Africa Growth Initiative at BROOKINGS

POLICY BRIEF

Taxing mobile phone transactions in Africa

Lessons from Kenya

Njuguna Ndung'u

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ABSTRACT

The taxation on mobile phone-based transactions and on airtime has been introduced in Kenya and is spreading to other African countries. Some countries in sub-Saharan Africa view mobile phones as a booming sub-sector easy to tax due to the increasing turnover of transactions and the formal nature of such transactions by both formal and informal enterprises. The increasing tax burden on the sub-sector and the consumers, though, has raised concerns that the massive gains made in financial inclusion in developing countries made possible by retail electronic payments platform via mobile phone transactions may be reversed—resulting in a return to cash transactions. In addition to a 2003 excise tax on airtime, since 2013, Kenya has introduced and reworked taxes on goods such as mobile phones, computer hardware, software, and, more recently, retail financial transactions. The most recent adjustments in taxation in the Finance Act 2018 increased the excise tax on money transfer services by banks from 10 percent to 20 percent, on telephone services (airtime) from 10 percent to 15 percent, on mobile phone-based financial transactions from 10 percent to 12 percent, and introduced a 15 percent excise tax on internet data services and fixed-line telephone services.

This paper shows that taxation on mobile phone airtime and financial transactions may not expand the tax base significantly but, rather, may reverse the gains on retail electronic payments and financial inclusion. A higher tax rate on low-level retail electronic transactions mostly levied on low-income earners that are sensitive to transaction costs may discourage the use of mobile phone-based transactions, incentivizing them to revert to cash transactions to evade taxes and so less tax revenue. This trend will deal a big blow to the financial inclusion success witnessed so far.

Poorly designed tax policy will have poor outcomes on tax revenue and market distortions will drive consumption behavior on an undesired path, so any future review of excise tax rates on airtime and financial services should be preceded with a thorough analysis of optimal taxation excise taxes, the likely change in behaviour around financial services, and, above all, the marginal contribution to the tax effort that policy aims to raise. The data so far available shows that the contribution of mobile money-related taxes is less than 1 percent of total tax revenue, a negligible contribution to Kenya's total tax income, at high economic costs. These lessons are not just relevant for Kenya but also for other countries in Africa with such tax propositions. Introducing and increasing

taxes on mobile phone transactions may risk stalling progress on digitization and fiscal policy design as well as revenue administration.

INTRODUCTION

The tax burden on mobile phone-based transactions, airtime, and operators in sub-Saharan Africa has been on the increase in the last decade. Indeed, Rogers and Pedros (2017) find that, in 2015, approximately 26 percent of the taxes and fees paid by the mobile industry in 12 sub-Saharan African countries (Guinea, Chad, the Democratic Republic of the Congo (DRC), Niger, Tanzania, Ghana, Madagascar, Cameroon, Sierra Leone, Senegal, Rwanda, and South Africa) were related to sector-specific taxation and not from broad-based taxation (i.e., taxes applicable to all sectors of the economy). Sector-specific taxation can be so high that the contribution required of the mobile sector for sector-specific taxes and fees is greater than that of general taxation. For example, in 2015, the mobile telephone subsector in the DRC contributed $352 million against the $277 million collected from the industry for the taxes that apply to the general economy (i.e., those that are also paid by the other sectors of the economy) (Rogers and Pedros, 2017). A number of countries in sub-Saharan Africa are introducing taxes on mobile phone-based transactions in view of the growing turnovers coming from households, formal, and informal enterprises that provide a convenient "tax handle" to the tax administrators (Matheson and Petit, 2017). This increasing burden has raised concerns regarding possible negative effects that could include a reversal of gains made in financial inclusion in developing countries, such as Kenya, and, more importantly, reverse the electronic payments developments that have taken place in the last 12 years. In other words, the taxation might encourage Kenyans to return to cash transactions to avoid those taxes.

The success of financial inclusion in Kenya has largely been driven by mobile phones' entry into the financial services ecosystem. A retail electronic payments platform, the main entry point for the unbanked, has now expanded to become a transactions platform using mobile phones and e-money, and further into a virtual banking system. Given the need for financial inclusion and ease of these transactions, the Kenyan economy has progressively moved to cashless transactions across all market segments. Institutions in East Africa have promoted financial inclusion with vigor under the intense conviction that it will promote inclusive growth and financial development and, hence, a sustainable route for poverty reduction. However, the expansion of financial inclusion through mobile banking is under threat from the levying of taxes on mobile phone transactions.

No doubt, African governments need to raise taxes and broaden their tax bases, but they must approach tax policy with a discerning eye. Taxes have effects on behavior outside the immediate monetary transactions. Most excise taxes have a Laffer curve, that is, as tax rates increase beyond the optimal tax rate, tax revenue actually declines, and the potential for distortion in the market increases. Economist Arthur Laffer (undated) argued that changes in tax rates have two effects on revenues: the arithmetic effect and the economic effect. The arithmetic effect is the static effect and is what everyone thinks of when considering a change in tax rates; that is, an increase in tax rates is expected to generate more tax revenue. The economic effect is less obvious, as it considers the incentives and disincentives the change in tax rate creates around related economic activities. An excise tax is traditionally implemented or raised on the belief that consumption/demand conditions will not change. However, current dynamic technological effects indicate that this traditional knowledge may no longer be the case—that is, consumption behavior and demand may change. Therefore, a major concern around taxation on mobile phone-based transactions is the potential for a reversal of the gains of financial inclusion and the creation of an incentive for cash transactions in order to circumvent this taxation. Indeed, how revenue responds to a tax rate change depends upon the tax system in place, the time period considered, the ease of movement to underground activities, the level of tax rates already in place, the prevalence of legal and accounting-driven tax loopholes, and the proclivities of the productive factors.

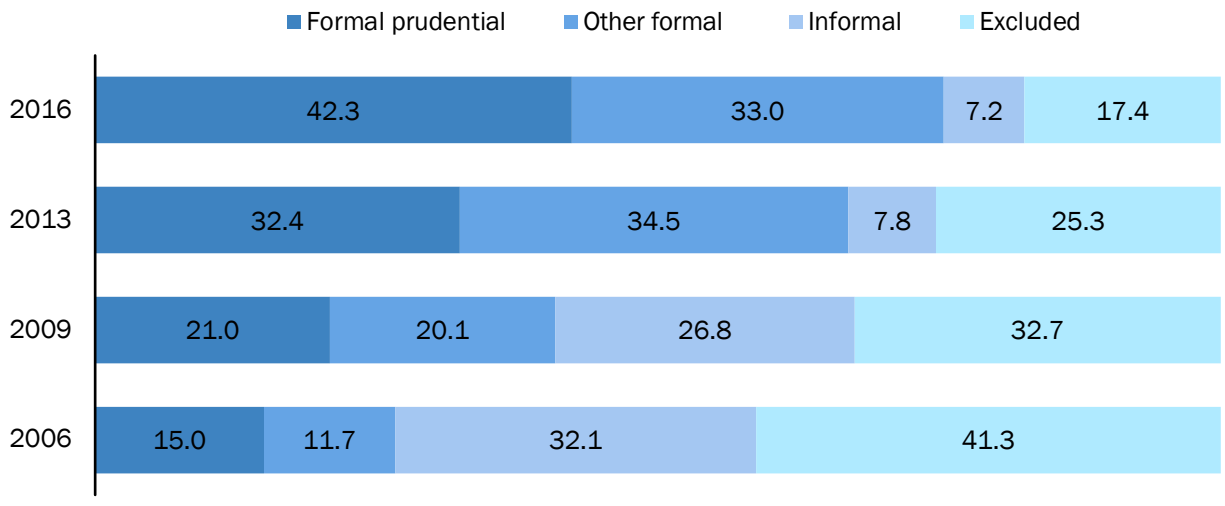
Over the last decade, the taxation of mobile telephony and associated financial transactions has changed from tax exemption to increased taxation. In June 2009, the Kenyan government, recognizing the importance of enhancing access to mobile telephony, exempted mobile handsets from the VAT. This move increased the affordability of the handsets and made possible the more than 200 percent increase in handset purchases and a 50 percent to 70 percent increase in penetration rates (Strusani and Solomon, 2011). In turn, the use of mobile phones and related services such as mobile money deepened, and Kenya's total mobile subscribers

almost doubled from 17.4 million in June 2009 to 29.8 million by March 2013. Then, the VAT Act 2013 paved the way for the taxation of previously exempted goods such as mobile phones, computer hardware, and software. Now, mobile phone users in Kenya had to pay a 16 percent VAT on the purchase of a mobile handset in addition to the 10 percent excise tax on airtime, which had been introduced earlier in financial year (FY) 2002/03. Further, in FY 2013/14, the government introduced an excise tax on retail financial transactions at a rate of 10 percent. The Finance Act 2018 then increased the excise tax on money transfer services by banks from 10 percent to 20 percent, on telephone services (airtime) from 10 percent to 15 percent, and introduced a 15 percent excise tax on internet data services and fixed line telephone services. These taxes have contributed to raising consumption tax as a proportion of the total cost of mobile ownership in Kenya. These taxes are regressive in nature and may be misconstrued by the mobile phone services consumers as government's intention to discourage use of mobile phone services (Strusani and Solomon, 2011).

Kenya has proudly led the terrain of innovation and application when it comes to mobile phone-based financial services. Previously, low income levels and irregular income flows, as well as the physical distance to a bank branch or financial service point constrained financial inclusion. In one stroke, the mobile phone financial services platform resolved these binding constraints, moving Kenyans from financial exclusion to financial inclusion. The first stage of the mobile phone digital revolution was a network of agents across the country, which metamorphosed into an agent management network with agents, master agents, and super-agents. The global developing economies look at this Kenya's Master Agent Model as the pillar of success that can be replicated. The Central Bank of Kenya's statistics show that the total number of mobile financial services agents, whose primary function is to issue e-money in exchange of cash or vice versa, has grown tremendously since 2007, when M-Pesa was launched, from 307 agents to 182,472 agents as of December 2017. The results of financial inclusion profile in Kenya between 2006 and 2016 attests to the country's major accomplishments (Figure 1):

- Those being served by formal financial services providers has increased to 75.3 percent of the adult population by 2016, compared to just 27.4 percent in 2006.
- The informal financial channels served only 7.2 percent of the adult population in 2016, down from 35.2 percent in 2006.
- There has been a dramatic decline in the proportion of the financially excluded population from 41.3 percent in 2006, to 32.7 percent in 2009, to 25.3 percent in 2013 and further down to 17.4 percent in 2016.

Figure 1: Kenya's financial inclusion profile: 2006-2016



Source: FinAccess Surveys 2006; 2009; 2013; 2016.

The financial inclusion profile becomes clear when we look at the financial access strands in detail. The access strand classifies users according to the most formal service provider used, as defined in the Table 1.

Table 1: Classification of financial access strands

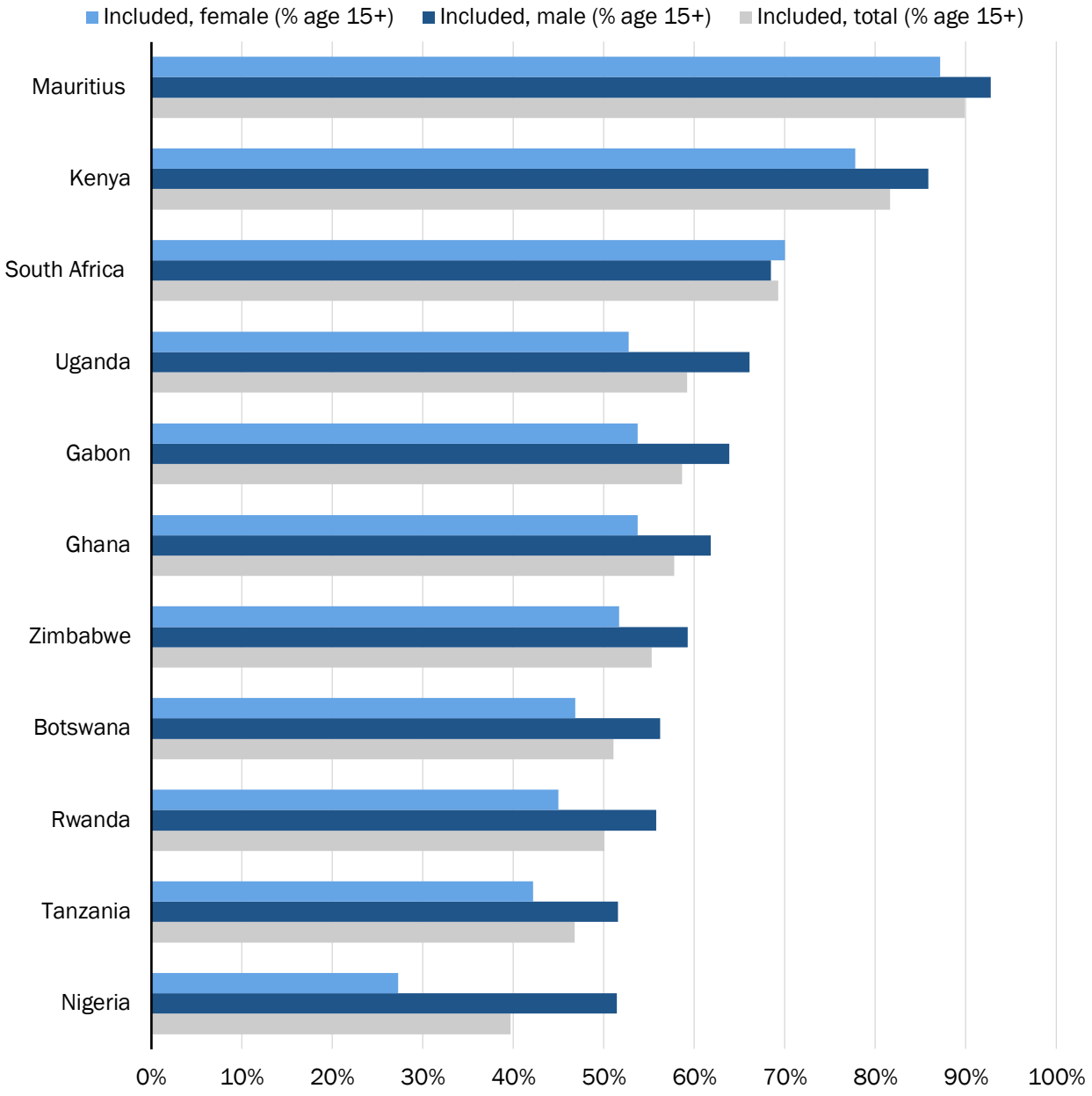
Classification	Definition	Institution type
Formal (prudential)	Financial services used through prudentially regulated service providers and are supervised by independent statutory agencies (Central Bank of Kenya (CBK), Capital Market Authority (CMA), Insurance Regulatory Authority (IRA), Retirement Benefit Authority (RBA), and SACCO Societies Regulatory Authority (SASRA))	• Commercial banks (includes mobile bank accounts such as M-Pesa, KCB M-Pesa, MCo-op Cash, and M-Shwari) • Microfinance banks • Capital market intermediaries • Insurance service providers • Deposit-taking SACCOs • Foreign exchange bureaus
Formal (non-prudential)	Financial services through service providers that are subject to non-prudential oversight by government departments/ministries with focused legislations or statutory agencies	• Mobile financial services (MFSs) • Postbank • National Social Security Fund (NSSF) • National Health Insurance Fund (NHIF)
Formal (registered)	Financial services through providers that are legally registered and/or operate through direct government interventions	• Credit-only microfinance institutions (MFIs) • Non-deposit-taking SACCOs • Hire purchase companies • Development financial institutions (DFIs) e.g., Agricultural Finance Corporation (AFC)
Informal	Financial services through forms not subject to regulation but have a relatively well-defined organizational structure	• Groups e.g., ASCAs, *chamas, &* ROSCAs • Shopkeepers/supply chain credit • Employers • Money lenders
Excluded	Individuals who report using financial services only through family, friends, and neighbors, or keep in secret places	• Social networks and individual arrangements (e.g., "secret hiding place")

Source: FSD Kenya and Central Bank of Kenya (2016).

The latest Global Findex data, which is compiled using nationally representative surveys of more than 150,000 adults aged 15 years and above in over 140 economies, provides an updated story of success. Indeed, Demirgüç-Kunt et al. (2018) have shown that 21 percent of adults in sub-Saharan Africa now have a mobile money account—nearly twice the share in 2014 and the highest of any region in the world. Demirgüç-Kunt et al. (2018) argue that this progress has been driven by digital payments, government policies, and a new generation of financial services accessed through mobile phones and the internet.

The Global Findex 2017 data, presented in Figure 2, puts Kenya's financial inclusion at 82 percent of the adult population, just below Mauritius' 90 percent and above South Africa's 69 percent. Notably, while the gender gap in financial inclusion seems to have significantly reduced following the mobile financial services revolution in Africa, the number of financially included male adults was higher than that of female adults in all the countries except South Africa.

Figure 2: Financial inclusion in selected African countries, 2017



Source: Global Findex 2017 database by Demirgüç-Kunt et al. (2018).

THE BENEFITS OF MOBILE-BASED FINANCIAL SERVICES IN KENYA

Development actors are often quick to praise the outcomes of mobile transactions given that the spread of mobile banking in Kenya has been largely beneficial, especially when it comes to increased market access and reduced poverty. In fact, the benefits have gone beyond those areas, and to create a comprehensive understanding of where the taxes may have adverse effects, I have organized the benefits into the categories outlined below:

Serving as an economic driver: The pioneering M-Pesa and other mobile phone-based financial services have produced one important outcome: the retail electronic payments system, the platform for making transactions

or paying for goods and services through an electronic medium without the use of checks or cash. Its turnaround time is roughly 5 seconds and is considered effective, efficient, transparent, and safe. It has provided the base for an evolutionary electronic payments system, and fintechs have used it to roll out businesses for SMEs and poor households. For example, the platform has been used to roll out programs such as M-Kopa for solar energy, water vending machines in slum areas in Nairobi, and M-Tiba for health services (Ndung'u, 2018a).

Increasing financial inclusion: Financial inclusion is an important avenue for sustainably fighting poverty. Due to the introduction of mobile banking, accessibility to the financial system is much easier and, above all, cheaper. Banks have an easy-to-use technological platform for managing micro-savers accounts and micro-transactions as well as determining micro-credit. The evidence available for successful countries like Kenya shows how these developments allowed for the expansion of bank accounts without necessarily expanding the branch outlets (Ndung'u, 2018b).

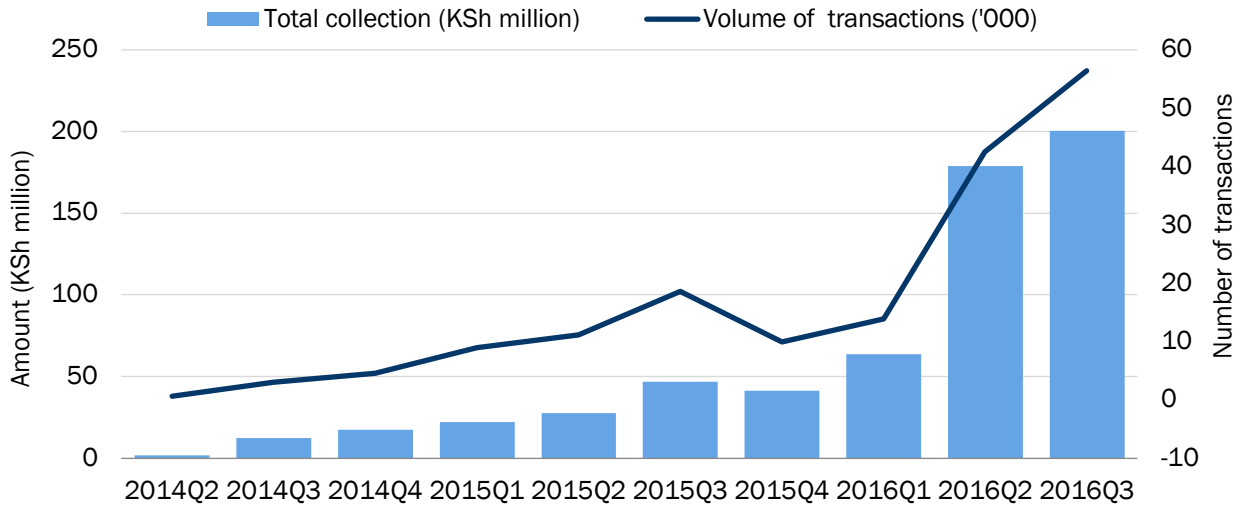
Encouraging savings and credit: One of the first steps in the natural progression of mobile phone financial services has been diversifying from a transactions platform to a virtual savings and virtual credit supply platform. Already in Kenya, savings and transactions data have been used to generate credit scores used to price short-term credit. The use of these credit scores is a sure way to change the collateral technology that has inhibited growth of credit markets in Kenya and Africa more widely. In this way, mobile phones have enabled access to financial services in remote areas without bank branches. However, these small savers are sensitive to costs, especially transaction costs, and so taxation on phone-based transactions, airtime, and bank transactions that are borne by the customers has the potential to reverse these gains.

Reducing poverty: For a real and sustained contribution to development, technology must go beyond just creating better and more affordable products to leading the creation of higher-paying jobs; that is, it must help poor people in their dual roles as consumers and producers. Examples of technology improving the lives of the poor abound. For instance, the One Acre Fund (OAF), launched in Kenya in 2006, developed interventions to reduce the binding constraints that small-holder farmers in East Africa face in terms of inputs, managerial skills, markets, and an effective payments platform (Ndung'u, 2018a). The results of these combined benefits—improved, convenient, and timely farm inputs (e.g., improved seeds and fertilizer) has enhanced productivity and output, increasing income per acre by 50 percent and generating a dollar impact of roughly $135 per farmer. For poor households, the program has improved food security and created opportunities for self-employment. In Kenya, M-Pesa and similar products appear to have enabled poor women to move out of subsistence agriculture into non-farm businesses, which is accompanied by a significant jump in the income ladder: Suri and Jack (2016) show that access to the M-Pesa technological platform increased per capita consumption levels and lifted 194,000 households, or 2 percent of Kenyan households, out of poverty. Notably, the impacts were more pronounced for female-headed households, driven by related changes in their financial behavior, asset accumulation, and labor market outcomes.

Formalizing transactions: Since the ascendance of the Anti-Money Laundering and Countering Financing of Terrorism (AML/CFT) regime, most Kenyans have moved away from informal cash transactions. Now, informal markets using e-money transactions in their mobile phones are cashless, causing the previously informal transactions to be formal and, thus, tractable. The stability and security of the financial market depends very much on the information available as well as the ease of tractability and conformity with regulatory requirements.

Facilitating tax collection and enhancing public service delivery: The government has utilized the payments platforms in targeted social protection programs, e-citizen payments platforms, and tax payments platforms through the Kenya Revenue Authority (KRA). For instance, in October 2014, the Kenya Revenue Authority launched the KRA M-service platform, a mobile phone application that facilitates tax payments and taxpayers' access to tax information. The tax services available on KRA's iTax system for domestic tax administration and the KRA M-service payment platform are domestic tax services, customs services, and traffic revenue services. The KRA M-service platform has made it easier and convenient for small taxpayers in the informal sector to meet their tax obligations. This trend is evidenced by the increased use of the mobile-phone based transactions platform to remit tax payments (Figure 3).

Figure 3: Tax remittance through mobile-phone transactions platform



Source: Kenya Revenue Authority (2017).

In these ways, the retail electronic platform has influenced tax design, supported tax payments through efficient payments platforms, and lowered the cost of taxation through reduced bureaucracy and intermediaries.

Encouraging more effective monetary policy: The introduction of the mobile phone financial services platform changed the traditional holding of currency outside of banks and the preference for cash. Indeed, these developments led to declining currency outside banks, significant velocity decline, changing preference of holding less cash, and rising money multiplier reflecting innovations in the market (Ndung'u 2018b). The former monetary policy framework assumed that velocity would remain constant, that is, people's behavior of holding cash as their proportion of income would not change. Similarly, policy was based on the idea that the relationship between monetary aggregates was constant—so reserve money on which the central bank had an influence would predict broad money and so exert control on money supply. In other words, the money multiplier would remain constant. These two assumptions did not hold. Consequently, the monetary policy framework has had to be revised to a forward-looking framework to anchor inflation expectations and to incorporate these changing dynamics, creating an environment for monetary policy signals to work through the market effectively and efficiently since cash outside the Kenyan banking system has declined.

TRENDS IN THE GROWTH OF KENYA'S ELECTRONIC PAYMENTS AND MOBILE BANKING SYSTEMS

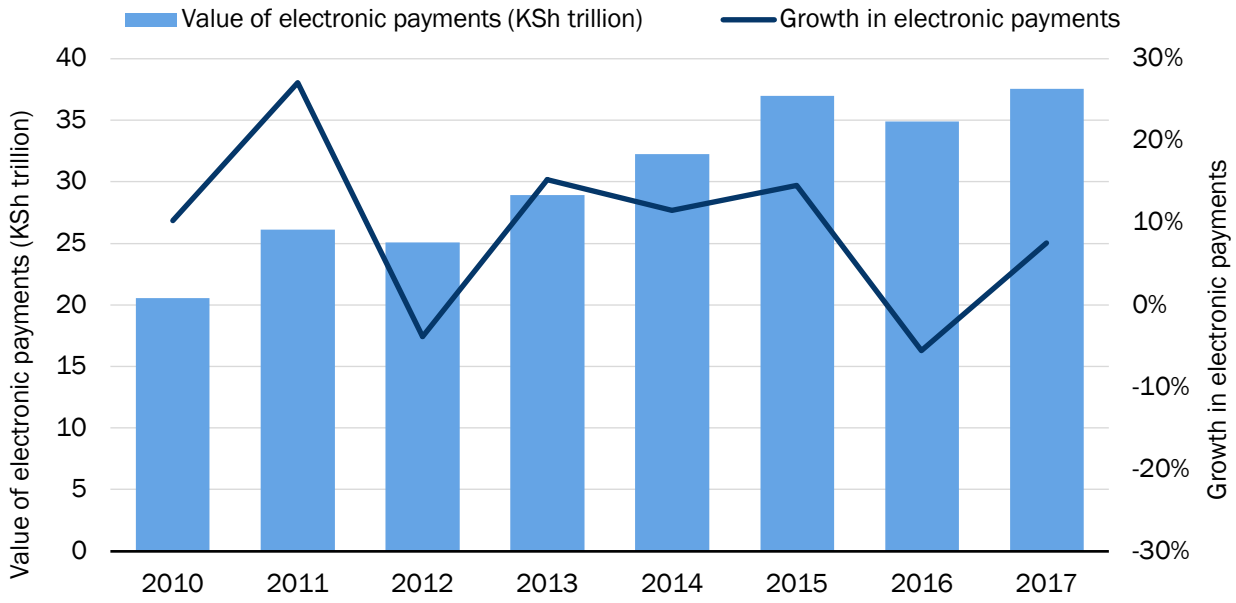
Electronic payments in Kenya consist of real-time gross settlement (RTGS[1]), electronic funds transfer (EFT[2]), cheques, point-of-sale (POS[3]) machines/terminals, cards (credit/debit cards), and mobile phone payments. These electronic payments are sensitive to regulations, economic factors, and transaction costs. Figure 4 shows the trends in electronic payments in Kenya between 2010 and 2017. The growth in electronic payments over this period seems to have followed economic cycles. Notably, after the introduction of the 10 percent excise tax on financial services in 2013, this growth slowed from an annual average of 12.2 percent in the period 2010-2013 to an annual average of 7.0 percent over 2014-2017.

[1] Real-time gross settlement (RTGS) is an automated payment system used to transfer money between local banks in Kenya, which goes through on the same day subject to a cut-off time of 2:00 PM Kenyan time.

[2] Electronic funds transfer (EFT) is an automated payment system used to transfer money between local banks in Kenya, which goes through in 48 hours, subject to a cut-off time of 2:00 PM Kenyan time.

[3] A point-of-sale (POS) machine is an electronic device that reads customer's credit or debit card information and is used to process card payments at retail outlets.

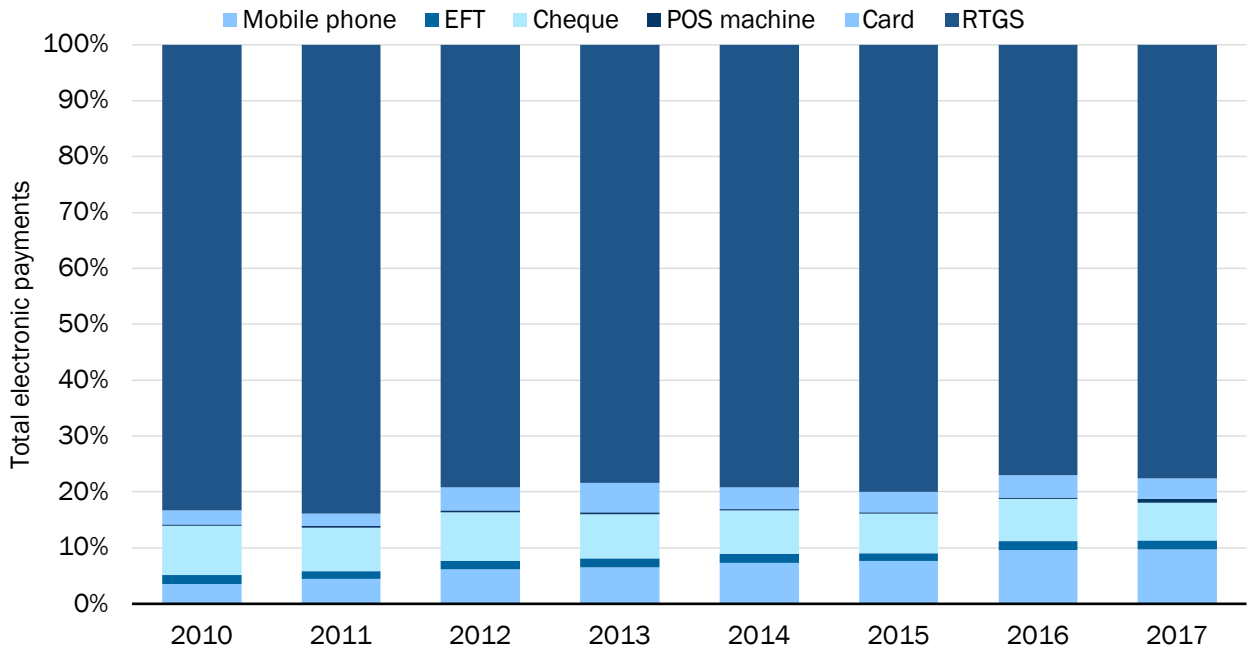
Figure 4: Growth in electronic payments in Kenya



Source: Central Bank of Kenya (accessed in October 2018).

Moreover, the central bank's data show that, apart from RTGS payments (with an annual average proportion of 79.8 percent of the electronic payments over the period 2010-2017), the proportion of each of the other electronic payment types remains below 10 percent, reflecting stagnating growth in the overall value of their transactions (Figure 5). Of crucial importance is the *number* of Kenyans using the payments platforms given that mobile phone transactions are characterized by low value and high volume, and thus involve a large population of Kenyans at the bottom of the income pyramid.

Figure 5: Composition of electronic payments in Kenya



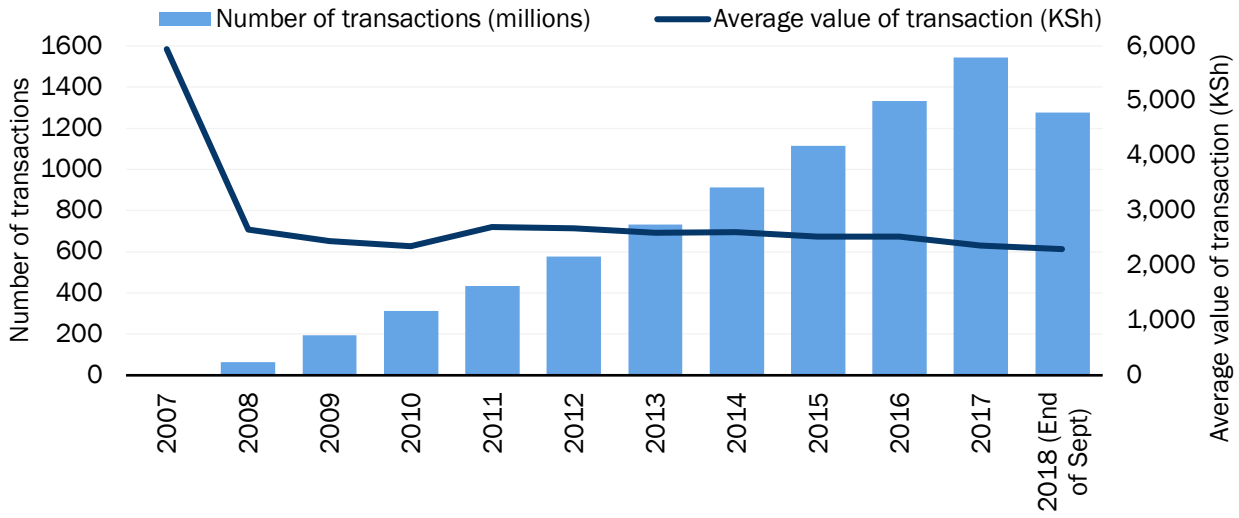
Source: Central Bank of Kenya (accessed in October 2018).

More specifically, Figure 5 shows that the proportion of mobile phone transactions of total electronic payments has increased over time from 3.6 percent in 2010 to 9.7 percent in 2017. However, the growth in proportion of mobile payments seems to have slowed following the introduction of the 2013 excise tax on financial services. Though the data points are still too few to draw hard empirical conclusions, the available data show that the rise in proportion of mobile phone payments in electronic payments slowed from an annual average increase of 1.2 percent in the period 2010-2012 to an annual average increase of 0.5 percent in the period 2013-2015. Only between 2015 and 2016 did an annual increase in a proportion of 2.0 percent occur, but this growth has since slowed again, rising by only 0.1 percent in 2017.

The trends captured in the figures seem to show that increased taxation on mobile phone-based transactions may not expand the tax base, but, rather, may result in less and less tax revenue in the future. In other words, a higher tax rate on low-level retail electronic transactions, which come from low-income earners that are sensitive to transaction costs, may discourage the use of mobile phone payments. These taxes are targeting mobile transactions because of their high volume, but, in reality, the value per transaction is so low that even a low tax has a disproportionate effect on the cost. The excise tax rate is subject to competing alternatives to avoid taxation; thus, those making low-value mobile transactions may opt to move back to cash transactions.

The Central Bank of Kenya data shows that number of mobile phone accounts has been on a steady increase, rising from 1.4 million in December 2007 to 44.3 million in September 2018. Similarly, the number of mobile phone transactions over the period has risen over the period. However, the average *value* of mobile phone transactions has a secular decline (neither cyclical nor seasonal but declining over a relatively long period) after sharp decline between 2007 and 2008. Again, the high volume but low average values of mobile phone transactions show that the platform is largely used by low-income earners that manage small-value transactions and so are very sensitive to transaction costs.

Figure 6: Mobile phone transactions



Source: Central Bank of Kenya (accessed in October 2018).

THE EXCISE TAX ON MOBILE AIRTIME AND PHONE-BASED FINANCIAL SERVICES

A tax on mobile phone-based transactions was first introduced in 2013 via an excise tax rate of 10 percent. Through the Finance Act of 2018, the excise tax on money transfer services through mobile phones and through banks was increased from 10 percent to 12 percent and 20 percent, respectively. At the same time, the excise

tax on telephone services (airtime) was increased from 10 percent to 15 percent. Table 2 shows how the transaction charges on mobile financial services (M-Pesa) have changed over time as a result of the telecommunication companies (Safaricom, in this case) passing on the tax burden to the consumers.

Table 2: M-Pesa transaction charges (percentage of the median KSh 2,500)

Transaction Range (KSh)	Transfer to other M-Pesa users			Withdrawal charges		
	2012	2017	2018	2012	2017	2018
1-100	0.20%	Free	Free	0.40%	0.40%	0.40%
101 -500	1.00%	0.44%	0.44%	1.00%	1.08%	1.08%
501 – 1,000	1.20%	0.60%	0.60%	1.00%	1.08%	1.12%
1,001 – 5,000	1.20%	1.80%	1.84%	1.55%	1.69%	1.73%
5,001 – 20,000	2.00%	3.55%	3.63%	4.80%	5.27%	5.38%
20,001 – 45,000	3.00%	4.40%	4.20%	8.08%	8.89%	9.22%
45,001 – 70,000	4.00%	4.40%	4.20%	10.67%	11.73%	12.00%

Note: The tariffs for transaction range KSh 1,001 - 70,000 are average charges for the various categories. The average exchange rate of the U.S. dollar to Kenyan shilling was 84.5 in 2012, 103.4 in 2017, and 101.3 in 2018.

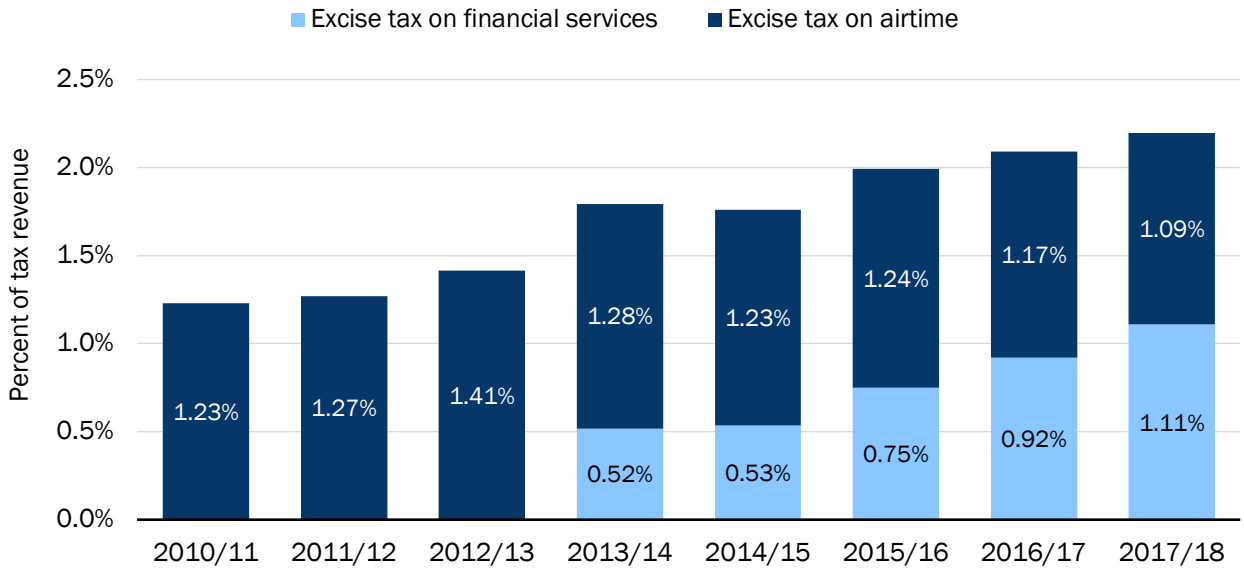
Source: Safaricom (accessed in October 2018).

Table 1 shows that the M-Pesa tariffs for most transaction ranges have increased since the introduction of the excise tax on financial services in 2013 and update in 2018. The only exceptions are the transfer charges for values below KSh 1,000 and the withdrawal charges for amounts less than KSh 100. Notably, the transfer charges for transactions between KSh 501 to KSh 1,000 declined by half from 1.20 percent of the median value in 2012 to 0.60 percent in 2017 and 2018. The transfer charges increased for all values above KSh 1,000. Withdrawal charges increased for all values above KSh 500.

This persistent increase in mobile transaction charges is likely to slow down the use of the platform, especially by the poor whose median transaction is KSh 2,500 and who are more sensitive to costs. In Kenya, though there are no actual estimates on how much the electronic payments system has cut transactions costs, the available anecdotal evidence indicates that digital financial services, such as ATMs, debit cards, credit cards and mobile money have reduced transaction costs in the country. As noted above, financial services through mobile phones, such as account balance inquiry, payment of utility bills, money transfers, and airtime purchases can be conveniently made without having to visit often hard-to-reach bank branches, utility service provider offices, and the Mobile Network Operators (MNO) agent shops. Indeed, the retail electronic platform has been described as efficient, effective, transparent, and safe (Ndung'u, 2018b). Though these benefits may persist, their overall gains and efficiency may be eroded due to taxation.

Figure 7 shows the performance of the excise tax on financial services and airtime since FY 2010/11. The most immediate point from the figure is that taxes on mobile phone transactions make up quite a small proportion of total tax revenue—only about 2 percent of taxes overall.

Figure 7: Proportion of excise tax on airtime & financial services in total tax revenue



Source: Kenya Revenue Authority (accessed in October 2018).

The second point from Figure 7 is that, since FY 2013/14, when the excise tax on financial services was introduced, the revenue collected from financial services increased from 0.52 percent of total tax revenue to 1.11 percent in FY 2017/18. On the other hand, excise tax revenue from airtime decreased from 1.41 percent of total tax revenue in FY 2012/13 to 1.09 percent in FY 2017/18. Though the aggregate for the two taxes shows an improvement from 1.41 percent of total tax revenue in FY 2012/13 to 2.20 percent in FY 2017/18, the marginal increase of 0.8 percent for the aggregate and the decline in excise tax revenue from airtime show that there could be no significant effect on the growth in size of Kenya's tax base.

THE EFFECTS OF TAXING MOBILE TRANSACTIONS

The taxation policy on these micro-transactions has the potential to reverse some of the financial inclusion and overall financial gains as well as incentivize people to return to cash. First, the taxation on airtime and mobile phone financial transactions is a double taxation as airtime is required for mobile money transactions. Second, the tendency of excise taxes to operate on a Laffer curve implies that, as rates increase, they raise the potential for distortions in the market, and tax revenue will actually decline once the optimal tax rate threshold is surpassed. In the short term, the demand elasticity may not change and so may generate the desired tax revenue. However, further tax increases may push taxpayers to look for alternatives in order to escape the tax, causing the government to net less and less revenue. The analysis of optimal taxation for an excisable product should have been conducted prior to taxation. For example, after a thorough study, a counterfactual argument could be raised that a 5 percent tax on mobile phones and banks can generate more tax revenue for the government than the current 12 percent and similarly 20 percent, respectively. Altering the demand structure for this service is likely to reverse gains made in the financial sector. Kenya was moving into a cashless economy. This trend is now in danger of reversal.

Thus, empirical studies, such as Karingi, Kimenyi, and Ndung'u (2001), that have so far been conducted on the optimal tax rate of excise tax show that, beyond a certain point, further tax rate increases will yield *lower* tax revenue. In other words, excisable products have an optimal tax rate. In most cases, excise taxes are imposed based on the strong belief that the product in question is price inelastic. However, time and technological changes in these cases show that price inelasticity is only relevant in the very short term. In the medium to long term, the structure of demand is likely to change and so will the amount of tax revenue anticipated—leading to,

namely, less tax revenue and price distortion. In short, at a tax rate below the revenue-maximizing rate, increasing the rate enhances tax revenue. However, once the revenue-maximizing tax rate has been exceeded, an increased tax rate depresses consumption, resulting in a decline in overall tax revenue. As the financial services' transaction costs increase significantly due to the increased excise tax, the gains made on financial inclusion, the formalization of informal payments (using electronic payments platform), and tax remittances through digital platforms are likely to be reversed as Kenyans return to cash.

POLICY RECOMMENDATIONS

Ndung'u (2017) argues that poorly designed tax policy or, really, any poorly designed policy will lead to poor outcomes. As noted above, once the optimal tax rate is reached, a further increase in the excise tax rate generates less and less tax revenue. We already have several examples in Kenya, where an increased tax results in less and less tax revenue as well as a distortion in the market.

The living example is excise tax on beer: The study by Karingi, Kimenyi, and Ndung'u (2001) on optimal taxation of excisable products in Kenya showed that the excise tax follows a Laffer curve. In other words, it becomes a distortion once the optimal rate is surpassed. The main policy argument from the 2001 study and subsequent policy advice was that the government should move away from taxing beer and other alcoholic beverages separately and devise a tax on the basis of alcohol content, which would provide a progressive tax generating tax revenue and encouraging responsible alcohol consumption behavior. Taxing beer beyond the optimal tax rate has the effect of changing consumption behavior—the rich would upgrade consumption to other alcoholic beverages that are taxed differently. The poor would downgrade consumption and create a market for illicit alcoholic beverages, which is an informal market whose products and standards are not controlled or documented. This menace has plagued Kenya in the last 15 years with devastating consequences on the youth and rural population who consume these illicit, unregulated drinks. It is a lesson that poorly designed tax policy will have poor outcomes on tax revenue, and market distortions will drive consumption behavior on an undesired path.

In the financial sector, the change in consumption behavior for mobile money users could see the poor reverting to more cash transactions as the rich resort to making few lump sum transactions, preferably using the RTGS, to escape the high transaction costs that accrue due to a higher number of transactions. This policy, then, is likely to stagnate or even reverse the financial inclusion gains in the country.

The tax policy and design of taxes on retail electronic transactions as well as bank transactions has the potential to reverse the gains that technology has pushed Kenya to the frontier of electronic payments and financial inclusion and back to cash preference and financial exclusion for low-income earners. Any future review of excise tax rates on airtime and financial services should be preceded with a thorough analysis of optimal taxation for an excisable product and the likely change in consumption behavior for the financial services, and above all the marginal contribution to tax effort that policy design is geared to raising. These lessons are not just relevant for Kenya but also for other countries in Africa as they consider enacting similar taxes. Evidently, risks to stall progress on digitization are high while the scope to boost total tax revenue increase is limited.

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Njuguna Ndung'u is Executive Director of African Economic Research Consortium (AERC) and the immediate former Governor of the Central Bank of Kenya, 2007-2015. All comments and questions to be addressed to nsnjuguna@ndungu.co.ke

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