CHOICE AND EQUALITY – CITIZENS’ SWITCHING BEHAVIOUR IN LIBERALIZED PUBLIC SERVICE MARKETS ACROSS THE EU

COCOPS Working Paper No. 10

Sebastian Jilke

January 2013

Coordinating for Cohesion in the Public Sector of the Future – www.cocops.eu
About COCOPS

The COCOPS project (Coordinating for Cohesion in the Public Sector of the Future) seeks to comparatively and quantitatively assess the impact of New Public Management-style reforms in European countries, drawing on a team of European public administration scholars from 11 universities in 10 countries. It will analyse the impact of reforms in public management and public services that address citizens’ service needs and social cohesion in Europe. Evaluating the extent and consequences of NPM’s alleged fragmenting tendencies and the resulting need for coordination is a key part of assessing these impacts. It is funded under the European Commission’s 7th Framework Programme as a Small or Medium-Scale Focused Research Project (2011-2014).

About the Authors

Sebastian Jilke is junior research at Erasmus University Rotterdam. His research interests include public service delivery-mechanisms, citizen attitudes and behaviors, administrative reforms, and development administration.

The research leading to these results has received funding from the European Community’s Seventh Framework Programme under grant agreement No. 266887 (Project COCOPS: www.cocops.eu), Socio-economic Sciences & Humanities.

ISSN 2211-2006
CHOICE AND EQUALITY – CITIZENS’ SWITCHING BEHAVIOUR IN LIBERALIZED PUBLIC SERVICE MARKETS ACROSS THE EU

Abstract
In recent decades, we have witnessed a massive restructuring of public service delivery mechanisms, including service liberalization, the pursuit of the so-called choice agenda and the creation of quasi-markets. A central aim of these reforms is that citizens, now perceived as consumers, receive better value for money through greater competition among service providers. Service users were thought able to make well-informed choices and select the optimal provider. However, it is debated whether all layers of society are equally able to benefit from these developments. Here, we assess the equality in citizens’ choice behaviour (i.e. switching to another service provider) with regard to liberalized services of general interest across twenty-five countries of the European Union. Our findings suggest that the gap between lesser and better educated service users, in terms of actual switching behaviour, widens once a considerable degree of service liberalization, as evidenced by the number of service providers, has been achieved. We conclude that, under certain conditions, liberalization reforms can have negative effects on vulnerable citizens’ abilities to exercise choice. Theoretical and practical implications of our results are discussed.

Keywords
Equality, liberalizing public services, provider choice, public management reform, services of general interest, multilevel analysis

Acknowledgements: The author would like to thank Ziya Aliyev, Rhys Andrews, Dion Curry, Marcos Fernandez-Gutierrez, Sandra Groeneveld, Oliver James, Alexander Kroll, Christopher Pollitt, Steven Van de Walle, Lien Van Melleart and Dirk Wolfson for providing useful comments on earlier drafts of the paper. All the remaining errors or mistakes are of course mine.
1. Introduction

Although citizens’ responses to poorly performing public services have featured on the research agenda for some time (see most prominently Hirschman, 1970; Lyons et al., 1992), recent years have seen an upsurge in interest in studying responses to public services, including citizen satisfaction (Charbonneau & Van Ryzin, 2012; James, 2009; Mizrahi et al., 2010), their behaviour when dealing with poor performance (Gofen, 2012; James & Moseley, 2012; Jilke & Van de Walle, 2012) and the link between these two aspects (Dowding & John, 2012; Salucci & Bickers, 2011). Following large-scale public service reforms, such as service liberalization, the pursuit of ‘the choice agenda’ and the creation of quasi-markets (Clifton & Diaz-Fuentes, 2010; Le Grand, 2007), attention has been drawn to the outcome of these reforms for ordinary citizens (Clifton et al., 2011a; Clifton et al., 2012; Cookson et al., 2010; Dan et al., 2012; Fiorio et al., 2007; Grosso & Van Ryzin, 2012).

A central aim of these reforms was that citizens, now perceived of as consumers (Clarke et al., 2007), would receive greater value for money through competition among providers. Service users, in turn, were thought to be able to make well-informed choices and opt for the optimal service provider (European Commission, 2004). However, it is debated whether all layers of society are equally able to do so. In this vein, commentators have claimed that the marketization of public service delivery and the insertion of greater choice into the public sector might well have fostered a ‘two-track’ public service where so-called potentially vulnerable service users are less likely to benefit from public service reforms than their relatively ‘strong’, better educated and younger counterparts (Clifton et al., 2011a; Needham, 2003). Despite these concerns, substantive evidence of negative effects of greater choice on equality in public service provision is lacking.

In France they have a saying “trop de choix tue le choix”, meaning that too much choice kills the choice (Economist, 2010). While most experiences within the public sector reject the notion that increasing choice necessarily leads to a halt in using the service or an end to switching providers (e.g. Le Grand, 2007), in this paper we go one step further by investigating whether ‘too much’ choice harms the choices made by lower socioeconomic groups - those who are regarded as potentially vulnerable service users, such as the elderly or the less well educated. We offer an empirical look at equality in citizens’ choice behaviour (switching to another service provider) when it comes to liberalized services of general
We find some support for the ‘two-track’ public service concern within the mobile telephony sector where national markets now involve a large number of service providers. We argue that greater choice may have led to a situation where potentially vulnerable service users are overloaded with information as the choice increases. As a result, the switching process becomes too complex for them, which in turn undermines their confidence that they would be better off if they changed their current provider. Thus, they become less likely to switch providers. Their better-educated counterparts, however, steadily increase their choice behaviour once more providers become available. Our findings suggest that the gap in actual switching behaviour between lesser- and better-educated service users widens once a considerable degree of service liberalization, as evident by the number of service providers, is in place.

Our study is structured as follows: the next section introduces liberalization reforms in services of general interest and other empirical studies that have looked at their effects on citizens’ attitudes and behaviours. We then address the commonly articulated reproach - that reforms for greater provider choice foster inequalities between service users - and discuss the theoretical and empirical literature regarding reforms in the ‘services of general interest’ telecommunications sector. Drawing on decision-making theory, we derive hypotheses. Our main research question asks whether potentially vulnerable service users become less likely to switch away from their current service provider once the number of providers increases. Subsequently, we introduce our data, measures and methodology, and then test our theoretical framework. Finally, we discuss the findings from statistical tests and extract theoretical and practical implications.

2. Liberalizing public services in the EU and its effects on citizens

The European integration process and the creation of a single market fostered the liberalization of services of general interest and made them subject to greater competition (Héritier, 2001; Prosser, 2005), and these reforms led to the creation of liberalized markets for

---

1 In Europe, the term ‘services of general interest’ is a predominantly legal concept that was introduced by the European Commission to replace varying national definitions of public services (Prosser, 2005). Services were labelled as being in the general interest if they are subject to specific public service obligations. Within this study, we will concentrate on those services of general interest that are subject to general economic interest and therefore considered appropriate for delivery through market-based mechanisms but, at the same time, should also be made equally accessible to all layers of society. They include traditional utilities such as energy and water services, but also public transport, postal services and telecommunications (see Van de Walle, 2008).
service provision (Clifton & Diaz-Fuentes, 2010). These markets seek to overcome the market failure situations that typically occur when public services are provided through a monopolistic provider, by establishing a market environment where, ideally, multiple service providers compete for customers (Savas, 1987; Ostrom & Ostrom, 1971). Further, through market signalling, this is expected to create an incentive to deliver greater value for money in order to keep existing customers as well as attract new ones. A key attribute in the provision of services of general interest is that the classical exit option of completely withdrawing from the service in question is often not feasible, too difficult or associated with extremely high costs (see Clifton et al., 2012). For instance, service users who choose to exit the telecommunication services used in our example would no longer be easily contactable by their friends and colleagues. While this might be desirable in some instances, for the vast majority of service users this would probably have a negative impact on their social and perhaps also professional lives. Exiting other crucial services, such as energy, may have even more devastating effects on a person’s wellbeing. Thus, equality in terms of accessibility and the provision of services of general interest, to all layers of society, is regarded as crucial in all EU member countries (Prosser, 2005).

For citizens, changing the delivery and supply arrangements of services formerly provided by public monopolies meant that they were no longer regarded as mere legal subjects, but as vocal and empowered consumers (Aberbach & Christensen, 2005; Clarke et al., 2007). They were put in a position to autonomously make choices as to which service providers best matched their needs and demands. Experiences in the US telecommunications sector showed that service users were indeed often better off after switching (Epling, 2003), while evidence from the UK’s electricity market suggests that, financially speaking, some consumers failed to identify the appropriate supplier for their levels of consumption (Wilson & Waddams Price, 2010). However, greater provider choice has not always become available within all the liberalized sectors in the EU. The rail transport sector, for example, has remained strongly regulated in many countries, whereas effective competition and choice is observable in most EU member countries in terms of mobile telecommunications (Conway & Nicoletti, 2006; European Commission, 2010).

The general process of service liberalization has been criticized as mainly advantaging the comparatively ‘strong’ and well-positioned service users, and leaving behind those who are viewed as ‘potentially vulnerable’, such as the less educated and the elderly (Clifton et al., 2011a; also Gottfried, 2001). The literature suggests that while comparatively ‘strong’ and well-educated service users relatively easily make optimal decisions regarding the services they receive, potentially vulnerable service users are less likely to do so. This can lead to a
service delivery system where potentially vulnerable service users receive least value for money. In terms of services of general interest, numerous observers have shown that potentially vulnerable service users are least satisfied with the services they receive (Bacchiocchi et al., 2011; Clifton et al., 2012; Ferrari et al., 2010; Fiorio & Florio, 2010; Fiorio et al., 2011; Poggi & Florio, 2009). Moreover, liberalization reforms have been found to decrease service satisfaction across a whole range of services of general interest (Bacchiocchi et al., 2011; Ferrari et al., 2010; Fiorio & Florio, 2010), whereas, at least in the UK, healthcare reforms have been shown to improve citizen satisfaction (Grosso & Van Ryzin, 2012). However, no evidence is available about whether this is equally true for all socioeconomic groups.

Moreover, we cannot rule out the possibility that the abovementioned findings are due to individual attitudes and expectations towards those services and/or the process of service liberalization itself. Expectations have been shown to influence service users’ satisfaction levels, with higher expectations making people less satisfied with a given level of service performance (James, 2009; Morgeson, 2012; Van Ryzin, 2006). One might argue that expectations regarding service liberalization reforms, prior to the reforms taking place, must have been higher in those countries that later recorded relatively low satisfaction rates. This expectation-satisfaction relationship could also vary according to socioeconomic status and other underlying attitudes or values such as institutional trust (Morgeson, 2012). In other words, observed satisfaction levels may not only reflect price levels and service quality, but also whether socioeconomic groups felt their individual expectations towards these reforms and/or services were met.

Other research on service of general interest reforms has attempted to identify inequality effects on service users’ actual market behaviour. Clifton and others (2011a) contrasted public satisfaction with electricity and telecommunications services in Spain and the UK with the spending behaviour of the service users; Jilke and Van de Walle (2012) looked at complaints over time regarding a range of liberalized services across 15 EU member countries; and Poggi and Florio (2009) assessed the dynamics of energy deprivation in seven EU member countries over time and tried to relate them to regulatory reform indicators. However, the results are not only sparse, but also rather mixed. While inequalities in actual spending, complaints and experiencing financial problems in paying service bills are apparent for numerous groups of potentially vulnerable service users, these problems cannot clearly be attributed to the liberalization reforms.
These demand-side studies on services of general interest have focused on the effects of service liberalization on citizen satisfaction, spending and/or complaining behaviour among different groups of service users. However, within this stream of the literature, there is little evidence available on the extent to which service users, and in particular those who are regarded as potentially vulnerable, exercise what was argued to be a core element of service liberalization reforms and greater competition - namely user choice.

3. Choice behaviour among different groups of service users

In this section, we look into citizens’ switching behaviour in a strongly marketized service sector - telecommunications. This sector has not only undergone liberalization reforms across all EU member countries (Eliassen & Sitter, 2008), it also provides sufficient variance in the degree to which reforms have resulted in greater competition and an increase in the number of service providers (European Commission, 2010; Conway & Nicoletti, 2006), aspects which are relevant for our subsequent empirical investigation. Furthermore, telecommunication services are regarded as services of general interest, which means that they are subject to universal service obligations and that their equal provision to all societal layers is viewed as in the public interest. Thus, from a European perspective, they are regarded as public services regardless of the ownership status of their service provider or the degree of liberalization.

The research into the antecedents of switching behaviour in telecommunications can be broadly divided into two lines of study. The first regularly indicates that both user satisfaction and perceived switching barriers, or anticipated difficulties in switching, affect actual choice in a range of contexts (Burnham et al., 2003; Gerpott et al., 2001; Kim et al., 2004; Lee et al., 2001; Low & Johnston, 2003; Liu et al., 2011; Ranaweera & Prabhu, 2003; Roos et al., 2004; Seo et al., 2008). While dissatisfaction is perceived as fostering service users’ choice behaviour (i.e. they will switch their provider), switching costs are a hindrance. Moreover, switching costs are thought to substantially moderate the satisfaction-switching relationship (Kim et al., 2004; Lee et al., 2001; Ranaweera & Prabhu, 2003). This means that strongly dissatisfied service users are less likely to switch their providers as the perceived costs of switching increase. The other stream of literature addresses the role of personal networks in explaining service users’ choice behaviour (Birke & Swann, 2006; Corrocher & Zirulia, 2009; Maicas et al., 2009). The findings reveal that when many members of a user’s social network subscribe to a particular provider that the user is likely to follow their peers’ choice. To an extent, these studies challenge the assumption of macro-network effects, where having a large number of network subscribers attracts more users (Doganoglu & Grzybowski, 2007; Grajek, 2010). Doing so, Maicas and others (2009) argue that a service user’s utility increases as more members of their social network subscribe to their provider of choice, especially if they make
intensive use of the service. These effects seem to be stronger for more sophisticated service users who are aware of their potential network benefits.

Within both literature streams, a few studies have examined equality in provider choice by looking at direct and/or indirect effects of socioeconomic aspects on service users’ switching behaviours. In this vein, Ranganathan and others (2006) show that young service users are more likely to switch their mobile providers than older users, arguing that this is a reflection of their active market behaviour and high service usage. Grzybowski (2008), using panel data on service users’ market behaviour in the UK, similarly found that age has a negative impact on the likelihood of switching. Similar effects are found for male mobile users who are thought to be more drawn to technological innovation than their female counterparts. Epling (2002) studied the effects of switching on price discrimination among different users groups. Results indicated that non-switchers frequently paid higher prices. Her findings further showed that education and income is negatively related with switching – that the poor seem to more actively search for better offers. Regards education, the author explained her finding by arguing that information is crucial for making choices and finding a better deal, and that the more highly educated service users were more likely to have better access to information. Thus, there is considerable evidence that service users who are regarded as potentially vulnerable, such as the elderly and those who are less well educated, face greater hindrances in making the right choice because of the greater constraints they face in accessing, processing and comparing information. On this basis, we formulate the following hypothesis:

\[ H_1: \text{Potentially vulnerable service users are less likely to exercise choice than their younger, better-educated counterparts.} \]

4. Choosing among different providers: Insights from decision theory

As a response to the theories of rational decision-making, which as we have seen form the basis of most studies on the drivers of service users’ switching behaviour, Simon (1957) developed the concept of bounded rationality (see also Jones, 2003). This assumes that individual decision-making is not fully rational but is influenced by individual-level limitations, including uncertainty, cognitive constraints in processing information and information overload. As a result of these personal restrictions, individuals end up making decisions that cannot necessarily be regarded as optimal, but rather as ‘satisficing’ or ‘good enough’ (see Van de Walle & Bovaird, 2007). These assumptions correlate with findings from the decision-making literature on information overload, which suggest that as the amount of information to be processed grows, decision-making becomes poorer and also less likely (Chen et al., 2009; Hwang & Lin, 1999; Lee & Lee, 2004). This is mainly because
individuals have limited capacities to deal with information when it comes to making decisions and, when those limits are reached, individuals tend to become confused (Miller, 1956; Timmermanns, 1993). Consequently, if the number of options available goes beyond a certain limit, the risk of making a poor decision increases. As a result, the likelihood of staying with one’s current service provider increases because this represents a safe haven, a so-called satisficing option – a situation that has been more generically described as a ‘status-quo bias’ (Samuelson & Zeckerhauser, 1988).

Studies in the field of applied psychology indicate that increasing the number of alternatives first results in a positive effect on consumers’ choice behaviour, but eventually the effect becomes negative (Botti & Iyengar, 2006; 2004; Iyengar & Lepper, 2000; Schwartz, 2005; Shah and Wolford 2007), supporting the assumptions linked to information overload. Iyengar and Lepper (2000) were able to identify choice overload in a simple buying environment using a rather large number of alternatives (24), as have later studies (Botti & Iyengar, 2006; 2004). However, in the case of public service delivery, the number of alternatives, or available service providers, is typically much smaller. We found a maximum of 13 service providers within mobile, and 10 within fixed, telephony markets. Following these insights, and given the fact that we are observing tendencies within and between countries, we hypothesize that increasing the number of service providers increases the likelihood of switching (given the relatively few providers in most countries)².

\( H_2: \) Service users’ switching behaviour is positively related with the number of service providers within a country.

The fact that individual capabilities in processing information vary among different socio-educational groups, as does the propensity for taking a risk based on a possibly poor decision (Dohmen et al., 2007; Falch & Sandgren, 2006; Hjorth & Fosgerau, 2011), means that potentially vulnerable service users are more likely to be risk-averse in terms of their switching decisions, mainly because of their limited capacities in processing and evaluating necessary information. Thus, in order to avoid being worse off after switching, they are more likely to stay with their current service provider. If this is the case, then we would assume that, as the number of alternatives increases, the gap between different types of service users will widen. In other words, the difficulty in figuring out the optimal service offer increases as the number of service providers increases, and this will eventually lead to information overload, with potentially vulnerable service users being most prone to this type of cognitive

² We will also test whether the effects of choice on service users’ switching behaviour follows an inverted U-shape.
restraint. That is, determining the best offer becomes more difficult for this particular group of service users, and making a choice then represents a risk to them. As a result, they are more likely to stick with their current provider and tend to become ‘locked-in’. This leads to our third hypothesis:

**H3**: The potential gap between potentially vulnerable and non-vulnerable service users increases as the number of service providers increases.

5. Data and methodology

We use data from the European Commission’s Eurobarometer project. Despite their popularity in neighbouring disciplines (e.g. Adams et al., 2011; King & Maynard, 2000; Steenbergen et al., 2012; Warwick, 2011; Wendt et al., 2010), Eurobarometers and comparative public opinion surveys, are in general rarely utilised in public administration research (Bouckaert et al., 2005). Eurobarometer surveys are conducted on behalf of the European Commission twice a year since 1973, and coordinated by a consortium formed by Taylor Nelson Sofres and EOS Gallup Europe. They are known for their high quality and methodological rigour in both survey design and data collection. Questionnaires are carefully designed, translated and back-checked, allowing for cross-country comparison of the items surveyed. Adopting a multistage, random probability sampling procedure, information is collected, through face-to-face interviews at respondents’ homes, using CAPI techniques (GESIS, 2010). To ensure national representativity, approximately 1,000 people are interviewed in each country3 (in the survey we used, this amounted to a total of 24,815 respondents aged 15 and above). In our study, we use data from Eurobarometer 65.3 on services of general interest (European Commission, 2006). The survey was carried out between May and June 2006 in 25 EU member countries. We filtered out those respondents who were not service users and deleted cases with item non-responses4. This resulted in a sample of 15,143 mobile service users and 13,422 fixed telephony users.

**Dependent variables**

In our study, we examine individual level switching behaviour in 2006 within the mobile and fixed telephony sectors of the 25 member countries then part of the EU. Here, Eurobarometer 65.3 contains relevant information on citizens’ switching behaviours in both sectors with respondents having been asked whether they had switched provider within the past 24

---

3 A few countries had significantly different numbers of respondents per country (Germany: 1,525; UK: 1,337; Cyprus: 505; Luxembourg: 501; Malta: 500).
4 Item non-responses did not differ significantly across countries, suggesting the survey instrument has cross-national validity.
months\(^5\). Our interest is in whether service users have actually switched providers, and therefore we coded this as a dichotomous variable. Respondents that indicated that they had switched providers in the past two years were coded as ‘1’ while the non-switchers were coded as ‘0’. Overall, 18% of fixed telephony and 25% of mobile telephony users had switched their providers within the period surveyed. Figure 1 provides a disaggregated overview of switchers for both sectors and one can clearly see that there are significant differences in switching behaviour across countries.

**Figure 1** Service users’ switching behaviour (percentages)

![Service users’ switching behaviour (percentages)](image)

Source: Own calculations using EB65.3 data

**Potential vulnerability**

Vulnerable consumers have been defined as “… those who are at a disadvantage in exchange relationships where that disadvantage is attributable to characteristics that are largely not controllable by them at the time of the transaction” (Andreasen & Manning, 1990:13). In this respect, OECD (2008) identifies a range of socioeconomic characteristics that can serve as proxies for vulnerable consumers, including the elderly, low educated, unemployed, low income, disabled people and those living in rural areas. In the context of service liberalization, these measures of potential vulnerability have been employed in a wide range of empirical studies (Clifton et al., 2011a; Fioro et al., 2007; Jilke & Van de Walle, 2012). On the individual level, we used what we considered to be appropriate proxy measures for a service user’s potential vulnerability. As such, we included two socioeconomic measures - educational attainment and age - that have repeatedly been shown to be the strongest

---

\(^5\) Respondents were asked “Have you tried to or thought about switching your [insert service] provider in the last two years?” Possible answers were: 1 "Yes, you switched an it was easy", 2 “Yes, you switched but it was difficult”, 3 "Yes, you tried to switch but you gave up switching due to obstacles you faced", 4 “No, you did not try because you are not interested in switching” and 5 “No, you did not try because you thought it might be too difficult".
predictors of potential vulnerability and inequality within European liberalized telecommunication sectors (Bacchiocchi et al., 2011; Clifton et al., 2012; Clifton et al., 2011a). Remaining factors are included as controls. In terms of education, we grouped respondents, based on their age when they left fulltime education, into two categories: secondary education or lower, and higher education. Respondents who were still studying were assigned to one of the two categories based on their current age. In line with previous studies, we regarded the elderly as potentially vulnerable, and therefore divided the respondents into two categories, those who were 60 and above, and those who were younger.

**Number of service providers**

We use the number of service providers within a national telecommunication market as our main country-level predictor. This measure is employed as an indication of the extent of service liberalization and competition within a liberalized public service market (see also Fiorio et al., 2011). The European Commission provides estimates of the number of service operators (both commercial and non-commercial) within both telephony sectors. However, these estimates are based on different national definitions of which providers to include, and thus do not allow cross-national comparison. Therefore, we established our own values using a common definition of service provider: a commercial organization that provides voice telephony services on a national basis, thereby excluding those that offer only international calls. Service providers were identified from national network agencies and provider websites. We individually measure the number of providers of mobile and of fixed telephony. To make sure causality runs in the expected direction, we only included those providers who had entered the respective telephony market prior to January 2005.

**Control variables**

We controlled for a number of other socioeconomic variables, namely gender, employment status, place of residence and homeownership. Males have been shown to be more likely to switch their service provider and this is perceived to be because of their greater interest in technological innovation (Ranganathan et al., 2006). Income has been shown to negatively correlate with the likelihood of switching, as poorer people are more in need of better service offers (Eppling, 2003). Given the data limitations, we are not able to directly measure respondents’ incomes or wealth status, and instead use homeownership (whether a respondent owns a house or apartment and has finished paying for it) and employment status (whether a respondent is currently unemployed, or not) as proxy indicators. The place of residence should also be critical in providing services of general interest, as it is often argued that rural areas tend to be under-provided (Clifton et al., 2011b). We therefore also controlled for a
respondent’s place of residence, expecting that rural residents are less likely to switch providers.

We also control for individual perceptions of service delivery, reflected in aspects such as price satisfaction, contract satisfaction, the daily importance of the service, and switching barriers. Here, we are aiming to estimate the ‘net effects’ of a service user’s vulnerability on their switching behaviour by excluding any other potential disturbances that may share variance with our main predictors. In this regard, dissatisfaction has been shown to be an important driver of switching behaviour (see most prominently Lyons et al., 1992; but also Burnham et al., 2003; Gerpott et al., 2001; Kim et al., 2004). We thus control for two aspects of service user satisfaction with liberalized telecommunication services: price satisfaction and contract satisfaction. Price satisfaction was assessed by the respondents when being asked whether they found the services to be affordable or excessively expensive. In terms of contract satisfaction, respondents were asked to indicate whether they regarded the terms and conditions of their current service contract as fair, or not. Earlier studies into telecommunication switching behaviour have further indicated the importance of service usage (Ranganathan et al., 2006), with frequent users more likely to change their provider. Thus, we also control for the perceived importance of the services used daily using a four-point Likert scale ranging from not at all important to very important. Another important aspect when it comes to switching behaviour in telecommunications are the barriers to switching (Kim et al., 2004; Lee et al., 2001). Hence, we take into account the individual service user’s perceptions of switching barriers, namely their evaluations of the ease of comparing offers from different providers and the extent to which consumer interests were protected. The ease of comparing offers was measured in the original survey using a four-point Likert scale ranging from very difficult to compare to very easy to compare. Additionally, respondents had been asked to assess how well consumer interests were protected within each service market using a four-point Likert scale ranging from very badly to very well.

On the country level, we control for institutional switching barriers, for the average price for making a call and for the total number of subscribers. In terms of barriers to switching, we include measures for both the services being considered. Within national markets, the number portability rate - that is the average number of days it takes to transfer a phone number from one provider to another - is commonly applied as a common measure of switching barriers (see European Commission, 2010). Here, we chose to use the official figures for average number portability between two providers, as reported by the European Commission (2008). We also control for the actual price levels of the services. For fixed telephony, we use the
costs of a ten-minute local call, as provided by EUROSTAT. In terms of mobile telephony, we use the average price per minute of a voice communication as reported in the Commission’s annual report on the implementation of the telecommunication regulatory reform package (European Commission, 2010; 2009). However, since absolute price levels differ among countries, we have adjusted these prices by weighting them with their respective Purchasing Power Parities for 2006, as provided by EUROSTAT. Further, we recognize that the number of service providers may not only reflect the degree of market liberalisation but also the size of the market. To control for this, we include the total number of subscribers in 2006 (taken from EUROSTAT for mobile, and ITU for fixed telephony) as one of our country-level predictors.

**Modelling strategy**

Given the hierarchical structure of our data, individuals nested within countries, multilevel modelling techniques are required since these are able to correct for potential clustering effects and unobserved heterogeneity across countries (Hox, 2002). Moreover, in order to be able to model individual level predictors of a binary dependent variable (in our case, citizens’ choice behaviour) and country level individual variables simultaneously, we estimate a logistic random intercept model. Acquiring estimators that are approximately unbiased, in a multilevel setting, requires a sufficient number of level-2 units. As regards binary models, Stegmueller (2011), through simulation research in a cross-country setup, concluded that, at least 20 countries were required to produce approximately unbiased estimates with two-level random intercept models. In our study, we have data from 25 countries and therefore are able to satisfy these minimum conditions. In our analysis, we grand mean centre all our continuous predictors such that the intercept can be interpreted as the value (in terms of the used indicators) attached to the average respondent (Hox, 2002). Our main individual level predictors - age and education - have been group mean centred as we are interested in the individual within-country effects of these variables, and not in their structural differences across countries (Enders & Tofighi, 2007). Our estimations were made using the ‘xtmelogit’ routine in Stata 12.1.

**6. Results**

For both mobile (Table 1) and fixed (Table 2), telecommunication services, we estimate three separate models. All the models have been subject to further specification tests and shown to
produce robust estimates\(^6\). In addition, we performed likelihood-ratio tests, comparing our null models to ordinary logit regressions. The results indicate a significant improvement in model fit for the multilevel models\(^7\). In the two tables, we report odds ratios and standard errors (in parentheses) but, because of space considerations, only the results from our main variables of interest are reported here, with complete results being included in the annex. The null model reflects an intercept-only model, which helps to assess how much of the variance lies on level-2 or, in other words, how much of the variance that explains respondents’ switching behaviour can be attributed to differences between countries. In a second step, we added all our independent variables to the models, ignoring any potential interaction between the number of service providers and age/education. In the third model, we added interaction terms between choice and education, and between choice and age.

As regards mobile telephony, each model significantly improved its fit over the previous model (Table 1). This is reflected in the significant decrease in deviance (-2 Log likelihood) when applying a likelihood-ratio test. In the mobile telephony analysis, the intercept-only model revealed an interclass correlation\(^8\) of .101 indicating that roughly 10% of the total variance can be attributed to country differences. Our final model explained 27% of the variance that lies between countries.

<table>
<thead>
<tr>
<th>Table 1 Modelling citizens’ switching behaviour towards mobile telephony services (EU25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 0</strong></td>
</tr>
<tr>
<td>Intercept</td>
</tr>
<tr>
<td>Number of service providers</td>
</tr>
<tr>
<td>Education (Ref: higher education)</td>
</tr>
<tr>
<td>Age (Ref: 15-59 years old)</td>
</tr>
<tr>
<td>Number of service providers X Education</td>
</tr>
<tr>
<td>Number of service providers X Age</td>
</tr>
<tr>
<td>Variance: country intercept (SE)</td>
</tr>
<tr>
<td>Deviance</td>
</tr>
<tr>
<td>Interclass correlation</td>
</tr>
<tr>
<td>N (Individuals)</td>
</tr>
<tr>
<td>N (Countries)</td>
</tr>
</tbody>
</table>

Note: Results of control variables are provided in the annex; significance levels: *p<0.05; **p<0.01;

\(^6\) As a robustness test we also re-estimated all the models using a Markov chain Monte Carlo estimator (see Browne, 2012). The results obtained did not differ significantly from those presented in this study. Given space considerations, the results from our robustness tests are not included but can be obtained upon request.

\(^7\) Mobile telephony: \(\chi^2=752.32, p<0.001\); Fixed telephony: \(\chi^2=1164.68, p<0.001\).

\(^8\) As binominal models do not produce a within-country proportion of variance, we calculate the interclass correlation by dividing the variance at level-2 by the sum of the level-2 variance and the standard logistic distribution \(\pi^2/3\) (Hox, 2002).
Most of the control variables made a statistically significant contribution to our models, and confirmed the expected effect directions (see annex). On the individual level, only respondents’ employment status and place of residence do not seem to influence their switching behaviour. Moreover, our main predictors of interest have the expected effects: being comparatively lowly educated or elderly decreases the likelihood of switching mobile service providers. Considering our level-2 predictors, the number of service providers, as expected, was statistically significant. Our models show that when the number of mobile service providers increases, the probability of switching also increases9. The other three country-level control variables were not statistically significant, but the indicated effect was in the expected direction. However, here, one should not overlook the different degrees of freedom in both levels of analysis.

**Figure 2 Marginal effects of education on the probability of switching mobile services contingent on the number of providers (95% confidence intervals)**

Turning to the hypothesized interactions between education, age and the number of service providers, our findings are mixed. Our first interaction term, between education and the number of service providers, was statistically significant, whereas the term between age and the number of service providers was not. Thus, there is initial evidence for an interaction between education and greater choice, but not for the relationship between age and choice. We further examined these relationships and calculated the marginal effects of education on exercising choice, contingent on the number of service providers, keeping all the other predictors constant at their mean values (see Brambor et al., 2006). The resulting graph (Figure 2) reveals an interesting picture. While the initially positive marginal effect on switching turns negative with more than five providers, if we instead consider the 95%

---

9 We also estimated models including the log and the square of the number of service providers. In both cases they were statistically insignificant and did not provide a significantly better fit than Model 2.
confidence interval then the band includes zero up to eight providers. This means that typically there is unlikely to be a negative effect of being less highly educated on the probability of switching within countries where there are less than eight mobile providers. However, if there are more than eight providers, the marginal effect of being less well educated on switching is clearly negative. In other words, this shows that, within mobile telecommunications, the negative impact on equality of having a large number of service providers to choose between only becomes apparent once there are at least eight providers.

We now turn to the results of our estimations for fixed telephony services (see Table 2). Here, the intercept-only model has an interclass correlation of .23, which means that 23% of the total variance is on level-2. Overall, Model 1 significantly improves its fit over the intercept-only model by including additional parameters. However, our interaction model (Model 2) did not significantly improve its fit over Model 1 - the difference between the deviances of the two models is too low to satisfy conventional significance levels. This indicates that our interaction terms fail to make a valuable contribution to explaining users’ switching behaviour. In terms of our predictors, some of our control variables were found to be statistically significant, with effects in the anticipated directions. As expected, being less-well educated decreases the likelihood of switching service providers, and the elderly are also less likely to exercise choice, confirming our initial expectations. However, gender, unemployment status and homeownership do not seem to affect service users’ switching decisions regarding fixed telephony. Surprisingly, price and contract satisfaction did also not turn out to be significant, implying that switching decisions over fixed telephony services are not primarily driven by respondents’ satisfaction with the price or contract conditions of their current supplier. Similar patterns were observed for the importance that respondents attach to the service.

On the country level, including the number of service providers did yield statistically significant estimates\(^9\). Although the number of service providers has a positive effect on the likelihood of switching, the effect has a log-linear form. In other words, the more service providers within a country, the more likely individuals are to exercise choice, but the marginal effect of a one-unit increase decreases as the number of providers increases within a national market. Looking at our control variables, only our predictor of institutional switching

\(^9\) We calculated the natural logarithm of our predictor for the number of service providers. This fitted the data significantly better than the original form of the variable. We compared the two models using the Bayesian Information Criterion (BIC) because deviance is not an appropriate criterion with non-nested models (Hox, 2002). Our BIC value was 11386.11 for the original predictor and 11380.28 when using a logged term. As such, the BIC values indicate that the logged variable clearly improves the model fit. The model with the logged predictor also performed better than a model that included the original and a squared term of the number of service providers (BIC: 11387.38).
barriers, i.e. number portability, was found to be statistically significant\textsuperscript{11}. The other controls do not reach conventional levels of statistical significance. Additionally, we checked for two potential interaction effects, between age and the number of service providers and between education and service providers. While our statistical tests showed that each indicator had an individual effect on the likelihood of exercising choice, the data failed to identify any joint effect.

### Table 2: Modelling citizens' switching behaviour towards fixed telephony services (EU25)

<table>
<thead>
<tr>
<th>Model</th>
<th>Intercept</th>
<th>Number of service providers (log)</th>
<th>Education (Ref: higher education)</th>
<th>Age (Ref: 15-59 years old)</th>
<th>Number of service providers (log) X Education</th>
<th>Number of service providers (log) X Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 0</td>
<td>(0.131^{**} (0.027))</td>
<td>(3.938^{**} (0.626))</td>
<td>(0.813^{*} (0.042))</td>
<td>(0.725^{**} (0.043))</td>
<td>(1.060 (0.097))</td>
<td>(0.988 (0.100))</td>
</tr>
<tr>
<td>Model 1</td>
<td>(0.170^{**} (0.047))</td>
<td>(3.946^{**} (0.627))</td>
<td>(0.798^{**} (0.048))</td>
<td>(0.727^{**} (0.049))</td>
<td>(0.988 (0.100))</td>
<td>(0.988 (0.100))</td>
</tr>
<tr>
<td>Model 2</td>
<td>(0.169^{**} (0.047))</td>
<td>(3.946^{**} (0.627))</td>
<td>(0.798^{**} (0.048))</td>
<td>(0.727^{**} (0.049))</td>
<td>(0.988 (0.100))</td>
<td>(0.988 (0.100))</td>
</tr>
</tbody>
</table>

Variance: country intercept (SE)
- Model 0: \(0.995 (0.149)\)
- Model 1: \(0.396 (0.069)\)
- Model 2: \(0.396 (0.069)\)

Deviance
- Model 0: 11355.11
- Model 1: 11152.17
- Model 2: 11151.75

Interclass correlation
- Model 0: 0.231
- Model 1: 0.406
- Model 2: 0.406

N (Individuals)
- Model 0: 13,367
- Model 1: 13,367
- Model 2: 13,367

N (Countries)
- Model 0: 25
- Model 1: 25
- Model 2: 25

Note: Results of control variables are provided in the annex; significance levels: *\(p<0.05\); **\(p<0.01\);

### 7. Discussion

From our analysis, we can conclude that being potentially vulnerable reduces the likelihood of having switched to another service provider in the past 24 months. This is true for both the services under consideration (mobile and fixed telephony) and is in line with our first hypothesis. Within both services, the effect of age is slightly stronger than that of education, which means that, in terms of switching behaviour, the elderly are the group least likely to switch provider. However, this might not be due only to their limited ability, it may also be because of their comparatively passive market participation (see Clifton et al., 2011a), with the young more prone to exhibit active market behaviour and high service usage (Ranganathan et al., 2006). Thus, our findings are in line with previous findings that suggest that propensity to switch is positively related with service usage. In terms of educational level, we find that the less educated are less likely to have switched their service provider

\textsuperscript{11} Since the direction of this predictor’s effect is counterintuitive (the longer it takes to transfer a number, the more likely switching becomes), we further tested its robustness before drawing conclusions. In so doing, we found that the effect was inconsistent across different model specifications. For example, when we examined the univariate relationship between number portability and the probability of switching, we did find suggestions of a relationship in the expected direction, albeit statistically non-significant, regardless of whether or not we included the level-1 covariates in the model. This may suggest an interaction effect between level-2 covariates. However, due to the low N at level-2 (25 countries), we are unable to further examine this pattern. Thus we have to leave this point open for future research.
within the last two years. We suspect that this is mainly because of their relative limitations, when compared to those who are higher educated, which create high switching risks. These risks are manifested in the fear of being potentially worse off if they were to switch provider.

In line with our second hypothesis, we found that having a larger number of service providers within a country seems to lead to higher switching rates for both forms of telephony. In the fixed telephony sector, the relationship found is of a log-linear nature, meaning that the marginal effect of adding an additional provider decreases once there is already a large number of providers within a national market. This may suggest a starting market saturation within fixed telephony. Nevertheless, the findings support the notion that a greater choice does lead to a situation where service users are more likely to opt for another provider. However, we do not know whether this trend will reverse once ‘too much’ choice is made available, as suggested by some scholars who have studied the effect of consumer choice on buying decisions (Shah & Wolford, 2007; Iyengar & Lepper, 2000; Schwartz, 2005).

We have not yet addressed whether all layers of society equally benefit from greater opportunities to choose within a given market. Therefore, we examine whether the choice-gap between potentially vulnerable and non-vulnerable service users increases once the number of alternatives increases. In terms of mobile telephony, we found good evidence that, once the number of service providers reaches a certain threshold, less-educated service users become less likely to switch. Nevertheless, this negative effect of choice becomes apparent only once a threshold of eight providers is reached. However, we did not find a similar outcome in the fixed telephony sector. Further, when viewing age as a proxy for vulnerability, no such effect was evident in either form of telephony. Thus, we find only limited support for our third hypothesis.

One possible explanation for the above finding is that it is especially the less educated service users who face information overload, leading to the switching process becoming overly complex, once they are confronted with too many options. As a consequence, they may fear being worse off by opting for the ‘wrong’ provider. As a result, such users may become ‘locked-in’ to the service providers they are currently using, creating a situation which has been more generically labelled as a status quo bias (Samuelson & Zeckhauser, 1988) or as inertia (Hirschman, 1970). Our analyses suggest that having between eight and thirteen providers (as is the case within EU mobile service sectors) does not intimidate the better educated when it comes to switching providers, and that they generally end up with better performing providers, since they are able to work out the optimal service offer and are confident that they will be better off after switching provider.
An interesting question is why, with less well educated service users, an increasing number of service providers has a negative effect on the education-switching relationship only within the mobile sector? A first observation is that the mobile telephony market is much more strongly driven by new technological innovations that require greater capabilities to follow than the fixed telephony market, which remains a relatively simple service. As such, the mobile service market can be regarded as a complex environment in which to make switching decisions whereas, as observed by Iyengar and Lepper (2000), information overload is less likely to take place within rather simple environments. Moreover, the mobile telephony market is much more prone to competition with considerably more service providers on average (mean 7.1, standard deviation 2.9) than the fixed telephony market (mean 3.4, standard deviation 2.4). As further evidence, in 19 of the 22 EU member countries that enjoy OECD membership and for which appropriate data are available, we find that new entrants achieve a significant market share, a proxy for competition\(^{12}\). The negative effect of too great a choice therefore perhaps only unfolds if the respective service sector is characterised by a strong market orientation with a comparatively large number of options. In the mobile telephony sector, this threshold seems to be at eight providers.

Interestingly, our analysis does not provide similar results when considering service users’ ages rather than education levels. The general relationship between being older and being less likely to switch does not significantly change once a large number of service providers becomes available. This could be because the relationship between age and switching is driven more by an active, or non-active, market behaviour (see Ranganathan et al., 2006) than by perceived vulnerability, with younger age groups being much more active users, and not reflected by their ability to acquire and process information for switching. Non-active service users do not know markets well and will make their switch-decisions regardless of the number of service providers. Taking mobile services as an example, the elderly are less active within this market than the young and our evidence suggests that they are less likely to switch their provider. However, their switching behaviour does stay unaffected once the number of service providers changes.

Naturally, our study is not without limitations. In terms of the generalizability of our results, we cannot confidently claim that similar effects would be found in other liberalized service sectors such as employment services or electricity. However, within mobile telephony, it is

\(^{12}\) The market share of new entrants in telecommunication services “… gauge the extent to which existing regulations actually succeed in promoting competition” (Conway and Nicoletti, 2006:10).
evident that liberalizing public service markets can increase the choice-gap between different potentially vulnerable layers of society once the number of service providers exceeds a threshold of eight. Further, we have only considered the number of service providers per country, and this need not equate to the actual number of alternatives open to a service user. However, we would argue that, in the absence of providers with dominant market power (see Conway & Nicoletti, 2006), this measure provides a reasonable indication of how successful liberalization reforms have been implemented in a specific country.

Elsewhere, some scholars have explicitly emphasized the role of regret, rather than information overload, in choice decisions (Botti & Iyengar, 2006; 2004; Reutskaja & Hogarth, 2009; Schwartz, 2005). From this perspective, service users are less likely to opt for a certain service once the number of alternatives increases but, rather than information overload, the mechanism behind this choice avoidance is based upon regret and the fear of dissatisfaction. Consequently, service users who are intrinsically loss averse (Ariely, 2009) end up staying with their existing service provider because they are not confident that they will not regret switching, regardless of the information available to them. This fear of potential regret increases with the number of possible alternatives, but to differing extents among different socio-educational groups. While we cannot confidently reject this potential source of our identified effect, we would argue that, since the mechanism under test is unchanged, that is does not invalidate our theoretical approach. However, the contents of the black-box which explain why it works and what explicit causal relations may exist could be further explored by consecutive studies.

8. Conclusions: Too much choice is harming the choice of whom?

A general fear is that greater choice can widen the switching-gap between better and less-well educated service users. Our results from mobile telephony services within the EU25 suggest that increasing the number of service providers undermines the choice behaviour of less educated service users. In contrast, those who are better educated continue to increase their switching behaviour as the number of providers continues to grow. For the less well educated, the negative effects of greater choice only kick in once a certain threshold of opportunities is crossed, and in our analysis, this seems to be eight mobile service providers. A similar effect was not observed in the fixed telephony market mobile but this tends to be both a simpler service and less competitive.

Our results challenge the assumption of theorists and policymakers that greater user-choice is necessarily an equally good thing for all layers of society. The findings highlight a point that has repeatedly been made and aims at the very heart of market-oriented reforms: that there is
a potential trade-off between greater managerial efficiency and equality (see, most prominently, Okun, 1973). As such, our research findings add evidence to the ‘two-track’ view of public service that argues that market-driven reforms have disproportionately benefited the better-off service users. It does so by showing that, under certain circumstances, public service liberalization can have negative effects on the equality aspects of citizens’ responses to service provision. However, it also demonstrates that liberalizing public services does not per se negatively influence the switching behaviour of certain socio-educational groups but that, for this to occur, a certain threshold of providers must be exceeded.

Overall, the circumstances under which liberalization reforms negatively impact on the switching decisions of the potentially vulnerable are far from clear-cut and may vary across different service sectors. As we have seen within the fixed telephony sector, increasing the number of service providers does not necessarily widen the switching gap between the less well and the better-educated service users. We have identified criteria that, if satisfied, could result in liberalization reforms having a negative potential. This can occur if the service sector exhibits a strongly liberalized environment with a high number of providers. Further, we suspect that the less complex an actual service is, the higher the number of providers needs to be before the negative potential becomes a reality. However, these criteria should be subjected to further testing.

On the basis of our analysis, we can conclude that decision-making theory offers a great potential when studying the effects of public management reforms on citizens. In so doing, our analysis provides strong statistical support for the ‘bounded’ rationality of different socio-educational groups of public-service users, and the potentially negative effects for them of reorganizing service delivery mechanisms. As a result, our study adds to the body of literature that offers evidence to public managers and policymakers for determining appropriate ways to deliver public services that are in the general interest.
Bibliography


COCOPS Working Papers

1. Coordinating for Cohesion in the Public Sector of the Future: COCOPS Project Background paper

2. The Brave New World of Public Infrastructure: Is Market-Oriented Reform Producing a “Two-Track” Europe?

3. The Impacts of the New Public Management in Europe: A Meta-Analysis

4. Did new public management matter? An empirical analysis of the outsourcing and decentralization effects on public sector size

5. Welfare Reform and ‘Wicked Issues’ – From Coupling to De-Coupling?

6. How to cope with a terrorist attack? – A challenge for the political and administrative leadership

7. New Public Management and Citizens’ Perceptions of Local Service Efficiency, Responsiveness, Equity and Effectiveness

8. Savings in Public Services after the Crisis: A Multilevel Analysis of Public Preferences in the EU27

9. Joined-up-government: Reform challenges, experiences and accountability relations

10. Choice and Equality – Citizens’ switching behaviour in liberalized public service markets across the EU