Consumer survey findings on mobile number portability experience in Georgia and Belarus

Armen Ghalumyan
PhD candidate in ICT Management, Telecom Ecole de Management, 9 rue Charles Fourier, 91011 Evry Cedex, France
E-mail: armen.ghalumyan@cullen-international.com

Since it was first introduced in 1997, mobile number portability (MNP) has largely been considered a success story in fostering market competition and delivering various benefits to relevant stakeholder groups, including in the first place to final consumers. Developed countries were at the forefront of the MNP deployment, with the EU making it a mandatory requirement for all member states in 2003. The developing world has yet been lagging behind with its MNP adoption. Among republics of the former Soviet Union, Georgia and Belarus were the first to implement MNP, in 2011 and 2012 respectively. This article summarises findings of the online consumer survey among mobile users in those two countries, carried out in 2016 in an attempt to reveal their general mobile usage patterns and applicable MNP experiences.

Keywords: mobile number portability; online consumer survey; Georgia; Belarus; end users; telecommunications; mobile services.

INTRODUCTION

As a policy-making tool, mobile number portability (MNP) is devised to foster market competition by incentivising mobile subscribers to switch service providers without changing their phone numbers. As such, it has become one of the most widely applied regulatory policies in mobile communications markets worldwide, already being implemented in about 70 countries since it was first introduced in 1997.

Singapore became the first country in the world to implement MNP. The UK and the Netherlands were the first European countries to introduce MNP in 1999. Other EU member states followed the trend, before the MNP implementation was mandated across the entire EU space in 2003. It is regarded as “a key facilitator of consumer choice and effective competition in a competitive telecommunications environment” (EU, 2002).

Beyond the EU, the developing world has been slow with the MNP adoption. According to the GSMA Intelligence research (2013), only 25% of developing markets have already implemented MNP (including many of the largest states such as Brazil, India, Mexico, Turkey and South Africa) and additional 15% are known to plan its introduction in the future (including China, the world’s biggest mobile telephony market).

The remaining 60% of developing countries either have declined the option or are still indecisive in this regard. It is apparent that many regulators in Asia and Africa are not enthusiastic about MNP; for instance, the Maldives and Uganda made a decision not to implement MNP as it was estimated to be too expensive for these developing nations.

From the post-Soviet region, Georgia and Belarus were the first countries to introduce MNP, in 2011 and 2012 respectively. In fact, the number portability solution in Georgian mobile communications networks was deployed within 4 months and entered history as the smoothest and quickest implementation ever. In terms of porting statistics, Georgia had reached more than 107 thousand number portings in just one year since the service launch. In Belarus, the number of mobile subscribers that ported their numbers in the first 4 months after the introduction of MNP amounted to some 2,000 people, constituting only 0.019% of the country’s total subscriber base of 10.7m.
After over 20 years’ existence of number portability, it has largely been considered as a success story, promoting competition in mobile communications markets, forcing mobile operators to enhance and differentiate their services, and giving the end user a choice to change their service providers in a straightforward manner. Eventually, MNP is expected to benefit all relevant stakeholder groups, namely final consumers, mobile carriers and regulatory or policy-making authorities in charge of the telecommunications sector.

From the mobile user’s perspective, in the absence of number portability subscribers are locked with their existing service providers and can change operators only with considerable disruption and expense. When switching between mobile carriers, consumers are forced to inform all their contacts regarding the telephone number change. At the same time, their family members, friends and business partners also need to amend respective entries in their contact registers. Therefore, the lack of number portability means extra costs and inconvenience for not only the user him/herself but also their business contacts, family members and friends.

With number portability in place, all burdens of informing people and updating contact lists are removed. Mobile users have incentives to seek and subscribe to better deals in an easy way. There is no longer a need to maintain several SIM cards/telephones in order to enjoy low cost pricing schemes from different service providers, which has been the case with operators offering free-of-charge or low cost on-net calls subsidised by high priced off-net calls. Among other benefits, number portability is thus aimed at limiting cross-subsidy between mobile on-net/off-net tariffs, to ultimately increase consumer surplus and enhance competition in real terms.

This article presents findings of the online consumer survey among mobile subscribers in Georgia and Belarus, conducted to reveal their general usage patterns and specific MNP experiences if any. It was part of a larger research project on MNP effects in the mentioned countries, carried out during 2014-2017 within the framework of the author’s doctoral studies. In addition to the end-user perspective, it has also analysed first-hand feedback from the two other important stakeholder groups, i.e., mobile operators and national regulatory and/or policy-making authorities for the telecommunications sector. The latter, however, is outside the scope of the given publication.

RELEVANT LITERATURE REVIEW

Being a finite resource, telephone numbers are critical tools for delivering telecommunications services. Throughout the entire usage period, subscribers make investments in their telephone numbers and for such investment to be efficient, customers should be able to acquire ownership (or property rights) in their numbers (Haucap, 2003). As per the economic property rights theory, ownership in an asset includes, among others, the right to change its form or substance; in the telecommunications context, this may imply the ability to use telephone numbers with an operator of one’s choice. Such right is limited in the absence of number portability, which is the subscriber ability to retain their phone numbers while changing service providers. Thus, the introduction of number portability transfers the property right from carriers to consumers, thereby protecting the latter’s investment in their numbers.

Historically, users of telecommunications services had to abandon their phone numbers when changing operators/networks. This situation prevented the development of effective competition, particularly in the fast-growing mobile communications field, as consumers were reluctant to switch between the incumbent and recent market entrants. However, this state of affairs has notably changed with the widespread implementation of number portability (especially mobile number portability) across the European Union and many other countries all over the globe, having the enhancement of competition as one of its major aims.

Overall, most of the available empirical literature and analyses have concluded that MNP largely has a positive impact by intensifying competition in mobile communications markets. Obviously, MNP effects differ from one country to another, due to a variety of factors including the level of market competition prior to the MNP launch. From the long-run perspective, the decision to introduce MNP is likely to be straightforward if it is technically feasible and its benefits outweigh costs by generating positive effects for final consumers and market competition.

On a consumer level, users consider many aspects before deciding to go for the MNP service, e.g., the contract length, the size of switching costs, etc. The charge for porting a mobile number is among the most critical determinants, which used to vary significantly across countries. The European Union in its Universal Service Directive (EU, 2002) requires from all member states that porting prices should be based on costs, and most of the EU countries have already adopted regulations prohibiting to set porting charges above costs.

In many countries, no fee for porting mobile numbers is charged to customers, e.g., in the UK, Ireland, Finland, etc. In some countries, porting charges may apply to prepaid subscribers only, whereas in others all customers will have to pay if they wish to port their numbers, with the amount ranging from symbolically small to considerably high.

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Different classifications of user benefits from number portability can be found in the available literature but they all follow the common approach. Table 1 below presents several types of benefits suggested by Buehler at al. (2006), which are applicable to various user categories.

Table 1: Benefits of introducing MNP

<table>
<thead>
<tr>
<th>Type of benefit</th>
<th>Applies to</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>1A</td>
<td>Users who switch even without MNP</td>
<td>Avoided cost of number change (e.g., informing users, missed calls)</td>
</tr>
<tr>
<td>1B</td>
<td>Users who only switch with MNP</td>
<td>Benefits of moving to a more preferred operator</td>
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<td>2</td>
<td>All users</td>
<td>Intensified competition</td>
</tr>
<tr>
<td>3</td>
<td>Callers</td>
<td>Avoided costs of finding changed numbers</td>
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<tr>
<td>4</td>
<td>All users</td>
<td>Increased investment in number value due to reallocation of property rights</td>
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</table>

Otsuka and Mitomo (2013) in their analysis of user benefits and operator costs of MNP in Japan introduce fairly similar classification of benefits, though explicitly distinguishing between direct and indirect benefit categories (Table 2).

Table 2: User benefits anticipated from MNP implementation

<table>
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<tr>
<th>MNP users (Switch operators)</th>
<th>Non-MNP users (Do not switch operators)</th>
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<tbody>
<tr>
<td><strong>Direct benefit</strong></td>
<td><strong>Indirect benefit 1</strong></td>
</tr>
<tr>
<td>• Enjoy better services at a lower price</td>
<td>• Additional discounts for long-term subscribers</td>
</tr>
<tr>
<td>• Announcement of the new number is unnecessary</td>
<td>• Reduction in the cost of upgrading handsets</td>
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| **Indirect benefit 2** | |
| • User benefit from reduction in call charges by competition increase |

According to Otsuka and Mitomo (2013), indirect benefits are estimated to be greater than direct benefits, implying that the introduction of MNP is advantageous for not only MNP users but also all mobile customers. As to the estimation of total benefits versus total costs of the MNP implementation, the former exceeds the latter by roughly 2 to 3 times, again resulting in a conclusion that all mobile users are likely to benefit from the introduction of MNP.

Nearly all other cost-benefit analyses have also supplied the evidence that the overall impact of MNP is expected to be positive. However, the actual uptake of the MNP service has proven to be considerably different throughout the world. Certain countries such as Finland and Denmark can boast to have achieved a large number of mobile portings, whereas only a small number of mobile customers have ported their numbers in some other countries, namely France, Germany and Portugal.

According to many studies in this domain, the efficiency and ultimate success of MNP is correlated with a broad array of characteristics, such as the porting process speed, porting fees, the intensity of market competition, service promotion through marketing campaigns, the length of subscriber contracts, market maturity, the customer base structure, the availability of mobile phone subsidies, etc. Although porting time and porting prices are largely considered to be the most influential features of the MNP policy, some researches argue that other attributes may also have an essential effect on the use of MNP.

After studying the MNP experience in six countries (Australia, Germany, Hong Kong, Ireland, the Netherlands and the UK), Ovum (2005) concluded that the MNP usage level could drop considerably in the case of too lengthy porting times to change a service provider. The suggested maximum porting period is two days; nonetheless, the demand for MNP will not necessarily grow with shorter porting.

High fees charged to customers for porting their mobile numbers can also reduce the MNP service usage. In order not to be a major disincentive for potential users, porting charges are to be set lower than 20% of the monthly average revenue per user (ARPU). However, the complete absence of porting charges does not seem to provide evidence for the increasing MNP uptake. In general, the use of MNP tends to accelerate in the long run, supporting the argument that the length of time since the facility has been in place can be another feature to explore its impact on the effectiveness of MNP.

Levin (2006) also comes to the conclusion that a quick and adequately priced MNP service will induce many customers to use it. Compared to prepaid customers, postpaid (contract) subscribers are found to have higher usage rates, as they are mostly business consumers that
seem to be more attached to their mobile phone numbers due to larger switching costs. Among factors affecting the MNP usage, the intensity of marketing campaigns is also expected to contribute to a greater use of MNP by informing more mobile customers about the availability of the option.

In addition to the above, there are several studies that examined the impact of MNP features on customer churn. For example, according to Sanchez and Asimakopoulos (2012), the porting duration and the porting charge negatively affect the churn rate. Lyons (2006) demonstrated empirically that churn increases by 16% as a result of MNP under the quick switching process (less than five days).

Many academic papers have addressed the issue of declining switching costs and prices as a result of MNP. For instance, in an empirical analysis of the impact of MNP on mobile prices Park (2010) concludes that prices after the MNP implementation are on average lower than those prior to MNP and finds out that mobile customers are generally better off with number portability and their net benefits increase with the usage level. The MNP service may hardly increase the overall number of mobile customers in the market, as it merely shifts subscribers from one operator to another. However, it may stimulate the use of a higher volume of minutes per customer, thus reducing mobile prices and contributing to net consumer gains. It has therefore been documented that the decline in both switching costs and mobile prices due to the MNP policy has a greater effect on higher volume users.

Although the amount of academic literature on the ex post MNP research, specifically on individual countries, is fairly limited, some papers can still be referred to. For instance, the National Economic Research Associates (NERA, 2003) investigated the use of MNP in the UK mobile telephony market and estimated that only 12% of residential customers ported their numbers in the first two years since the MNP introduction, which was a much lower rate compared to what was expected from ex ante assessments. In the same period 50% of business customers used the number portability service.

NERA (2003) attributed the low uptake level during early years of the MNP implementation to an excessively lengthy period of porting a number (25 days on average). When it was subsequently reduced to 5 days or less, the percentage of porting customers increased to 18% for residential users and 80% among businesses.

Prior to the introduction of MNP in October 2006, the Japanese mobile market was predicted to generate significant benefits from the policy. Although mobile operators were actively against it, several ex ante analyses of anticipated benefits exceeding underlying costs were persuasive for reaching a ‘green light’ decision on the policy adoption. For instance, the Japanese Ministry of Internal Affairs and Communication conducted a consumer survey and reported that 32% of mobile users would be willing to pay for MNP. For a large number of Japanese customers, the most powerful motivation to switch mobile carriers was a high monthly bill of their existing service providers.

Otsuka and Mitomo (2013) reviewed the market situation in their ex post research after one year since the MNP implementation and came up with results that were broadly consistent with the initial expectations of ex ante assessments. Their estimates reveal that about 17% of customers would be willing to use MNP to upgrade their mobile handsets and switch between carriers if no porting charge applies. The usage rates fall to 11% and 5% if mobile operators charge a porting fee of 2,000 and 4,000 Japanese Yen (JPY) respectively. In the case of a porting price of 5,900 JPY, the percentage of customers willing to switch is zero; this is a trade-off point between benefits and costs of MNP.

Eventually, only 2.97% of Japanese active mobile customers used MNP in ten months after the implementation of the option. Although the usage rate was far below the pre-MNP forecasts, this percentage was still considered to be acceptable. From a longer-term perspective, the Japanese mobile market has experienced an increase in competition, evidenced by the reduction in call charges and market shares of leading mobile operators.

As to measuring the change in consumer welfare due to MNP, researchers typically encounter difficulties in obtaining consistent estimates for the price elasticity of demand and devising an appropriate utility function to quantify consumer surplus. Cho at al. (2013) suggest that on average MNP increases consumer welfare by 2.86 EUR per person or by 78.16 million EUR per country. After comprehensively documenting the MNP policy implications on price, competition and consumer surplus, the authors sum up that number portability is an effective tool to trigger a reduction in prices, foster market competition and generate welfare gains.

The use of MNP entails an operator choice decision; therefore, in this context it is noteworthy to look into a range of factors in selecting a particular network. While measuring network effects in mobile communications markets, Czajkowski and Sobolewski (2010) examine several attributes that determine consumers’ choices, such as on-net and off-net call prices, operators’ brand names, the presence of close contacts (family, friends and others) on the same network, the overall size of an operator, etc.

The consumer perceptions of mobile carriers differ, even though they provide functionally similar services. In
forming those perceptions, the quality of service reflected by the value placed on the operators’ brands seems to be a considerable determinant of choice. Under this study, 80% of survey respondents indicated on-/off-net prices and the share of family members on the same network as important or very important factors. In their operator selection, 60% of respondents were guided by non-price attributes of an operator’s brand and the proportion of friends subscribed to the same carrier. Both the network size and the market share of an operator were considered insignificant in explaining consumer choices.

Overall, a very strong network effect of an increasing number of people within the close social circle using the same operator is expected to influence the probability of choosing a carrier alternative, which may even charge higher call prices. Lastly, customers’ choices seem to be notably impacted by their loyalty to current service providers, with an asymmetrical pattern due to varying degrees of loyalty towards different operators.

As it was evidenced by several empirical studies summarised above, individual consumers and broader markets can reap substantial benefits through reduced costs of switching mobile networks provided by an effective MNP regime. It has been demonstrated that quick porting speeds and low porting charges create favourable conditions for reducing call prices and increasing customer churn. However, many researchers are typically concerned about consistent availability of the quality market data required for modeling the effects of number portability.

As to ex post studies on MNP effects in Georgia and Belarus, those were not publicly available if any. Mobile operators in both countries claim that they regularly monitor the quality of their services and perform surveys of their customers’ satisfaction, possibly also with their MNP usage experience. However, this kind of analytical reporting seems to be intended for the internal use only.

**DESCRIPTION OF RESEARCH METHODOLOGY AND DATA GATHERING/ANALYSIS PROCESS**

The performed research presented herein was aimed to explore the Georgian and Belarusian mobile customers’ overall usage patterns and specific MNP experiences if any. In the case of MNP users, the study was intended to reveal whether they felt any better off after MNP. As for non-MNP users, it attempted to find out if they perceived MNP to be beneficial for the broader mobile services market in their respective countries.

This piece of research involved collection of primary data by means of conducting a consumer survey among mobile user samples in both Georgia and Belarus. Under the given study, the designed questionnaire for mobile customers (irrespective of whether they have ever used the MNP service or not) contained 23 core questions and 7 additional questions for demographic data (provided as an appendix). Those were mainly closed-ended questions, to take in total a maximum of 10 minutes to complete. During consumer surveys of this sort, respondents usually do not bother writing lengthy answers; therefore, predominantly multiple-choice questions, often providing numerical ranges for possible answers, were included.

The questionnaire was first drafted in English and then translated into Russian, as this language is quite commonly used in both of the studied countries, especially in Belarus. To target a larger audience of mobile customers, the online survey approach was decided upon. For the latter, the online form builder JotForm was used.

The online questionnaire was constructed in a way to account for the so-called conditional logic, whereby depending on the respondents’ answers to a preceding question, one or several subsequent questions would be skipped as non-applicable, thus shortening the overall fill-in time. For instance, if the survey respondent has never used the MNP service (the answer to Question 17 is ‘No’), a few questions related specifically to the MNP usage experience would not appear at all.

In the data gathering phase, the questionnaire’s initial version prepared by means of the online form builder JotForm had been tested for a couple of weeks during October 2015. As a result, about 30 completed questionnaires were collected from both countries after disseminating the survey among personal contacts and via social media platforms, such as Facebook and LinkedIn. Those responses were then analysed and the questionnaire was correspondingly modified to take account of findings and lessons learnt from the piloting stage.

Based on the revised questionnaire, the main consumer survey phase commenced on 29 February 2016 and lasted for 7 months until 26 September 2016. Again, the online survey had been promoted through the network of personal and professional contacts with the heavy use of social media. During that period, 255 completed questionnaires were gathered from Belarus and 190 from Georgia, comprising respectively 0.003% and 0.005% of the countries’ populations (9.5m and 3.9m).

The total of 445 survey responses were exported into an Excel spreadsheet, which was used as a dataset for the analysis of mobile users’ MNP experiences and perceptions. It was afterwards coded and transformed into an SPSS input file, to have it run through the statistical application and to generate cross-tabulations and chi-square tests across different survey questions as well as...
with the use of all demographic dimensions included in the questionnaire, such as age, gender, residence area, marital status, level of education, current occupation and monthly personal income.

The resulting crosstabs were expected to show how responses to the survey questions were distributed per each of the above dimensions, for instance, to make assumptions as to whether the MNP usage was any sensitive to age or level of income. Moreover, response rates to cross-tabulated questions could exhibit some signs to help detect an explainable pattern, e.g., if a high percentage of mobile customers that were happy with current service providers were indeed less willing to port their phone numbers. These assumptions were then validated by means of chi-square tests of independence, to describe the existence of any association between variables through accepting or rejecting the null hypothesis that the tested variables were independent.

**ANALYSIS OF THE CONSUMER SURVEY DATA**

As it was already indicated, the sample size of the mobile users’ online survey in both countries was not large enough to be considered representative of the entire populations, as well as of the number of mobile customers with penetrations close to or exceeding 100% (255 Belarusian and 190 Georgian respondents comprise, respectively, 0.003% and 0.005% of the countries’ populations of 9.5m and 3.9m). A similar limitation was previously encountered in the study by Otsuka and Mitomo (2013) of user benefits from MNP in Japan, whereby 318 completed online questionnaires were collected, representing only 0.0000025% of the whole Japanese population (127m in 2012).

Furthermore, the survey respondents were not evenly distributed across demographic parameters, which could result in bias towards a prevailing demographic group. Unfortunately, this risk was difficult to anticipate and mitigate in advance, as the researcher had almost no control over the data gathering process by just disseminating the consumer survey questionnaire to available networks of contacts, to eventually ensure the collection of as many responses as possible.

Ultimately, all produced cross-tabulations were analysed with an attempt to arrive at certain conclusions regarding the survey respondents’ mobile usage and MNP experiences, separately for Georgia and Belarus. The analysis was based on assumptions resulting from the literature review and the researcher’s practical exposure to the telecoms field. What follows below is the summary of main findings from the sample consumer data analysis.

First, the descriptive statistics are presented in the form of a set of bullet points, referring simultaneously to both of the studied countries as they share some similarities in their MNP-related user practices and experiences. Any percentage deviations from one country to another are further separated. It is then supplemented by the conclusions of performed chi-square tests of independence, to reflect upon identified relationships between variables in the dataset.

- There seemed to be no connection between the number of SIM cards in mobile customers’ possession and their former MNP usage experience.
- Post-paid subscribers appeared to be more inclined to use the MNP service, due to longer-term investments in their phone numbers and higher perceived values attached thereto.
- No clear connection between the MNP usage and the subscriber contracts duration was revealed.
- There seemed to be limited price sensitivity on the part of mobile users towards on-net and off-net call charges if they felt satisfied with other attributes of a mobile service. In general, the Georgian sample of mobile customers exhibited less willingness to switch to a different service provider, even for more favourable conditions.
- The consumer survey revealed substantive levels of the respondents’ satisfaction with their present mobile operators in the two countries. At the same time, the mobile users’ community from both countries was in general attached to their phone numbers, which might represent a strong potential for the increasing MNP uptake in the future.
- The rate of awareness with the MNP service was significant in the two countries’ samples, indicating that the regulatory authorities/ policy-making bodies and mobile operators did a good job with promoting the service. According to the survey respondents’ feedback, the top three information sources where they learned about the MNP availability were TV, their mobile operators and street advertisement.
- The MNP usage rate among the survey respondents was 18% for Belarus and 10.5% for Georgia.
- The most active MNP user groups as per demographic dimensions were:
  - aged 25-34 (31.1% for Belarus and 35% for Georgia);
  - female in Belarus (60%) and male in Georgia (65%);
  - residing in urban areas (95.6% for Belarus and 100% for Georgia);
  - singles (46.7% in Belarus and 50% in Georgia);
  - employed (77.8% for Belarus and 70% for Georgia);
  - with higher education (95.6% in Belarus and 90% in Georgia); and
  - with the monthly personal income within the range of 201-500 EUR in Belarus (35.6%) and 201-500 EUR/ 1,001-2,000 EUR/ more than 2,001 EUR in Georgia (20% each).
It is not possible to state whether these figures were representative of the entire populations in the two countries, as no demographically segregated country-level data on MNP users were found.

- The rate of satisfaction with the number porting process was close to 100%, with 97.8% and 95% among surveyed Belarusian and Georgian MNP users, respectively.
- Around one-third of respondents with the MNP experience (35.6% from Belarus and 30% from Georgia) indicated that their average monthly bill for mobile services remained almost the same after MNP. However, quite a considerable percentage of MNP users in both countries’ samples (53.3% for Belarus and 80% for Georgia) felt that they were better off with the new mobile operator compared to the previous one, including those with an average post-MNP monthly bill increase in between 25-50%. This seems to point out that there was little sensitivity among mobile customers towards their monthly spending, when it comes to self-assessing their satisfaction with the mobile service provider. Thus, the size of a monthly bill and underlying charges for mobile services were not the only determinants of an individual consumer’s wellbeing and of the perceived utility associated with the mobile operator.
- Finally, half of the survey respondents in both countries (46.7% from Belarus and 50% from Georgia) found it difficult to answer the question on whether they believed that the mobile communications market in their country had overall benefitted from MNP in terms of more competitive service offerings, better tariffs and quality of service, etc. The rate of positively responded people was lower at 38% in Belarus and 26.8% in Georgia. These results might be subjective though, as the survey respondents were not expected to have any expert knowledge of the field and their feedback might be driven by the existence or absence of personal gains from MNP.

The following matrix provides a summary of all chi-square tests generated in SPSS as part of the consumer data analysis. The rows and columns stand for specific variables, and cells at their intersection show whether a chi-square test was conducted between a pair of particular variables and if so, whether any association was revealed or not (denoted by ‘V’ for dependence and by ‘X’ in the opposite case). Grey cells mean no chi-square tests were carried out between that pair of intersected variables.

As it can be seen, associations between the following pairs of variables were found statistically significant:

1. The type of mobile subscription (pre-paid versus post-paid or both) and the previous MNP usage experience (for the Belarus sample only)

This association seems to support an earlier finding from the academic literature, whereby the higher MNP uptake level is observed in markets with predominantly post-paid mobile users. However, simultaneous possession of both pre-paid and post-paid mobile phone numbers might distort the existing correlation. Perhaps, this is the reason why the relationship was found applicable only to the Belarusian sample of the survey respondents.

2. Availability of the free-of-charge on-net call allowance and willingness to change to a different mobile services provider (for both countries’ samples)

The given relationship points out that the possibility to make free-of-charge on-net calls was an important factor to remain loyal to the current service provider and to be less willing to look for another option. This finding will potentially signal mobile operators in Georgia and Belarus to keep including such allowances in their tariff plans for the customer retention purposes.

3. Happiness with the current mobile services provider(s) and willingness to change to a different carrier (for both countries’ samples)

This correlation is self-apparent and is in line with common sense, as happy customers will be less willing to shift to an alternative service provider and vice versa. It is not clear though if it tells anything in terms of the MNP usage, as change of a mobile operator should not necessarily occur with porting of a phone number, while the variable for importance of retaining the number during switching between carriers was not found associated with any other variable.

4. The previous MNP usage experience and the respondents’ gender (for the Georgia sample only)

This relationship may sound strange but it is indeed supported by the chi-square test output. As the Georgian sample of previous MNP users turns to be male-dominated (65%), this finding may trigger the Georgian mobile operators’ interest to target female customers for the future MNP uptake.

The remaining chi-square tests have not resulted in any statistically significant associations between variables.
Table 3: Summary matrix of chi-square tests performed for the consumer data analysis

<table>
<thead>
<tr>
<th>Number of SIM cards in possession</th>
<th>Pre-paid and/or post-paid mobile subscription</th>
<th>Happiness with current mobile service provider</th>
<th>Willingness to change to a different mobile service provider</th>
<th>Importance of retaining present mobile phone number while changing service providers</th>
<th>Amount of one-off incentive to switch mobile service providers</th>
<th>Importance of retaining mobile phone numbers while changing service providers</th>
<th>Familiarity with MNP service</th>
<th>Readiness to use MNP if there is charge for it</th>
<th>Readiness to use MNP if process is quite lengthy</th>
<th>Previous MNP usage experience</th>
<th>Amount of average monthly spending on mobile services</th>
<th>Age group</th>
<th>Gender</th>
<th>Residence area</th>
<th>Marital status</th>
<th>Level of education</th>
<th>Current occupation</th>
<th>Monthly personal income</th>
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<td>Pre-paid and/or post-paid mobile subscription</td>
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<td>Length of contract in case of post-paid subscription</td>
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<td>Possession of more than one phone number from same mobile operator</td>
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<td>Awareness of per-minute on-net call charges</td>
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Consumer survey findings on mobile number portability experience in Georgia and Belarus
DISCUSSION AND CONCLUSIONS

This section opens a discussion on the above outcomes from the consumer data analysis of MNP experiences in Georgia and Belarus, in an effort to derive certain inferences. Where applicable, references are made to findings of the literature review on previous MNP research, also provided herein.

In accordance with international experience, the introduction of MNP is aimed at benefitting final consumers and mobile communications markets, as it is expected to bring about various socioeconomic effects relating to the increased wellbeing of mobile users as a result of enhanced consumer choice and inter-operator mobility. So far, the worldwide MNP track record has seen varying implementation practices and outcomes, ranging from largely successful to nearly unnoted and depending on a great deal of particular country and market specifics.

By itself, the launch of MNP in Georgia and Belarus has contributed to more active market competition and subscriber mobility. On the consumer side though, the conducted survey revealed quite high rates of the mobile users’ satisfaction with their existing service providers in both countries. At the same time, there is yet willingness to change carriers if a different operator offers a more attractive deal in terms of better tariffs and quality of service. Besides, the respondents disclosed strong attachment to their mobile phone numbers, which may create grounds for the increased MNP uptake in the future.

At the time of research, usage rates within the surveyed country samples appeared to be low. Among a few MNP users, many respondents stated that they were better off with the new service provider compared to the previous one, even in the case if their average monthly bill for mobile services had increased after MNP in the range of 25-50%. This finding indicates that consumers do not regard the size of their bills and underlying charges as a decisive factor for individual wellbeing and perceived utility associated with a particular mobile operator.

The above seems to be in contrast with an earlier finding from the literature, whereby a large number of respondents to a consumer survey before the launch of MNP in Japan mentioned their high monthly bills as the most powerful motivation to switch mobile carriers (Otsuka and Mitomo, 2013). This kind of differences between countries rather reflects individual consumer preferences and is supportive of the study by Czajkowski and Sobolewski (2010), pointing out the importance of several non-price attributes while choosing a mobile carrier, such as the operator’s brand name, the presence of close people’s contacts on the same network, the overall size of an operator, etc.

From the same research by Otsuka and Mitomo (2013) on user benefits and operator costs of MNP in Japan, their suggested classification of direct and indirect benefits (described in Table 2 above) seems to fit also Georgian and Belarusian MNP users, with the following accrued benefits:

- Direct benefit of enjoying better services at a lower price;
- Indirect benefit of reduced call charges as a result of the competition increase.

Therefore, it can be concluded that the service availability has generally benefitted MNP users in Georgia and Belarus. The above indirect benefit might be accessible to non-MNP customers as well, as more intensive market competition is likely to drive prices down for everyone. However, half of the survey respondents (both with and without MNP experience) in each of the two countries found it difficult to answer the question on whether they believed that the mobile communications market in their country had overall gained from MNP in terms of more competitive service offerings, better tariffs and quality of service.

According to Buehler at al. (2006), MNP pursues the following two objectives: (1) it removes barriers to switch service providers and thus directly benefits mobile customers, and (2) it provides equitable conditions for new players to enter the market and generate a sufficient customer base to be able to compete with incumbents. The performed consumer survey presented herein provided empirical evidence that the first objective had been achieved in the two studied countries. As to the second objective, its analysis does not form part of the given publication.

It is obvious that the customer experience is just one side of the overall MNP effect. To assess the broader impact on mobile communications markets, it is imperative to also count in views and considerations of other relevant stakeholder groups, such as mobile operators and national regulatory or policy-making authorities. These were included in the larger research project of MNP effects in Georgia and Belarus, carried out within the framework of the researcher’s doctoral studies. Hence, its more inclusive findings are covered in other related articles/ conference papers by the same author.

ACKNOWLEDGEMENTS

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REFERENCES


APPENDIX

Consumer survey questionnaire

Your country: □ Georgia □ Belarus

1. How many mobile phone numbers (SIM cards) do you currently have?
   □ One □ Two □ Three or more

2. Are you a pre-paid or post-paid mobile customer?
   □ Pre-paid □ Post-paid □ Both (in case of several SIM cards)

3. If you are a post-paid customer, what is the length of your contract (particularly, when you have purchased a subsidised mobile handset from your service provider)?
   □ One year □ Two years □ Indefinite term □ Other (please specify) __________

4. If you have several SIM cards, do you hold more than one phone number from the same mobile operator? If yes, then how many?
   □ No □ Yes ____ (number of SIM cards from the same operator)

5. If you are aware of per-minute tariffs that your mobile services provider charges you, please select the corresponding range both for your on-net and off-net calls.

   On-net calls
   □ My tariff plan includes certain amount of free-of-charge on-net call traffic.
   □ 1-5 eurocents per minute
   □ 6-10 eurocents per minute
   □ More than 11 eurocents per minute
   □ I am not aware of my on-net call charges at all.

   Off-net calls
   □ My tariff plan includes certain amount of free-of-charge off-net call traffic.
   □ 1-5 eurocents per minute
   □ 6-10 eurocents per minute
   □ More than 11 eurocents per minute
   □ I am not aware of my off-net call charges at all.

6. If your current tariff plan allows you to call free-of-charge for certain amount of on-net/ off-net traffic, do you still have a rough idea about the percentage ratio between on-net and off-net call charges that your mobile operator applies?
   □ They are equal.
   □ On-net call charges comprise approximately 50% of off-net call prices.
   □ On-net call charges comprise approximately 20% of off-net call prices.
   □ I have no idea at all.

7. If you are aware of your mobile voice traffic volume, please select the corresponding range for the number of minutes you spend on on-net and off-net calls on a monthly basis.

   On-net calls
   □ Less than 60 minutes per month
   □ 61-180 minutes per month
   □ 181-300 minutes per month
   □ More than 301 minutes per month
   □ I am not aware of the volume of my monthly on-net call traffic.

   Off-net calls
   □ Less than 60 minutes per month
   □ 61-180 minutes per month
   □ 181-300 minutes per month
   □ More than 301 minutes per month
   □ I am not aware of the volume of my monthly off-net call traffic.

8. In case you are not aware of your monthly usage volume, please indicate the amount of free-of-charge on-net and off-net call minutes if included in your current tariff plan.

   On-net calls
   □ Up to 100 minutes per month
   □ 101-500 minutes per month
   □ More than 501 minutes per month
Unlimited number of free-of-charge on-net call minutes per month
- Not included in my current tariff plan (also due to pre-paid service)
- I am not aware of my free-of-charge allowance for monthly on-net call traffic.

**Off-net calls**
- Up to 100 minutes per month
- 101-500 minutes per month
- More than 501 minutes per month
- Unlimited number of free-of-charge off-net call minutes per month (highly unlikely)
- Not included in my current tariff plan (also due to pre-paid service)
- I am not aware of my free-of-charge allowance for monthly off-net call traffic.

9. In general, are you happy with your current mobile services provider(s)?
- Yes □ No □

10. Will you be willing to change your current mobile operator if another service provider offers a more attractive deal in terms of better tariffs and quality of service?
- Yes □ No □

11. Is it important for you to retain your present mobile phone number(s) while changing carriers?
- Yes □ No □

12. Imagine a hypothetical scenario: if your current tariff plan is offered with the same terms and conditions by a different mobile operator, how much will it have to pay you as a one-off incentive to switch service providers and change your mobile phone number?
- 0-25 EUR □
- 26-50 EUR □
- More than 51 EUR □
- I will not change my mobile phone number under any circumstances.

13. Which of the following factors are most important for you when selecting your mobile operator? You can choose more than one option.
- The company's brand name
- Prices for on-net/off-net calls it charges
- Presence of family member contacts on the same network
- Presence of friends and other close people contacts on the same network
- Length of my contract
- Other (please specify) ____________________________________________

14. Are you familiar with the mobile number portability (MNP) service that is available to you? MNP allows you to retain your mobile phone number while changing service providers.
- Yes □ No □

15. If your answer to the preceding question was "Yes", where have you heard about it from? You can choose more than one option.
- TV □
- Radio □
- Directly from my mobile company □
- Street advertisement □
- Other (please specify) ____________________________________________

16. When you consider using such a service, will you be ready to do so if:
   a) There is a charge for it? □ Yes □ No
   b) The process of changing an operator is quite lengthy? □ Yes □ No

17. Have you ever used the MNP service, i.e., have changed your mobile operators without altering your phone number?
- Yes □ No □
   If yes, then how many times?
   - Once □ Twice □ Other (please specify) ___________

18. How long did the porting process take? _____________________________

19. How much did you pay for the MNP service? Please state the amount in EUR. _______

20. Were you overall satisfied with the porting process?
- Yes □ No □

21. Please select the corresponding range for your average monthly bill for mobile services before and after MNP. If you are a pre-paid customer, indicate your aggregate top-up amount per month.
   - Before MNP: ____________________________________________
Consumer survey findings on mobile number portability experience in Georgia and Belarus

21. Do you think your mobile phone bill has changed after MNP (Mobile Number Portability)?
   - Less than 5 EUR per month
   - 6-20 EUR per month
   - 21-35 EUR per month
   - 36-50 EUR per month
   - More than 51 EUR per month
   - I don’t keep track of my monthly spending.
   - Decreased in between 25-50%
   - Decreased by less than 25%
   - Remained almost the same
   - Increased by less than 25%
   - Increased in between 25-50%
   - I don’t keep track of my monthly spending.

22. Do you think you are now better off with your new mobile services provider, compared to the previous one?
   - Yes
   - No
   - No considerable change
   - Difficult to respond

23. Do you think the mobile telephony market in your country has benefitted from MNP in terms of more competitive service offerings, cheaper prices, better quality of service, etc.?
   - Yes
   - No
   - No considerable change
   - Difficult to respond

You are now kindly asked to provide certain demographic information about yourself. Please be assured that this survey is anonymous and your personal data will not be used for the purposes other than the given research.

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Accepted 4 June 2018


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