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Implications of mandatory registration of mobile phone users in Africa

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ABSTRACT

Sub-Saharan Africa ranks among the top regions in terms of growth in the number of mobile phone users. The success of mobile telephony is attributed to the opening of markets for private players and lenient regulatory policy. However, markets may be increasingly saturated and new regulations introduced across Africa could also have a negative impact on future growth. Since 2006, the majority of countries in the region have introduced mandatory registration of users of prepaid SIM cards with their personal identity details. This potentially increases the costs of using mobile telephony. Herein a fixed effects model for the estimation of the impact of mandatory registration on mobile subscription penetration growth is presented, which is based upon a panel dataset of 32 countries in Sub-Saharan Africa for the years 2000 to 2010. The results show that the introduction of mandatory registration depresses growth in mobile penetration. Further, the potential impact of mandatory registration on competition and consumer privacy is critically discussed.

1. Introduction

In 10 short years, what was once an object of luxury and privilege, the mobile phone has become a basic necessity in Africa. Paul Kagame, President of Rwanda at the Connect Africa Summit in 2007

Mobile phone usage is regarded as one of the economic success stories in Africa. According to a report of the International Telecommunications Union (ITU), the mobile industry invested US$ 35 billion between 2000 and 2011, providing more than 67 percent, or 500 million people in Sub-Saharan Africa with mobile coverage (ITU, 2011, p. 65). According to ITU statistics, growth rates in mobile cellular subscriptions per 100 inhabitants (2005–2010) were on average about 44 percent per annum across 47 Sub-Saharan African countries, excluding Guinea and South Sudan. However, growth rates might cool off noticeably in the near future. The reason could be a new measure introduced in more than half of Sub-Saharan countries: the mandatory registration of users of mobile phones with personal details for prepaid SIM cards. Such registration had not been conducted in the past, but is now required by governments in response to rising crime and fraud schemes involving mobile phones. The main justification for the measure is to combat crime, to prevent fraud and to support of Anti-Money Laundering and the Combating of the Financing of Terrorism (AML/CFT) measures.

Registration policies were first introduced in 2006 in both Senegal and Mauritius. In 2008 Botswana, Burkina Faso, Democratic Republic of the Congo and Sudan followed suit and implemented similar policies. After these early adopters, a

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wave of more than 20 countries followed in 2009 and 2010. The initiative is lead in the East African Community by the Assembly of Telecommunications Operators at the East African Communications Organization (EACO), an intergovernmental body of telecom regulators, telecom and postal operators. It is reported in the African media that this required registration might negatively affect mobile subscriber growth rates.[1] For example, registration could lead to the disconnection of millions of SIM cards, as Africans struggle to assemble the required formal identity documentation. Moreover, there could be also a negative impact on the operators' revenues as mandatory registration leads to an immediate drop in the number of active SIM cards after the registration deadline passes. The measure may also influence telecom operators' competition by increasing switching costs. For consumers, the services will become personalized in future, because they are no longer anonymous. Gow and Parisi (2008, p. 65–66) note that it is, in general, difficult to achieve total anonymity in mobile telephony, therefore the term anonymity is used herein to represent non-registration, that is, the absence of specific personal identity information. Registration will also alter the types of crime encountered in the markets with a predictable increase in identity-related crimes.

In order to estimate the impact of mandatory registration on mobile penetration growth, a fixed effects model is estimated controlling for GDP growth and governance variables as well as market saturation. The model is estimated using a panel dataset of 32 African countries for the years 2000 to 2010. The hypothesis tested is that mandatory registration negatively impacts mobile phone penetration growth. The evidence should be regarded as preliminary considering that policy changes were only introduced starting in 2006. There is little known about the impact of mandatory registration of prepaid SIM card users in Africa, and the sheer size of the markets merit investigation. This article, therefore, fills a void at the intersection of different literature strands. There is a vast literature on mobile phone diffusion in Africa such as Aker and Mbiti (2010), ITU (2011) and Minges (1999), to name but a few. Moreover, there is some analytical work on customer loyalty, switching costs and churn in post-paid mobile telephony services in industrialized countries (Chuang, 2011; Maicas, Polo, & Sese, 2009). However, the author is not aware of academic studies estimating the impact of mandatory user registration in Europe on prepaid services. Moreover, in Africa the prepaid market segment is much larger than in Europe–such that one would expect more pronounced effects in Africa. There is a small, yet growing, technical literature on churn prediction in prepaid telephony services (Dasgupta, Singh, & Viswanathan, 2008; Owczarczuk, 2010). However there appear to be no studies on mandatory registration and its impact on competition among telecom operators.

This paper is not intended to be a full-scale cost-benefit analysis of mandatory registration, because registration was only relatively recently introduced. The benefits of such measures are typically stressed by governments to improve the detection of crime and fraud in law enforcement. At this stage, there is no convincing empirical evidence that mandatory registration in fact systematically lowers crime rates. Another benefit mentioned in the literature is that registration could improve the migration of prepaid customers to mobile financial services for which customers have to be identified. On the other hand, there are drawbacks associated with this policy. In the past, anonymous prepaid services induced little loyalty to a specific network because it was easy to switch to another operator's network. Mandatory registration, however, could increase a customer's switching costs, because a customer has to register with each operator. Less switching impacts consumer privacy, as the personal profile with the selected operator becomes more detailed and complete. Increased switching costs cushion competition and reduce price discipline if consumers do not foresee that they will be potentially locked-in once they registered. In an experimental study conducted for the European Network and Information Security Agency by Jentzsch, Preibusch, and Harasser (2012), it is found that there is little switching between two firms after consumers filled out an online form with their personal details with one of the firms. In addition to these effects, customer registration could give rise to huge amounts of personal data collected in Africa, that is, the real-time location of users who are now identified.

2. The rising trend of customer registration

Registration of users of prepaid mobile telephony is conducted in some OECD countries, but not all. The Center for Policy, Research on Science and Technology Registration (CPRST, 2006) surveyed such policies in the OECD in 2006. It reports that, at the time of the survey, 16 of 25 responding nations did not have mandatory registration policies in place including Austria, Canada, Denmark and the United Kingdom. Other countries introduced registration relatively recently: one example is Greece, which introduced the policy in late 2009.[2] There are no international comparisons related to African countries, despite the success of mobile telephony there. The lack of systematic data on Africa could be a reason why the trend of mandatory registration has received little attention in the literature and in international discussions about mobile banking.[3] In the following, the rationale of mandatory registration is discussed and evidence on its spread across Africa is presented. An overview of introduced registration measures in Africa is presented in Table 1, which also contains information on the country sample used herein.

[1] AfricaNews.com (2010).

[2] It is reported in the media that the main operators in the country have seen declines in their customer base (Wood, 2010). In Greece, the economic downturn is also contributing to a decline in consumer spending.

[3] For example, in Chatain, Zerzan, Noor, Dannaoui, and de Koker (2011) the trend is mentioned on p. 49 and again in footnote 32, p. 60, but there is no information about its extent. Most surprisingly, this also holds for ITU (2011).