DEEPENING EAST AFRICAN INTEGRATION THROUGH MOBILE TELECOMMUNICATIONS

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The rapid adoption of cellular phones by the diverse peoples of the African continent is one of the most important trends in looking at the prospects for social, economic, and political development there. In East Africa, in particular, the rapid rise of cellular phones has been joined with the strengthening of the East African Community (EAC) as a regional political bloc and with innovative new services offered through cell phone networks. In particular, services that treat all calls within the five countries of the EAC as local calls and services that tie consumer bank accounts to mobile accounts have had important changes on the prospects for political and economic integration in the region. In this thesis I will examine the effects that cellular phones and the pioneering services tied to them have had on the prospects for deepening integration of the EAC countries,

Burundi, Kenya, Rwanda, Tanzania, and Uganda. I will analyze how the changing nature of this East African core affects the security and development prospects of outlying parts of East Africa, namely Somalia, South Sudan, and the Democratic Republic of the Congo. I will show that the changes in the way people gather information, interact with the region's national borders, and make migration decisions have been fundamentally altered by the use of cellular phones, with the effect of advancing East African integration outside of the region's political institutions.

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Foreword

In October of 2009 I exited an Air Emirates jumbo-jet in Dar es Salaam, Tanzania ready to study for a semester at the University of Dar es Salaam, a campus situated nicely on a hill overlooking the city. Until that point, my window on East Africa had been Swahili language classes at the University of Oregon in Eugene, so I knew the basics about the culture and the country, but without any of the details of the urban fabric of Dar es Salaam or of day-to-day life. I arrived in Tanzania with the resolve to learn as many of those small details as I could, to gain the kind of insight about the people and the land that you can only obtain first-hand. My first impressions of Dar es Salaam fit many of the stereotypes about African cities. It was hot and dusty. The bumpy road up the hill to the university was choked with cars and riddled with potholes. The ditch by the road was filled with garbage. Men and women were selling newspapers, gum, cigarettes, and machetes, walking up and down the lines of traffic, clinking coins between their fingers to grab my attention. At night, I slept in the safety of a mosquito net, and I woke in the morning to the rising and falling cadence of the *alfajiri* call to prayer. I learned to shower with a bucket, to argue with fruit vendors to avoid paying the foreigner price, to walk slowly to avoid working up a sweat, and to follow English football enough to hold that universal, ongoing conversation. Most of all, I learned to expect the unexpected.

My second day in Dar es Salaam, officials from the university took the international students to the local shopping mall to purchase cellular phones. This, as it turned out, was a critically important step to take to integrate us into university life in East Africa. My cellular phone, as it turned out, was an ordinary and ubiquitous part of

life in Dar es Salaam. My classmates, my friends, my professors, and the taxi drivers and market women all used their cellular phones on a daily basis, as an essential life-line to the city and the world. This was a revelation to me. I had known how useful and commonplace cellular phones were in the United States, but in East Africa they took on an even greater dimension, given the lack of good internet access and the inability to easily receive physical mail. Using the cellular phone was shockingly easy. Once I had the phone itself, it was as easy as going to a vendor (found at the market, in the cafeteria, near the library, or on the roadside), purchasing a top-up card in increments of five hundred shillings (about forty cents), and then punching in a sixteen digit code from the card. No contracts or rate plans, just a simple, pay-as-you-go system. Nearly everyone I met asked me for my phone number, and I would often get calls from new friends and acquaintances simply asking how I was doing.

Clearly, cellular phones were a critical part of the story that East Africa had to tell. So, I resolved to study the phenomenon of their rise in greater detail, and assess how cellular phones might influence the future of the region. From those beginnings, this thesis has taken shape.

Introduction

Cellular phones have transformed everyday life in the societies that have adopted them since the inception of this practical technology of mass consumption. This transformation has, in many ways, been more revolutionary in Africa than anywhere else on the planet, where cellular phone towers in some places represent the first infrastructural development in a generation. Indeed, Africans have adopted mobile phones with startling speed. In 2000, there were approximately 10 million subscribers in the continent; in 2007, there were more than 250 million subscribers (Carmody 2010; 110). By 2007, a full 97% of Tanzanians had at least some access to mobile phones (James & Versteeg 2007; 117). Accompanying this explosive growth has been a diversification for the uses for mobile phones, particularly in East Africa, where telecommunications firms have offered pioneering financial and information services to their customers.

East Africa, in particular, demonstrates the potential for cellular phones to create new geographic linkages on both macro and micro scales. Since the late 1990s, East Africa has seen a concerted political push for regional integration, first by the governments of Tanzania, Kenya, and Uganda, and later Rwanda and Burundi with the eventual goal of a unified East African Federation. In this context, cellular technology has created new interconnections in East Africa that have done more for the cause of integration than any conference or treaty. As will be shown, cellular phones in East Africa have created geographic connections that have improved livelihoods through more efficient markets and better access to information. They have also promoted regional integration by easing the movement of labor and capital across the borders of

the region, even though the net economic effects of mobile phones have been more limited in rural areas. Overall, cellular phones have had a similar effect in East Africa as the internet has had in the developed world, seemingly bringing people closer together than ever before by reducing the time lag for the spread of information and allowing instant and cheap communication to far away places.

Cellular phones are one of the most critical elements of Africa's newly recognized emergence onto the world stage as a key economic player going into the 21st century. Cellular phones have helped the people of the continent overcome barriers that had previously been impediments to development. Limiting factors like bad roads, lack of communication infrastructure, and restrictive national borders have been partially circumvented by the use of mobile phones by businesspeople, traders, and laborers. These mobile phones have promoted development through integration, bringing people and markets closer together than ever before.

This integration through mobile telecommunications has played itself out in the political and cultural spheres as well. In the political sphere, particularly, though, there is some concern that cellular phones can also be a force for disintegration. Looking at the example of the 2009-10 uprising in Iran, one can see that cellular phones can be used to mobilize large groups of protestors in a way that is disruptive to the regime. Without commenting on the legitimacy or goals of one side or the other, this use of cellular phones certainly represents a form of disintegration, with cellular phones becoming a key tool of the opposition in promoting mass protest and civil disobedience. Cellular phones have been an important tool in the reorganization of political alliances, allowing for new tactics and better coordination. In the wake of the disputed 2007

elections in Kenya, text messaging became one of the favorite tools of propagandists on both sides of the conflict. Mass text messages urged Kenyans to, "deal with [the Kikuyu] the way they understand ... violence" and to "slaughter [the Luo] right here in the capital city" (Heacock 2009; 5). Certainly, in times of crisis, cellular phones have the potential to serve as a disintegrating force. However, in times of peace and unity, they tend to promote further integration of the economies, cultures, and societies of the region.

The situations in Somalia and South Sudan, on top of ineffective states in the Democratic Republic of the Congo and the Central African Republic point to the importance of the core East African countries in terms of political and economic development. The growth of vibrant economies in Kenya, Tanzania, Uganda, Rwanda, and Burundi has the potential to provide spillover benefits to those outlying parts of East Africa, where providing greater economic opportunity can have a substantial effect on promoting political stability and facilitating nation-building. In the last decade, nothing has had a greater impact on the development prospects of East Africa than cellular phones. Cellular phones, as will be shown, promote economic efficiency, build new geographic links between cities and villages, and mitigate the effect borders have on travel and trade cost. Cellular phones, then, are a key theme to look at in terms of examining the forces in the region that promote stability and vibrancy.

Given the move towards a common economy and state for East Africa, it is important to analyze the impacts of cellular phones upon this move towards integration. Who, in particular, is adopting cell phones in East Africa, and why? Are there differences in the adoption of cellular phones based on geography, class, or sector of the

economy? How has the introduction of mobile currency impacted the regional economy in terms of the flow of goods, people, and currency?

Overall, cellular phones have been an important factor in fostering the economic and political integration of East Africa in the 21st century. Economically, they have fostered new links between and within markets by lowering the cost of communication, thereby facilitating the flow of information across large distances. Because of regional telecommunications networks, cellular phones have promoted economic integration both within countries and across the borders of the region, leading to a regional economy that is increasingly unified and multi-nucleated. Politically, cellular phones have promoted integration by catalyzing the push towards an East African monetary union and fundamentally changing the migratory experience in the region. On the whole, cellular phones are one of the most important integrating forces in modern day East Africa.

In order to assess the impact of cellular phones on regional integration in East Africa, I will first look at the historic push towards regional unification there. I will examine the original East African Community and then compare it to the present-day version of the Community to look at how the drive towards integration has changed since independence, including the impact of technological change in the form of cellular phones. I will also discuss the importance of examining the East African Community in terms of its place in global politics and in the lessons from this region that can be applied more broadly. I will then discuss the impacts of cellular phones on economic integration, focusing on the impacts on goods and labor markets. Finally, I will

examine the effects of cellular phones on the experience of economic migrants, and then assess how the changes in their experiences impact regional integration.

In order to draw conclusions about the impacts of cellular phones on political integration, I will look at M-Pesa and other mobile money services and link the function of those services to the East African Community's push towards a currency union. I will also examine how political integration is tied to changes in the migratory experience, particularly how refugee crises have shaped the politics of the region in the past, and how the changes to the refugee experience brought about by cellular phones will shape the region going forward. I will conclude by evaluating the overall effect that cellular phones have had on shaping the scope, types, and pace of economic and political integration in East Africa.

The bulk of the findings in this paper are drawn from secondary data sources. The work of Jenny Aker and Thomas Molony has been particularly important in drawing the conclusions about the economic effects of cellular phones. Other sources of data for this paper have been government censuses, stockholder reports, and newspaper articles. Much of the inspiration for this project was drawn from my own personal experiences as an exchange student at the University of Dar es Salaam from October 2009 to March 2010 and from my travels in Tanzania and Uganda during those months.

Regionalism in East Africa

The importance of East Africa in the modern world cannot be overstated. The region has been a cultural crossroads for hundreds of years and that is true today more than ever. Many of the cultural and political conflicts that occupy world affairs have a theater in East Africa. Today, East Africa is an area of economic focus for the burgeoning world powers China and India, with those countries making significant efforts to build political and economic ties to the region. East Africa has historic ties to Britain and India through British colonialism in the 19th and 20th centuries, the rest of Europe through German and Portuguese colonialism that began as early as the 16th century, the Arab world since the 17th century through Omani colonialism and before that through the Arabian slave trade, and to Iran through the legacy of Indian Ocean *dhow* traders stretching back to the 10th century. In fact, the Swahili culture of the East African coast represents an eclectic mix of African, Arab, Persian, and European influences. One need look no further than the Swahili language, which mixes Arabic, English, Farsi, and Portuguese words with Bantu languages to witness this blending of cultures. Because of this history, East Africa is home to large, permanent populations of Indians, Arabs, Persians, and Britons who regard the region as home. This is a region where mosques, churches, and Hindu and Sikh temples rise side by side on busy street corners, where people discuss the latest Hollywood, Bollywood, and Nollywood blockbusters and this week's English Premier League football results.

East Africa's unique blend of cultural elements is a clue to its importance in global events. The region is home to both Christian and Muslim fundamentalists and cities complete with glittering malls and bustling stock exchanges. Because of this mix

of politicized religion and modern capitalism, East Africa is one of the most important (and neglected) fronts in the War on Terrorism. The greater East Africa region includes Somalia, where the Islamic militant group Al-Shabaab has run an effective military campaign to gain control of large swaths of that country, setting up a regime many have compared to the Taliban. Indeed, Al-Shabaab maintains a working relationship with Al-Qaeda. The persistence of civil war and anarchy in Somalia not only threatens the Somali population with war and famine, but also creates huge flows of Somali refugees that could potentially be locked in protracted and intractable situations in the home country. The Dadaab refugee complex on the Somali-Kenyan border, the largest in the world, currently hosts more than 400,000 Somalis as of late September 2011- more than five times the number of people the infrastructure there was built to handle (Kristoff 2011). Living in refugee camps denies people economic opportunity, creating a dependence on foreign aid for food, water, and medical care. Further, those refugees themselves can present a potential security risk in the refugee receiving communities. However, as we shall see, the power of cellular phones to mitigate the risks and hardships involved with being a refugee or hosting refugees is one of their most significant effects on regional security.

Another very important East African event in terms of world geopolitics and peace has been the creation of the nation of South Sudan. On July 9th, 2011, the southern provinces of the Republic of Sudan seceded to form a new country following a referendum the previous January. The referendum and subsequent secession was a response to decades of civil war between the largely Arab and Muslim Sudanese national government in Khartoum and the mostly African and Christian or Animist

rebel groups in the south. In light of the widely publicized genocide in the Darfur region of western Sudan, international support for South Sudan can be seen as a strong repudiation of the regime in Khartoum. That the African Union and United Nations have lent their support to South Sudanese independence is a strong indication of approval of the right of self-determination for those communities that had heretofore been minorities within Sudan. The formation of South Sudan, then, represents the carving out of a region that had once been ruled from Khartoum and through the Arab world, and placing it into the Sub-Saharan and East African diplomatic spheres.

This new country rests more firmly in the economic and political sphere of East Africa than within the Middle East or North Africa for a number of important political and cultural reasons: its national language is English, not Arabic; its government is secular, not Islamic; its citizens mostly practice indigenous African religions and Christianity, not Islam; and, perhaps most importantly, its government is widely expected to seek membership in the East African Community instead of the Arab League, having already been accepted into the African Union (Ashine 2011). That said, South Sudan faces extreme problems associated with its new task of nation-building, particularly with international expectations that the new country establish a transparent parliamentary democracy. Governmental institutions have to be made from scratch, with the Khartoum government having discouraged institution-building in order to concentrate power. South Sudan must convert its rebel militias into an organized and effective national military. The new country must establish a working border with the Republic of Sudan, with the Abyei region serving as a potential flashpoint for resource conflict because of oil there (Hsiao 2011).

Insofar as they promote economic efficiency in the East African core on top of promoting regionalism in the economy and culture there, cellular phones are a key force for improving livelihoods in the East African periphery and thereby increasing regional and global security. Greater economic opportunities in Kenya, for example, along with a greater sense of regional East African cultural identity can give Somalis opportunities for earning a livelihood beyond turning to piracy or the militias. For example, strong economic growth in Kenya could create a demand for labor that Somalis, suffering high unemployment and living in a bordering country, could fill. On top of that, greater regionalism and a burgeoning sense of East African identity will help to prevent conflicts like the Kenyan election crisis of 2007 and 2008, in which ethnic tensions were manipulated for political ends (Elhawary 2008). These scenarios may, at first, seem to contradict the experience of cellular phones elsewhere in the developing world; in Egypt, for examples, cellular phones were an important tool in coordinating the protests that secured the end of Hosni Mubarak's regime. Thus far, cellular phones have not been a catalyzing force in mass protests or unrest, as has been the case in the Arab world. In East Africa, the biggest demonstrable impact of cellular phones has been promoting regional integration, rather than fostering popular political movements. A greater sense of unity in East Africa will mitigate those ethnic tensions by placing political conflicts into a larger regional context, diluting tribalism.

Moreover, true economic integration and freedom of movement within the East African core will promote regional peace by integrating more stakeholders into the project of creating and maintaining that peace, as regional conflicts will increasingly be seen as an impediment to business and economic development. A strong East African

political system, too, will encourage democratic nation-building in South Sudan and Somalia by providing a regional body that those countries can aspire to join that models the democratic process and respects individual human rights. The East African Community (EAC), then, is the most important political force in East Africa driving the region towards integration. While both the EAC and cellular phones play an important role in fostering regional integration, the two forces work on different scales, with the EAC promoting macroeconomic policy coordination and political cooperation among institutions in the different countries of the region, while cellular phones and their widespread networks have the greatest impact on individual lives, changing the way people view and interact with the borders, markets, and countries of the region. The EAC and cellular phones work synergistically to promote East African integration as a whole, with potentially huge dividends down the road for the region and the world.

The East African Community

Given the sheer size of Africa, the world's second largest and second most populous continent, Africans divide up the continent into more manageable regions for governance. The East African political bloc, typically considered to consist of the countries of Burundi, Kenya, Rwanda, Tanzania, and Uganda, is perhaps the most important region in Africa in regards to mobile communications technology and its economic and social impacts because of its position at the forefront of many new mobile services and applications. The greater East African region also includes Somalia, Ethiopia, South Sudan, and the eastern parts of the Democratic Republic of the Congo. The region encompasses diverse ecosystems, from the tropical rainforests of

the Congo basin, through Africa's largest lakes, through hot and dry deserts, to the Indian Ocean coast and the famed Spice Isles. The region is also a homeland for people of African, Arab, Indian, and European decent, and East Africa is home to languages of Bantu, Nilotic, and Khoisan origin.

The East African Community (EAC) is a political initiative launched in 2000 originally by the Kenyan, Tanzanian, and Ugandan governments and joined later by the Rwandans and Burundians in 2007, with the eventual goal of forming a Federal Republic comprising the five member states. In 2010, the EAC introduced a common market for the bloc, with untaxed, free flow of goods between member states, a common system of tariffs, and an East African passport. On top of this, there have been strong indications that an application for membership in the EAC by South Sudan would be welcomed by the other member states (Ngowi 2011).

The current iteration of the East African Community is actually the second version of the bloc. The original version was formed in 1967, comprising the newly independent states of Kenya, Tanzania, and Uganda. Those countries had much in common historically, as all three are former colonies of the British Empire. Because of this, many of the institutions of the original EAC were left over from colonial times. Immediately after World War II, Great Britain established the East African High Commission, which coordinated monetary policy between the three territories, set customs laws, and established a unified external tariff regime. With independence, the High Commission morphed into the East African Community and added the islands of Zanzibar when that country joined with Tanganyika to form the United Republic of Tanzania in 1964. Many observers expected, given the push towards African

unification championed by independence leaders like Kwame Nkrumah and Julius Nyerere, that the East African Community would take on an increasingly political dimension and eventually lead to a political federation (Meredith 2005; 176-8). Given Nyerere's support for a gradualist approach towards unification (as opposed to Nkrumah's rapid approach), morphing the EAC into a political federation seemed a likely and achievable goal, with the EAC having inherited many of the coordinating functions of the East African High Commission.

However, by 1977, the EAC had collapsed- largely a result of economic and political discord between the three member states. Nyerere's Tanzania pursued a socialist economic system based on a program of self-reliance and Tanzanian nationalism known as *ujamaa*. Jomo Kenyatta's Kenya, on the other hand, ascribed to a capitalist theory of development, benefiting from the economic and political institutions established by the white British settlers who had come to Kenya in the 20th century (Meredith 2005; 264-8). Uganda, by the late 1970s, had fallen under the brutal military dictatorship of Idi Amin, who wrecked the economy, dismantled the political institutions, and launched a misguided and ill-fated war of conquest against Nyerere's Tanzania (ibid; 236-8).

Amin's dictatorship may have been the death knell for the EAC, but the economic differences between Tanzania and Kenya, both in ideology and in development, were the main source of the political disagreements that precipitated the EAC's downfall (McLaughlin 2006). Kenya's relatively advanced economy compared to Tanzania and Uganda sparked fears that Kenya would come to dominate any political federation in East Africa. In fact, one of the key negotiating points that led to the

collapse of the Community was Kenya's insistence on having more seats on decision-making boards. Nyerere's commitment to promoting Tanzanian nationalism, too, did little to help the cause of forging an East African nation.

Cellular Phones and Regionalism

How then, do cellular phones impact the current push towards regional political coordination and integration as compared to the experience from the 1960s and 1970s? For one, the very existence of cellular phones fundamentally changes the geography of economics, trade, and development by breaking the link between the flow of information and physical distance, essentially allowing for the cheap and instant flow of information in the region. Furthermore, because East Africa is generally less developed than elsewhere in the world, cellular phones can be seen as having a greater impact on communication and travel in this region than other regions where quality transportation and communication infrastructures were already in place. In East Africa, cellular phones allowed communities to leapfrog the stage of wired communications, suddenly closing the gap in terms of information and communications technology with other parts of the world.

As demonstrated by the 2011 revolutions of the Arab Spring, cellular phones are, at their core, a technology of the masses. Those political movements were able to publicize their efforts and ideals through cellular phones and social media, undermining the ability of authoritarian regimes to control political life. In East Africa, cellular phones have not been utilized in a political way as has occurred in the Arab world. When they have been used politically, as in Kenya in 2008, they have actually tended to

promote disintegration and ethnic conflict. Instead, cellular phones have made most of their impact in economic sectors. This, however, is one of the key differences between the current East African Community and the one that collapsed in 1977. The previous EAC was a top-down institution, promoting regional economic integration through policies like a common system of tariffs. For most East Africans, though, this had little apparent impact on their daily economic lives.

The push towards regional integration in East Africa, today, though, is different. The institutions of the new EAC have actually trailed behind the introduction of cellular phones. The East African Common Market Protocol that established the freedom of movement for labor and goods within the bloc did not come into effect until 2010, well after the introduction of unified cellular networks in East Africa. Today's push towards regional integration, then, has both an individual-level component, catalyzed by cellular phones, as well as a country-level component, pushed forward by the governments of the region. That Rwanda and Burundi have joined the present-day EAC is more evidence that historical events have pushed those countries into the East African sphere as never before, rather than a concerted political move. Economic transactions and human movement across space and across borders have been made easier by cellular phones, and this has subsequently facilitated regional integration through the EAC.

Rwanda's political involvement with East Africa increased in the aftermath of the 1994 Rwandan Genocide. When the international community finally became aware of the scale of the atrocities in late 1994, the United Nations established an International Criminal Tribunal for Rwanda (ICTR), based in Arusha, Tanzania. The goal of this court was to investigate and prosecute the perpetrators of the genocide and the resulting

refugee crises (ICTR 1994). To date, the ICTR has indicted 92 individuals (United Nations 2011). With the institutions for this court already in place in Arusha, that city later became host to the African Union's African Court of Justice, the East African Court of Justice, the main judiciary body of the East African Community, and many of the other legal and administrative organs of the EAC.

Economic Integration

Because mobile phones often represent the cheapest and quickest way to communicate across distances, the rise of mobile phones in Africa has fundamentally changed the geographies of everyday life. Anecdotes abound in the literature on the topic; Grace Wachira, a market woman in the small town of Muruguru in central Kenya, once had to walk several hours to buy yarn and meet customers, without knowing beforehand whether she would actually be able to meet with them. Now, she can call ahead; "I'm saving time, I'm saving money," she says (Ewing 2010; 2). By removing the uncertainty in business travel, merchants like Mrs. Wachira change the way they travel with a resulting gain in efficiency. In much of Africa, a round trip to a market sixty-five kilometers away might take four hours, but with a cell phone the same information gathering can be accomplished with a four-minute phone call (Aker & Mbiti 2010). In fact, changing behaviors in markets as a result of mobile communications in the developing world has been shown to improve the livelihoods for everyone involved. Robert Jensen's study of fishermen in the Kerala region of India found that when they adopted mobile phones to find the best marketplace at which to sell their catch, their profits increased eight percent while consumer prices fell four percent because less of the catch was wasted (Jensen 2007; 1-10). Thus, mobile phones have changed the way producers and consumers link up with markets by giving users better access to information and thereby saving travel time, with an overall stimulatory effect on a country's economy. A study by the mobile company Vodafone, based in London, showed that in a developing country with an increase of ten phones per one hundred people there was a 0.59% higher growth rate in GDP than an otherwise similar

country (Etzo & Collender 2010; 662). In essence, mobile phones have changed the geographic connections in markets by removing the need for actual physical movement in information collection, thereby making markets more efficient by giving all parties better information with which to make better decisions.

In 2006, the cellular phone company Celtel, based in the Netherlands, introduced its One Network, which enables users in any of the East African countries to make calls to any other East African country at local rates, as well as the ability to purchase airtime with any local currency. This service was so popular that in 2007 Celtel had 700,000 new subscribers (Williams 2007; 38). Unified networks have spread rapidly across the region, with the effect that today only a handful of carriers in East Africa do not offer the service. Thanks to these unified networks, East Africans can now move more easily between countries for work, education, and trade and still easily maintain contact back home. This has broad implications across many sectors of society; for example, the Kenyan middle-class has enthusiastically adopted these new networks because a high proportion of families send their children to boarding schools in Uganda and Tanzania (Onyango-Obbo 2007; 56-7). These networks are particularly important for workers in sectors in which employment is concentrated in urban areas, such as construction workers. These networks have greatly expanded their employment opportunities by allowing them to seek out work in cities outside of their home countries as easily as finding work domestically. While before a slowdown in the construction sector in Nairobi would have caused mass unemployment among Kenyan construction workers, today those workers can place calls to Arusha, Kampala, and Dar es Salaam to seek work, easing the effect of the slowdown on local unemployment.

Jenny Aker's 2008 article serves as an important case study of the impact of changing geographic links through cellular phones on markets, specifically the national market for grain in Niger. This sprawling, sparsely populated, land-locked West African nation on the edge of the Sahel has many of the same physical transportation problems as East Africa: slow rate of movement due to bad roads, public transportation vehicles prone to break-downs, and roads that seasonally become impassable. The numbers regarding the introduction of cellular phones in Niger mirror the rest of the continent. In 2001, just before the first cell phone arrived in the country, there were just two landlines per thousand people, but by 2007 seventy-eight percent of marketplaces had access to cellular phones (Aker 2008; 1). Using econometric analysis combined with fieldwork in Nigerien grain markets, Aker proposes three main impacts of cell phones on grain traders. First, that cell phones will lead to an increase in traders' reservation prices, that is, cellular phones will increase the lowest price at which the traders will sell. Second, that cellular phones will result in traders increasing the amount of markets they contact for price and demand information. And third, that cellular phones will lead to more uniform prices across markets with cell phones access.

All three of these points are strongly tied to the decline in search costs as a result of mobile phone use. Because of the slow travel times and high costs associated with physical travel using private vehicles or public transportation, cell phones represent a huge advance in search technology, giving traders access to information from many more markets, for far less cost in terms of both money and time. As one grain trader from Zinder, Niger's second largest city, remarked, "[with a cellular phone], I know the price for US$2, rather than traveling [to market], which costs US$20" (*ibid*; 2). By

decreasing per-search cost, traders are able to gather information from many markets with dramatically reduced financial and opportunity cost. For example, Aker found that a two-minute call to a market sixty-five kilometers away would cost about US$1, but that round-trip travel by public transport would cost US$2 and entail several hours (*ibid*; 12).

An important conclusion that Aker drew is that "price dispersion between markets with cell phone coverage is twenty-one percent lower than those without cell phone coverage" (*ibid;* 20). Price dispersion refers to the differences in the sale price of the same goods across geographically disparate markets or between different sellers. Because price dispersion compares the price of the same good, one of the biggest factors in predicting price dispersion is search cost. Thus, cellular phones result in greater unification of prices across far-flung regions of East Africa by dramatically reducing search costs. The decrease in price dispersion is an important kind of economic integration that has resulted from cell phones, as their use in price searching have resulted in less price differentiation across a wide area, an important feature of better-integrated economies. With less price differentiation in capital inputs, there are fewer reasons for craftsmen and industries to congregate in the economic capitols of the region like Nairobi and Dar es Salaam. If cellular phones make it possible for a skilled potter in a rural village to buy clay and charcoal at the same price as a potter in the city, there will be less reason for her to leave the village, resulting in greater dispersion of production and thus a generally better integrated regional economy.

Another of Aker's key findings was that, "cell phones have a greater impact on price dispersion where travel costs are higher, namely for markets that are more remote

2-3). Interestingly, however, this project had mixed outcomes. Although there were a lot of gains in terms of increasing access to communications technology, there was little impact on income or prices received by farmers (*ibid*; 31). The authors attributed some of this to the relatively good transportation infrastructure in place in Rwanda, a rather small country compared to its behemoth neighbors the DRC and Tanzania. Once again, it seems that, although mobile phones can be a powerful tool for improving communication between urban and rural places and can be a very significant time-saver, transportation infrastructure remains one of the main determinants of rural livelihoods in East Africa, with bad roads being a huge liability for many rural East Africans.

Critiques of the Economic Benefits of Cellular Phones

Despite the huge potential for increased economic efficiency and connectivity as a result of cellular phones, there is some concern that these benefits will not be spread evenly across different classes and sectors of the economy. For instance, there are important limitations for the use of mobile phones in the Tanzanian agricultural sector, as described by Thomas Molony (2011). Small farmers in Tanzania often rely on either a middleman (*mfanyabiashara*) or a wholesaler (*dalali*) to sell their crops to, since traveling to Dar es Salaam or another large city would present a considerable cost in terms of both time and money. The most successful of these middlemen have a large pool of farmers who supply them and have multiple channels for selling crops, which enable them to efficiently oversee the receipt and sale of consignments. For these middlemen and wholesalers, a very important part of their business is the social capital they have accumulated by having many buyers and sellers, by being well-liked and

respected, and by having a reputation as a shrewd and capable problem-solver (*ibid*; 644). This social capital is as important to their success as their access to financial capital. This reliance on social capital, and particularly on face-to-face communication, is one of the most important factors that mitigate the gains from cellular phones.

Because the rural, small farmers often lack access to capital, they are highly reliant on their personal relationship with their *dalali* as a form of insurance. In this business relationship, the *dalali* is expected to absorb the financial risk should the harvest fail, since crop failure would otherwise result in financial catastrophe for the farmer, keeping him or her from being able to plant again in subsequent seasons (*ibid*; 646). Because of this relationship, it is important for the farmer and the *dalali* to remain in close communication, so that the farmer can learn about price and demand fluctuations as well as new agricultural methods, and so that the *dalali* can determine how much the farmer will be supplying. Molony found that both parties were most comfortable exchanging this kind of information face-to-face. As one farmer said, "the information is better because it is live and I am free to ask questions when they come to mind. I don't feel under pressure like in a phone call when I can only exchange greetings with the *dalali* and find out about market demand. When we are meeting face-to-face I have more time to find out information that the *dalali* may know about sourcing cheaper inputs which I can then arrange while in Dar es Salaam, and what varieties are in demand and about new farming methods" (*ibid*; 647-8).

Molony's work in the informal construction sector in Dar es Salaam also showed that mobile phones often play a secondary role in business negotiations. The informal construction sector relies on groups of fifteen to thirty men organized into

work groups, with a group leader who is responsible for negotiating wages and finding work. Once again, there is a strong preference for face-to-face business contacts because of issues of trust (*ibid*; 180). However, mobile phones have increasingly been used for searching for jobs and finding new contacts. This is advantageous, given Dar es Salaam's notoriously snarled traffic, which hinders mobility in the city. When interacting with a client, the group leader must been seen to have money, so he will often call or text his client, a relatively costly expense (181). However, when contacting other members of the work group for a prearranged meeting, 'beeping' is often used, where a call is made but hung up after one or two rings (181-2). Beeping is useful for simple messages that have been previously discussed. A certain number of rings can mean, "I am here," or "my meeting is over." Thus, the potential for class differentiation in the effectiveness of mobile phones is somewhat mitigated through the practice of work groups, and further tempered by the use of strategies such as beeping to lower the cost of using a cell phone.

These findings point to a clear limitation in the use of mobile phones for bridging distances. In this case, although cell phones provide a great deal of convenience as compared to business travel, they cannot serve as a substitute for face-to-face contact, which helps to create bonds of trust between sellers and buyers. Although cell phones enable isolated farmers to access market information quickly and inexpensively, those farmers with poor accessibility and large distances from markets are still at a significant disadvantage because of the continued need for personal travel. In fact, because farmers with greater accessibility benefit from efficiency gains enabled by cellular phones, those farmers with worse accessibility actually become relatively

more disadvantaged by the use of mobile telecommunications. Thus, there is a clear geographic limitation to the effects of cellular phones in rural areas, where more isolated people are still at a considerable disadvantage because of the cost in time and money of travel. There are also important class-based limitations, because small farmers who lack access to capital must rely on maintaining a relationship with a *dalali*, which necessitates personal travel to Dar es Salaam, negating the distance-closing effects of cellular phone.

Overall, deepening East African integration is one of the most important trends in contemporary East Africa. The potential for the development of a stable, diversified, and unified economy in East Africa will have impacts that spread throughout the continent, not just in the immediately impacted countries, but in unstable neighbors like Somalia, the Congo, and the Central African Republic, where having a more stable and economically vibrant neighbor will, at the very least, buffet those countries from the kinds of outside forces that have destabilized them in the past. The cellular phone may still prove to be the single most transformational technological development in the modern history of Africa. Indeed, the cellular phone has pushed the cause of integration in East Africa every bit as much as the politicians and development experts by improving existing communications channels and forging new ones. One of the most important changes brought by the cellular phone in the push towards integration is that the new technology has created an economic force that pushes integration from the micro level, that is, on the scale of the individual actor working in his self interest. The historical push towards integration in the 1960s and 1970s collapsed because of political disagreements between national leaders. Today, though, integration on the micro level

is advanced by people like Grace Wachira, the market woman from central Kenya, who see integration in terms of their ability to search new markets and connect with a wider geographic area, not in terms of pan-Africanist ideologies. Thus, today's move towards economic integration has more staying power by pairing a bottom-up move towards integration with a top-down political push through the East African Community. Beyond these two pushes towards economic integration, the experience of the rise of cellular phones in East Africa is unique in the world because of the tying together of phones with banking, an innovation that arose first in the region with important effects on regional integration.

M-Pesa

In the East African context in particular, many dramatic social and economic changes have come about as a result of the bundling together of mobile telecommunications with mobile banking. The very nature of financial flows in East Africa creates barriers to tasks that would seem mundane to many Westerners. For example, the largest paper bill in Tanzania is worth 10,000 shillings, or about $8 US. Because of the lack of financial services like credit and debit cards, common activities like paying school fees and taxes become all day endeavors that involve waiting in long bank lines with large bundles of cash. The combination of low denominations of currency and a high percentage of the population being unbanked is a significant inhibitor to development. Transactions that would be simple and quick in other countries become arduous and time consuming in East Africa. This, ultimately, represents a huge inefficiency in the economy. Not only that, but the need to carry large

amounts of cash and the inability to bank or insure wealth puts many East Africans in a situation of great financial vulnerability.

In order to address these deficiencies in the currency system, the Kenyan mobile company Safaricom introduced a pioneering service called M-Pesa in 2007 (Safaricom 2010). M-Pesa gives users access to digital bank accounts that they can use for savings and transfers through their cellular phones. The service is so effective in filling the need for financial services that in Kenya alone there are nearly ten million M-Pesa subscribers, twenty-three percent of the population, who transferred eleven percent of Kenya's total GDP over the network (*Economist* 2010; "Out of thin air"). Given the already demonstrated ubiquity of cellular phones in Kenya and East Africa, the linking of financial services to these cellular phones is a great breakthrough. While financial services were heretofore accessible only at physical banking locations, those being centered in big cities and market towns, M-Pesa has effectively extended the reach of financial services to anyplace with a cellular phone tower. M-Pesa, then, has revolutionized the geography of financial services in Kenya and East Africa, by taking a product that was once highly dependent on brick-and-mortar facilities and breaking that link, instead tying the product to the ether of cellular signals. Another key feature of M-Pesa is that money can be withdrawn from accounts into any of the five local currencies of East Africa, giving M-Pesa a large regional advantage over cash, which must be exchanged. Thus, M-Pesa represents a vast expansion of the availability of financial services, giving millions of East Africans cheap and simple access to banking and facilitating the flow of goods and services by improving the liquidity of the local currency.

Mobile banking, together with a regional telecommunications network, has extremely important implications for regional integration in East Africa. This is a development of critical importance, as regional economic integration has proven to be a critically important trend in today's globalizing world. The combination of these two services, together with the legal framework adopted by the EAC, effectively forges a single labor market for East Africa by allowing labor, wages, and remittance payments to flow freely in the bloc. These remittance flows, in particular, are important given the rapid urbanization in Africa. Mobile money transfers greatly ease the flow of money from workers in the cities back to their home villages, allowing for otherwise unattainable physical improvements to the villages. The unified networks in East Africa have also changed the nature of the urban-rural relationship. Ten years ago the economies of the five countries were essentially separate and centered on the one large urban area in each country, which typically dominated the government bureaucracy, media, financial markets, and wholesale markets, today there are many of the characteristics of a single economy with several urban nodes. This means that a Tanzanian from near the Ugandan border can just as easily migrate to Kampala for work as to Dar es Salaam, and may even prefer Kampala because of its closer proximity, similar climate, and more similar culture. The borders still represent a barrier to trade and human mobility because of the time and money required to process and record the movement of people and goods across the border. However, they are far less significant today than they were ten years ago, as mobile technologies have allowed for money and information to bypass the borders entirely.

There is little doubt that today East Africa is more integrated than ever before. While the politicians of the region have made a concerted effort over the past fifteen years to encourage integration, many doubt whether those politicians will actually cede authority to the Community (*Economist* 2009; "Big ambitions"). Despite the political difficulties of integration, it is clear that East Africa is swiftly moving towards integration thanks to the introduction and widespread adoption of mobile telephones and financial services tied to them. Motivated by profit seeking, the mobile telephone companies in East Africa have created new ways for people in the region to interact with one another and have eased the flow of people, money, and goods in the region. It is precisely by creating these new geographic connections and improving the efficiency of existing connections that mobile phones have advanced the cause of integration. The impact of services like M-Pesa on financial integration has done much to advance the EAC's stated goal of establishing a currency union in East Africa. By setting up a system where East Africans can transfer money freely between the different countries and currencies, M-Pesa and similar services have provided a compelling argument for the planned East African shilling by demonstrating the demand for such a currency. A Kenyan businessman with an M-Pesa account, for example, could travel to Uganda for business and withdraw Ugandan shillings directly from his account with no extra fees, as opposed to paying to exchange his Kenyan shillings at a bureau. These services have shown that there is a strong demand for the kind of financial integration being pursued by the political leaders of the EAC.

Cellular phones have advanced integration in East Africa by fostering new and multitudinous geographic links between places that had not been linked before. On top

of this, products like M-Pesa have taken advantage of those new linkages by changing the way money flows in the region. While the lack of banking services was, before cellular phones, one of the top impediments to development in East Africa, products like M-Pesa have addressed the need for greater access to financial services like bank accounts. M-Pesa, by allowing for deposits and withdrawals to be made with any of the local currencies, also has advanced financial integration in East Africa.

In assessing the impact of mobile phones upon integration in East Africa, it is important to parse out exactly what is meant by integration. In the context of looking at the impact of cellular phones on markets, integration refers to broadening and deepening economic linkages. Not only do cellular phones enable farmers, traders, and *dalali* to contact several distant markets for the best prices, they enable those contacts to happen with greater frequency. In this sense, integration has indeed been furthered by the rise of mobile telecommunications by engendering, in general, wider and more frequent communication across many sectors. That the economic gains from this process of integration have been uneven is not surprising. One needs to look no further than the example of NAFTA to see a case where economic integration led to very unequal economic gains.

These economic and financial forms of integration, though, are just one aspect of the way that cellular phones have caused social change in the region. Cellular phones have come to play a crucial role in human migration in East Africa. A discussion of the impacts of cellular phones on migration in East Africa, both forced and voluntary, will illustrate that the mobile phone revolution has deeply affected the migratory experience.

Economic Migration and Remittances

Although East Africa has been home to some of the largest refugee flows in modern history, the largest contemporary migratory flows are economic, with many people leaving rural villages in search of better employment opportunities in cities. While urban unemployment is actually significantly higher than rural unemployment in East Africa, many rural people continue to migrate to the cities as a means of improving income security through occupational diversification (Black et al 2006). Young people move to cities in search of livelihoods that will help themselves and their families improve their food and financial security through income streams that lack the seasonality and weather dependence of agriculture. Other young people move to the cities to pursue higher education, which is effectively a long-term strategy for improving their income earning potential.

Migration decisions and remittance sending are often linked to an intergenerational 'migration contract' between a migrant and his or her parents, with the expectation of a subsequent inheritance in later years (45). Income remitted to home villages by urban workers can tide families through tough economic times, and allow for savings and investment during good times. Not only does this promote economic security in rural areas, but it also promotes rural development, in terms of increasing purchasing power to allow for capital investment projects, as well as by increasing human capital by allowing parents to fund primary and secondary education for their children.

Overall, the flow of money to rural areas in the form of remittances has had a very important effect on development in those areas. Remittances represent a very significant infusion of capital in many rural villages, with those funds being used to finance community level initiatives for the construction of infrastructure and public facilities. These funds, by promoting economic development in the villages, creates the factors that make the rural-urban migration in East Africa largely cyclical, with migrants spending a few months or years in the city before returning home to the village or moving on to another city. The statistics for migrants in Dar es Salaam bear this out. In 2001, though the city only had a net population increase of 18,901 people, there were 149,453 in-migrants as compared to 130,552 out-migrants, a turnover rate of 11.6% in just a single year (United Republic of Tanzania 2006; 142). Migrants go to the city, and those who find work are able to remit money, thereby improving economic conditions in their home villages and paving the way for their own return. Other migrants may go to the city and, unable to find work, return to their home villages after a few months.

There are particularly interesting gendered dimensions to this cyclical flow of migrants. The main split in deciding who leaves the village and who stays tends to be generational rather than gendered, with men and women heading to the cities in roughly equal numbers. Because of this, men find themselves more likely to engage in traditionally female roles like child- and elderly-care when women leave the village, and likewise, women find themselves taking on more prominent community roles in decision making and having more control over money when men leave (Ratha 2011; 31). Despite these gendered changes to the village, though, men are ultimately more likely to return to the villages than women. Dilip Ratha attributes this to the fact that

men are more likely to seek a return to the more patriarchal society in the villages, whereas women are more likely to remain in the city, where they have freedoms that they did not have in the village (*ibid*; 31). This difference can be viewed through the lens of social integration, where different ideas about gender and gender-roles are diffused through the migratory experience and people from around the region share and mix new ideas in the city.

That said, migration has increasingly been recognized by East African governments as being a vital strategy for pro-poor development and national development overall. There are very important macroeconomic effects of remittances that make them a very useful and beneficial development mechanism (Ratha 2011). For one, remittances behave counter-cyclically, with incoming remittance payments rising during financial crises, natural disasters, and political conflicts. Thus, remittances act as a counter to macroeconomic shocks that might otherwise devastate the economy of a developing country. While such events could otherwise cause a sharp drop in consumer demand because of lost income, the flows of remittances allow households to continue spending, acting as an economic stimulus that promotes demand and can therefore stave off economic recession or depression. Remittances, when they come from abroad, also have the beneficial effect of improving a country's sovereign creditworthiness by giving it a significant source of foreign currency. This is true not only when East Africans migrate to Europe or North America, but also when they migrate within the region. Ugandans in Kenya, for example, send home more desirable Kenyan shillings, giving the Ugandan central bank a store of the internationally more desirable Kenyan shilling to use for repaying sovereign debt. On the microeconomic level, too, remittances have

the beneficial effect of reducing poverty by augmenting incomes from a non-agricultural source, not only increasing household incomes overall but protecting against income shocks as a result of failed harvests, droughts, and floods. Given the predicted effects of global climate change on East Africa, this will be a particularly important impact of remittances going forward.

Thus, improving the efficiency of remittance flows and improving the effectiveness of the migratory experience is a key way to promote both development and integration in East Africa. The rapid proliferation of mobile phones has greatly changed the migrant experience. While before a migrant in the city was effectively cut off from the village, today mobile phones allow those migrants to remain in daily contact with their families and friends. Mobile phones have changed the geographic connections in labor markets by removing the need for actual physical movement in information collection, thereby making markets more efficient by giving all parties better information with which to make better decisions. Thus, a migrant to the city can find job leads without having to actually be in the city first, reducing the risk involved in migration.

Cellular phones have done more than any other single development to unify the five countries of East Africa and improve the efficiency of remittance flows. Unified cellular networks have spread rapidly across the region, with the effect that today only a handful of carriers in East Africa do not offer the service (Economist; "Out of thin air" 2010). This development, along with the East African passport, means that today's rural migrants can search for work in any of the urban areas of East Africa, rather than being limited to cities within their home country. This greatly increases the chances of

being able to put a laborer's skills to the best use. While before a skilled Tanzanian carpenter looking to migrate to the city would be limited to searching for carpentry work in Dar es Salaam or Mwanza, with a strong chance he may instead have to accept lower paying general construction work, today he could expand his search to Kampala, Nairobi, and Kigali, greatly increasing the chance of finding higher paying work that utilizes his specialized skill.

On top of this, the rise of M-Pesa and similar mobile money services has dramatically changed the way people in East Africa use and transfer money. M-Pesa is a service developed by the Kenyan telecommunications company Safaricom that allows users to store, send, and receive money via text message. Money is stored in a bank account tied to a cellular phone account, with e-money transferable back to hard currency at kiosks that also sell airtime and SIM cards (Merritt 2010). The service is so effective in filling the need for financial services that in Kenya alone there are nearly 10 million M-Pesa subscribers, 23% of the population, who transferred 11% of Kenya's GDP over the network in 2009 (Economist; "Out of thin air" 2010). Similar services have begun to proliferate across the other mobile phone providers in the region, with the effect that today financial services are as ubiquitous as cellular phones in East Africa.

In terms of remittances, services like M-Pesa represent a significant improvement over other channels. First, money sent via M-Pesa arrives instantly, rather than taking several days. Second, M-Pesa is far more secure than other, informal means of transferring money back to the villages. In the past, East Africans relied on physical couriers to move cash money from place to place, or else held onto large amounts of currency and traveled with it. Either way, M-Pesa represents a vast improvement over

those systems. Third, M-Pesa is far cheaper than other channels for remitting money. Sending money digitally requires far less labor than other methods, and so those cost savings are immediately passed on to customers. For example, the cost of sending remittances via mobile networks from Uganda to Tanzania was 5.8% of money sent in 2011. Compare this to countries in West Africa, where the mobile financial sector is much less developed, where from Nigeria to Ghana costs 12.5% of money sent, and remitting from Burkina Faso to Ghana costs 16% (Ratha 2011; 76). This has a predictable impact on development outcomes; a greater percentage of money reaching its destination means a greater financial impact of a family member's decision to migrate. In fact, by 2009 62% of all Kenyan transfers were remitted by mobile phone, demonstrating the popularity and usefulness of M-Pesa (80).

Thus, cellular phones have had a dramatic impact on the migratory experience in East Africa and have greatly augmented the impact of migration on deepening East African integration. By converting the separated cellular networks of East Africa into a single common one, East Africans today can communicate with their homes inexpensively regardless of which country they are working in, thereby reducing one of the main impediments to crossing the borders of the region in search of work. Mobile money systems further augment this, by linking the distance reducing impacts of mobile phones on communication to money transfers. Two of the biggest hurdles to migration within East Africa, then, have been lowered. People can now communicate freely with their home villages and stay up to date with news from home. People have also been empowered to remit money with confidence. While the migratory experience today still physically takes people away from their villages, mobile technology allows people to

retain their social and financial links to their homes. This, ultimately, can be seen as a form of deepening integration because it draws together urban and rural spaces in East Africa as never before, effectively making the whole region a much smaller place.

Political Integration

In modern history, the most apparent and most publicized migrations in East Africa have come about as a result of disaster, persecution, and genocide. These violent events forced people to flee to neighboring countries in search of safety. Examples of this sort of flow abound, from the massive flow of Ethiopians into Kenya in the 1980s as a result of famine, to the millions of Rwandans who fled into Tanzania and Zaire (today's Democratic Republic of the Congo) as a result of the 1994 genocide, to the contemporary flow of Congolese into East Africa in search of economic opportunity and safety. The 2011 famine in Somalia is notable not only for its severity but also for the international attention it has brought to the Islamist groups vying for control in that country, raising fears that refugee movements into Kenya could lead to the proliferation of terrorists into East Africa. This is particularly pressing considering the 2010 bombing in Kampala by members of the Somali group Al-Shabaab, which has close ties to Al-Qaeda. Given the instability in the region, those countries that have managed to maintain peace, or at least stability, have become home to some of the world's largest refugee populations, particularly Kenya, which hosts many refugees from Somalia and Sudan and Tanzania, host to Burundians, Congolese, and Rwandans. This section will discuss the role of cellular phones in fostering political integration in East Africa in terms of the East African Community and its potential expansion and the effects of cellular phones on refugees and regional political stability.

South Sudan

The South Sudanese pivot towards the East African core may, indeed, be a political move, but it is also an opportunistic move to take advantage of East Africa's better integrated and more vibrant economy as compared to North Sudan and the Sahelian states. On the other hand the current members of the EAC have a vested interest in South Sudan's ascension to the bloc. South Sudan, for example, is Uganda's largest export market, valued at 184.6 million dollars US in 2009 (Malone 2011). Not only would South Sudan joining the EAC help provide economic stability in East Africa, but it would improve the new country's political clout in dealing with the Khartoum government, improving its ability to broker for peace. This is all possible because of the greater levels of economic and social integration that have developed in the past decade in East Africa. That South Sudan tends to view the East African Community as its most attractive option in finding a regional partner in economic, political, and social development is an indicator of the relative strength of East Africa.

The contemporary situation with South Sudan points to one of the biggest differences between the modern iteration of the EAC and its post-independence predecessor. Today's East African countries pursue largely similar political and economic priorities, compared to the Cold War politics that divided Nyerere's Tanzania and Kenyatta's Kenya. While cellular phones are not the only factor in recalibrating the economic trajectories of the region's countries, they have certainly played a crucial role in tying the people, businesses, and governments closer together than ever before by bridging the physical barriers that separate the economies and people of the region. This key difference makes the current effort towards regional economic integration,

with other forms of integration following, far more likely to succeed than in the past. Individuals using cell phones have already laid much of the groundwork for regionalism, such as greater coordination and increased trade between different markets across borders and less price dispersion across the markets of East Africa, as was shown by Aker and Molony. The goals of the modern EAC, then, are being advanced as much by the cellular phone revolution and its impact on individual livelihoods within the capitalist system as by concerted regional political efforts.

Rwanda

Protracted refugee situations represent serious problems for refugee receiving countries. In the most extreme example, the huge flow of Rwandans into Zaire in the wake of the Rwandan genocide is widely credited with having destabilized the Zairean state and brought about the downfall of the kleptocratic and dictatorial President Mobutu Sese Seko with no obvious successor. The Rwandan genocide itself was triggered in part by the invasion of Rwanda by the Rwandan Patriotic Front (RPF), a group of moderate Hutus and Tutsis in exile in Uganda. While the Ugandan government had offered these exiles citizenship in the mid-1980s, this policy proved to be deeply unpopular among Ugandan people, and the offer of citizenship was subsequently revoked. With no state willing to provide status or protection for them, this left these Tutsi refugees little choice but to march into Rwanda demanding citizenship and equality for all Tutsis, at home and in exile. The skirmishes that resulted from this invasion created the conditions for extremist Hutus to seize power and launch the genocide under the racist and fanatical dogma called Hutu Power.

The 1994 Rwandan genocide was a disaster with few historical equivalents. In part because of the widely publicized failure of NATO forces to stabilize the Somali capitol Mogadishu, particularly an incident that became known as 'Black Hawk Down', when two Black Hawk helicopters were shot down and twenty-six US military personnel killed, the international community would only muster a token force of UN Peacekeepers to send to Rwanda. In East Africa, the vacancy of the international community in administering and caring for refugees in the wake of 'Black Hawk Down' has forced this responsibility on the national governments of the region.

Over the course of one hundred days nearly one million Tutsis and moderate Hutus were killed, mostly with machetes, axes, and other hand tools. The genocide tore the social fabric of Rwanda apart. Many of the perpetrators of the genocide fled across the border into Zaire, where they lived in huge refugee camps that were politically independent from the Zairean government, seated more than one thousand miles away in Kinshasa. From these camps, the Hutu Power militias continued to launch raids into Rwanda. Some Hutu leaders even dreamed of establishing an independent country called Hutuland, carved from the eastern parts of the Congo basin. The loss of territorial control as a result of the refugee flows from Rwanda in the aftermath of the genocide was one of the primary factors that induced the fall of Mobutu's regime and directly led to the African World War, which devastated the newly renamed Democratic Republic of the Congo.

The case of Rwanda shows that refugees, and particularly protracted refugee situations, have the potential to be highly disintegrating by destabilizing states and spreading insecurity. In Africa, in particular, where state power is weak as compared to

Asia and the West, refugees can present a considerable security threat to receiving nations. The lack of resolution of the status of Rwandan exiles in Uganda impelled those exiles to return to Rwanda. This, in turn, gave extremist Hutus the excuse they needed to launch a campaign of ethnic cleansing against the Tutsis. The genocide then gave rise to huge populations of refugees, comprising both victims and perpetrators of the genocide. These refugees, then, went on to destabilize the fragile government of Zaire, which has, to this day, not yet regained effective territorial control over its eastern frontier despite the strengthening of governmental institutions in Kinshasa. Indeed, the Office of the United Nations High Commissioner for Refugees (UNHCR) found that "the failure to address the problems of the Rwandan refugees in the 1960s contributed substantially to the cataclysmic violence of the 1990s" (Loescher & Miller 2008; 41). Given the dire consequences for refugee receiving countries in this example, it is not surprising that today's governments in Africa often view refugees, first and foremost, as a security risk. The political issue of protracted refugee situations is one of the most important and pressing in East Africa today. Cellular phones, though, have the potential to change the nature of refugee problems in East Africa, through better communication that can connect refugees to their home countries as well as to their host countries.

Long-term Refugee Populations

Most of the perceived security risk from refugees stems from the conditions people find themselves in once they have fled their homes. In cases like Rwanda, Somalia, and the Congo, when conditions at home make the prospect of return very

unfavorable, refugees may find themselves living in border camps for years. The role of phones in these contexts has heretofore been small, but moving forward they are likely to become more and more important, as cellular phones become increasingly ubiquitous throughout the world. Protracted refugee populations result in populations that are in a static state, with little or no employment opportunities and a general reliance on hosting countries or international aid organizations like the UNHCR for basic necessities like food and shelter. This creates the condition of potentially highly volatile populations that can destabilize the area that hosts them. Many host countries are particularly fearful of 'refugee warriors' who may cause the conflict that the refugees were fleeing to spill over into the host country (Loescher & Miller 2008). As a result, most refugee receiving countries today look to 'warehouse' these populations in designated camps that serve to restrict their movement, typically housing them in an isolated border region far from main cities and government institutions (Loescher & Miller 2008; 30). The location of these camps away from employment centers, however, locks the refugees into dependence on aid for their livelihoods, straining the resources of receiving nations and international organizations that deal with refugees.

This situation puts receiving countries in a difficult predicament, given the eroding support in the developed world for the UNHCR and similar organizations. Warehousing of refugees helps to protect the national security of receiving countries, but also results in a considerable financial strain as compared to policies such as the widespread naturalization of refugees, as occurs in the United States. The government in Tanzania has recently shifted its policy regarding refugees as a result of funding cuts to the UNHCR. Tanzania had previously been one of the most welcoming countries in

all of Africa for refugees, a legacy of the humanist and pan-Africanist policies of its first president, Julius Nyerere. Under Nyerere, Tanzania undertook a program of systematic resettlement known as villagization, where Tanzanians from across the country were resettled in planned cities as a way of promoting self-reliance and building a Tanzanian nation out of the country's many ethnic groups (Meredith 2005; 249-59). In response to refugee crises, the Tanzanian government applied this experience with mass resettlement to the refugees, offering them schooling, health care benefits, and citizenship. The multi-ethnic nature of the developing Tanzanian nationalism was a key aspect of this inclusiveness, since it created a means for ethnic Hutus, Tutsis, and various Ugandan groups to successfully integrate into the Tanzanian nation.

In the present day, however, with these refugees being reconsidered as an existential security threat, along with the loss of funding support, Tanzania has shifted its refugee policy to one that is largely exclusionary. The Tanzanian government has been increasingly vocal to the international community about its refusal to continue to serve as a refugee hosting country without international financial support. Today, Tanzania limits refugees from traveling more than four kilometers from their designated refugee camps, which all but eliminates the possibility of employment for these people (Loescher & Miller 2008; 30).

However, despite the need for the UNHCR in these situations and the desire of refugee receiving governments to have the UNHCR serve as a surrogate state for refugees in far-flung places, the presence of international aid organizations can actually serve to alienate refugees from their hosts. For example, in northwest Tanzania's Kigoma region, Burundian refugees have come to celebrate the UNHCR while vilifying

the Tanzanians. To many inhabitants of the camps, the UNHCR has been given a kind of paternal respect, since they fill the traditionally male role of providing sustenance for the family (Slaughter & Crisp 2008; 132). By contrast, the Tanzanian authorities are seen as being in collaboration with the violent regimes that the refugees fled, since, in their efforts to restrict the movement of refugees for security reasons, they also limit the ability of the Burundians to earn a living and thus are seen as forcing poverty upon them.

This creates a tricky situation for the UNHCR, which must balance its mandate to serve as a caretaker for refugees while also pressing host governments to fulfill their international obligations to protect the human rights of refugees (Slaughter & Crisp 2008). There is also a dilemma for receiving governments, which tend to view hospitality towards refugees as a welcome mat, inviting long-term settlement of refugees in peripheral areas of the country, with the corresponding security concerns and loss of state control. Not only that, but having the UNHCR govern a group of migrants who flowed unrestricted across the national borders of the host country represents a threat to national sovereignty, both in terms of the state's ability to exercise border control and its ability to provide for the welfare of people within its borders (Ferris 2008). The optimum solution in these situations is to address the conditions that led to refugees in the first place, through international coordination. The failure of Western governments to respond to the Rwandan genocide is a striking example of a situation where intervention could have prevented a massive and highly disruptive refugee crisis.

In East Africa, Kenya and Tanzania are by far the largest hosts of refugees in the region. Despite these countries' attempts to segregate their refugee populations, Veney (2007) found that many long-term refugees had begun to integrate into the host societies. This was particularly notable among the Burundian population in Tanzania and the Somali population in Kenya, which in both cases benefit from substantial populations of people of a common ethnicity living in the host country. In Tanzania, the Burundians often socialized with Tanzanians at markets, at sporting events, and at social events such as weddings and funerals (148). Wealthier refugees are particularly adept at integrating into the receiving societies, being able to send their children to local schools, and generally having more interactions with their hosts through social and business dealings (149).

While refugees in East Africa represent a significant human rights issue and security concern for the governments of the region, it also seems that the persistent history of refugee flows in the region in the post-colonial era have contributed to a deepened sense of regionalism. Tanzania, in particular, with a long history of naturalizing refugees, is well positioned for social integration with its neighbors because it is a home to many of the ethnicities of East Africa. The political push by the five national governments to accede more power to the East African Community is a positive step forward in dealing with the problem of refugees in the region, since regional coordination can make East Africa a more powerful actor in heading off conflicts in neighboring states and in negotiating with the international community for funding to deal with prolonged refugee situations. Should the East African Federation come to fruition, that political development would also effectively end several of the

long-term refugee situations in the region, with, for example, Burundians in Tanzania finding that, through the establishment of the Federation, their status has changed from being refugee Burundians in Tanzania to being East Africans in East Africa, citizens residing in their home country.

Refugees and Cellular Phones

In protracted refugee situations, there is strong potential for cellular phones to provide positive economic gains and promote closer links between receiving and sending countries, with the net effect of promoting East African integration. First, the low cost of using mobile phones and their ability to operate with little working infrastructure make them the most effective communication tool for refugees. Even Mogadishu, war-torn for more than two decades, supports cell phone towers, meaning that Somali refugees can still maintain contact with friends and family back home. "Even with the absence of any functioning central government in the Horn of Africa nation for the last 19 years, telecommunications companies have stood to provide the missing infrastructure," said Mohammed Abdurrahman, a company operator from the telecommunications company Somafone (Hussein 2010). In the modern day, this represents a marked difference from the situation in the Hutu refugee camps in 1995, where *genocidaires* spread lies about reprisal attacks and persecution by the Rwandan Patriotic Front against all Hutus in order to maintain control in the camps. Today, this situation would be impossible, as cellular phones allow for news to disseminate into the camps from trusted, first hand sources. This benefit of cellular phones should also lead to better decision making about returning home, allowing for news about improved or

deteriorating conditions to spread more quickly. Because of this, refugees will be less useful to militant groups as political instruments, alleviating fears of 'refugee warriors' in host countries.

Second, cellular phones will allow refugees in camps to tap into local markets for goods, food, and labor. Although the Tanzanian government may restrict refugees from personally traveling beyond four kilometers from their camp, they place no restriction on their use of mobile phones to communicate beyond the camp. Therefore, while refugees will still be severely limited in terms of their ability to participate in the economy, cellular phones will mitigate that somewhat. By being able to contact merchants and potential employers instantly and cheaply, refugees have better opportunities to economically integrate themselves into the refugee receiving communities. Thus, even for refugees, cellular phones offer expanded economic opportunity and promote regional interconnectedness; both with the homes refugees have left behind and with the communities and countries that have received them.

Conclusion

The cellular phone has undoubtedly changed the world. From Egypt to America to East Africa, cellular phones have changed the way people interact with their governments, with each other, and with the world they live in. The impacts of cellular phones vary from region to region and from place to place. In East Africa, the impacts of cellular phones needs to be looked at in the regional context which includes a strong push towards political and economic integration by the East African Community. Cellular phones have had a particularly important role in facilitating integration in the region, both economically and politically.

Cellular phones have been an important factor in fostering the economic and political integration of East Africa in the 21st century. Economically, they have fostered new links between and within markets by lowering the cost of communication, thereby facilitating the flow of information across large distances. Because of regional telecommunications networks, cellular phones have promoted economic integration both within countries and across the borders of the region, leading to a regional economy that is increasingly unified and multi-nucleated. Politically, cellular phones have promoted integration by catalyzing the push towards an East African monetary union and fundamentally changing the migratory experience in the region. On the whole, cellular phones are one of the most important integrating forces in modern day East Africa.

They have promoted economic integration by contributing to a decline in search costs, which encourages buyers and sellers to search more, varied markets and contributes to gains in economic efficiency. On top of this, cellular phones combined

with innovative unified networks in East Africa have allowed for a more multi-nucleated regional economy by allowing for searches across any of the markets of the region and decreasing the importance of the region's borders. That decrease in the importance of borders is one of the most important aspects of regional integration promoted by cellular phones. This is important not just for businesspeople but also for economic migrants. The remittance flows of those economic migrants are made more efficient by pioneering services like M-Pesa, which tie currency to mobile phones, effectively establishing the free flow of money throughout East Africa.

Politically, too, cellular phones have played an important role in advancing regional integration in East Africa. The economic gains brought about thanks, in part, to cellular phones have made the East African core economy more vibrant, and have therefore contributed to the diplomatic pivot of South Sudan away from North Africa and towards East Africa. Cellular phones also have an important role to play in protracted refugee crises, one of the most important political issues in East Africa. Cellular phones allow for refugees to make better informed decisions about migrating, and also give them more opportunities to integrate into the communities that receive them.

While cellular phones are not the only factor in the trend towards a more integrated East Africa, they are clearly a very important one. Cellular phones have given individuals the capability to interact with and integrate themselves into wider networks of markets, suppliers, and buyers. They have also changed the migratory experience, giving economic migrants better contact with home and a faster and safer means of sending remittances home. These micro-level changes have been the ones

most directly brought about by cellular phones. The political moves towards integration have been a more secondary result of the rise of cellular phones. Political integration has moved forward in large part because of economic growth and increased economic opportunity in East Africa, but this economic growth owes a lot to the rise of cellular phones. Cellular phones, then, have had a very important role to play in deepening East African integration.

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