for loans it was 63.1%. However, hooks did not

affect comprehension.

Methods and Results of Pilot Study 2

The aim of the second online experiment was to test whether different formats of information can improve comprehension and willingness to switch. Based on the results of the first experiment, we designed an animated explainer video about switching and engaged a professional company to draw and animate it. We incorporated the most successful hooks from the first online experiment, namely highlighting savings and emphasising switcher satisfaction, as this hook had increased subjective engagement. We also designed a quiz and a calculator to test whether these could boost comprehension and motivation to switch.

Methods

This online study was undertaken by a nationally representative sample of 500 people in Ireland. It was done on mobile phones and computers.

Participants were first shown the animated video and asked to answer some questions about how much they liked it and had engaged with the content. They then chose which of four products they wanted to read information on: current accounts, mortgages, credit cards or personal loans. We allowed this option so that people could choose the product most relevant to them. Participants were then randomly selected to either read text information about the product they chose or to do a multiple-choice quiz that covered the same topics, such as what APRs are, what the total cost of the product is, whether providers differ from each other, the switching process, fees and refinancing. After answering each question, the participants were presented with the correct answer. Following this, participants who had chosen mortgages, loans or credit cards were randomly selected to see a calculator tool that showed them how different interest rates influenced the total cost of the product. Half of participants saw the calculator and half did not. For those who had chosen mortgages, everyone saw the calculator but were randomly selected to see two different versions; one was a bar chart that showed the impact of different interest rates on total cost of the mortgage, the other was an area chart that showed the difference between the two lowest interest rates on the market at the time over the lifetime of the mortgage to show how small differences add up. All participants then did a

comprehension test and answered questions about how engaging they had found the information, how well informed they felt and how likely they were to shop around and switch. *Results*

Video

Based on a scale of 1-7, participants liked the video (M = 4.8, SD = 1.6), found it easy to follow (M = 5.77, SD = 1.38) and said they would use it (M = 4.76, SD = 1.89). There were no negative comments about it.

Quiz

The comprehension test had a total possible score of 6 for current accounts and credit cards and 7 for mortgage and parts and personal loans and . Participants who were randomised to take part in the quiz had better comprehension of credit cards compared to those who read the same text that was not in the form of a quiz (M = 3.76, SD = 1.44 vs. M = 4.22, SD = 1.2). There were no differences in the quiz and text conditions for mortgages and personal loans. Surprisingly, information presented to the participants in a quiz format reduced comprehension of current accounts (M = 2.16, SD = 1.11 vs. M = 2.49, SD = 1.32). Participants who saw the quiz reported being more engaged with the information on current accounts, credit cards and current accounts but not personal loans. Participants who saw the quiz compared to the same information as text were more likely to report intending to shop around or switch credit cards.

Calculator

Participants who used the calculator showed improved comprehension of credit cards (M = 3.88, SD = 1.61 in no calculator vs. M = 4.11, SD = 4.11 in calculator condition), but decreased willingness to compare options (M = 5.29, SD = 2.17 vs. M = 4.58, SD = 1.95). The calculator also increased willingness to compare options and switch personal loans (M = 5.7, SD = 1.56 vs. M = 6.16 vs. 1.27). Participants who used the calculator were more engaged with the information on credit cards and

personal loans. For mortgages, participants who saw the bar chart calculator were more willing to compare options (M = 6.03, SD = 1.33 vs. M = 5.84, SD = 1.66) compared to those who saw the area chart.

Conclusions

Each of the elements were tested in isolation and in a small sample which may reduce the size of effects. Nevertheless, we got some important insights from this task that informed the final tool. The positive response to the video, particularly the finding that people found it easy to follow, suggested that it should be used in the final tool. The quiz should be used to impart information about mortgages, credit cards and personal loans but not current accounts. The calculator had overall positive effects on the three products tested and should be included in the tool. The bar chart format was most successful for mortgages. In conclusion, the different elements of the tool that were under consideration had some effects on objective comprehension, engagement and willingness to switch, all of which are important predictors of real-world switching. As a result, we retained all components for use in the final intervention tool.