Institutions and Telecommunications Performance in Africa: Stability, Governance, and Incentives

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Africa's telecommunications industry has been undergoing major reforms since the 1980s, especially in the past few years. In accordance with recommendations of the World Bank and the World Trade Organization (WTO), many countries are in the process of instituting sector reforms. These include the privatization of basic telecommunications service, the creation of separate (and ideally) autonomous regulatory institutions, as well as the introduction of competition in selected services.

Sector performance is the result of a combination of factors: regulatory governance and incentives, competition, ownership, and political stability. Some African nations are beginning to put into place institutions and policies that will promote improved performance in telecommunications. This chapter examines the effect of relevant demographic, economic, political, and institutional factors on telecommunications investment (main lines per 100 inhabitants). Recent studies have focused on the influence of political and institutional factors on telecommunications performance (Henisz 1998, Henisz and Zelner 2001). This study extends earlier work by examining the situation in Africa and identifying patterns of investment activity.

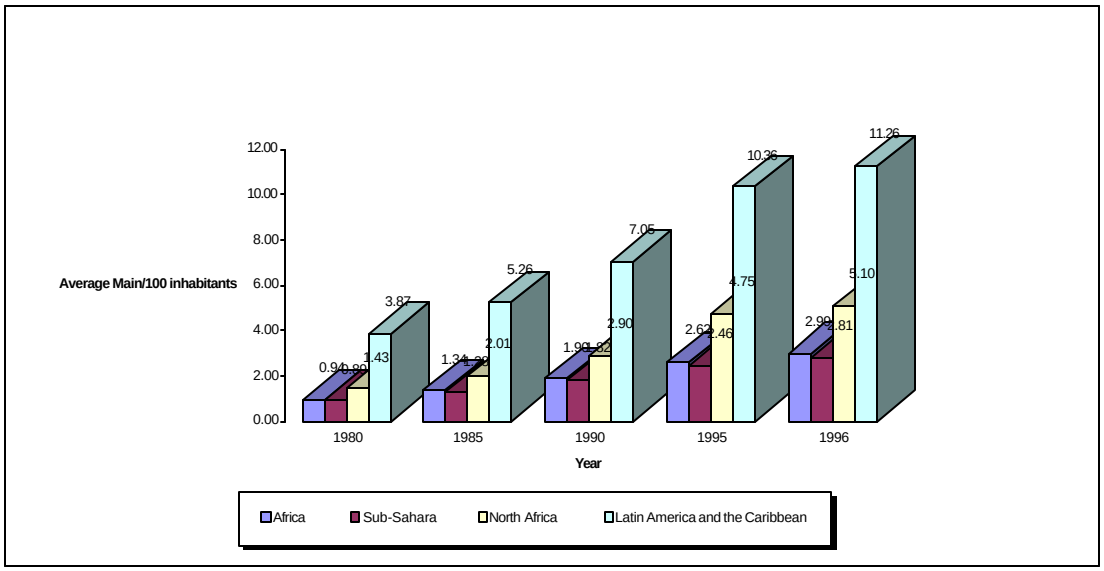
During the 1985-94 period, the growth rate of main lines in those countries that experienced political stability was twice the rate in unstable countries. Certainly, growth in GDP per capita was also important over this period, but the institutional endowment of a nation is a significant determinant of that as well. Because investors are aware of the potential for governments to behave opportunistically by altering the rules of the game, to take advantage of those who have made fixed investments, they require credible assurances against expropriation of property, destruction of property (resulting from civil or political strife), and bureaucratic hold-ups that negatively affect profitability. Managers of government-owned firms face similar issues when they make decisions regarding operations and investments. Their incentives are weak for making tough cost-containment decisions and for utilizing limited funds for long-term investments.

This study uses data on twenty-four African countries to provide a critical assessment of the state of basic telecom infrastructure in Africa within an economic and institutional framework. Telecom development in Africa is among the worst in the developing world (Kerf and Smith 1996). Sector performance has been weak because of antiquated facilities, financial constraints related to government subsidies, and inefficient operations. Africa has potential as an immense and fertile market for telecom investment despite its low per capita incomes. With a reformed regulatory framework and a reduction in institutional and political risk, improvement in sector performance is feasible within the next decade.

THE STATE OF TELECOMMUNICATIONS IN AFRICA

African nations are currently in the process of modernizing and privatizing their telecommunications sectors, which for the most part lag behind the rest of the world. Despite recent technological change and economic growth, access to telecommunications in Africa is still limited. As in most developing regions, telephones lines are concentrated in the cities, with only limited access for rural areas. The poor quality of infrastructure compared to other developing countries means that the scope for telecommunications development in Africa is immense. Currently, the sector is predominantly state-owned, but some governments have embarked on reform programs, most of which involve two elements: gradual commercialization by separating operational management from government ministries and the transfer of responsibility for regulation away from government ministries to independent agencies. Privatization options being considered include public offers for sale to financial institutions, sale to private investors and employees, private sale to strategic investors, or divestiture and management contracts with foreign operators. Often privatization ventures are with operators with whom the countries have some historical connection. South Africa and Mauritius have led the way by issuing white papers outlining their liberalization processes.

The change occurring in the region is often obscured by factors such as political constraints, which limit a government's desire or ability to make policy commitments that would promote sector development (Mustapha et al. 1997). Analysts argue that special attention must be given to establishing stable and independent regulatory agencies that promote credibility for investors, legitimacy for consumers, and result in more efficient sector performance (Kerf and Smith 1996). The creation of suitable regulatory systems is important because the success of the restructuring process will depend heavily on the credibility and consistency of reform. Figure 11.1 compares access to main telephone lines in Africa with that in Latin America and the Caribbean. We analyze access within Africa in more detail in a subsequent section.



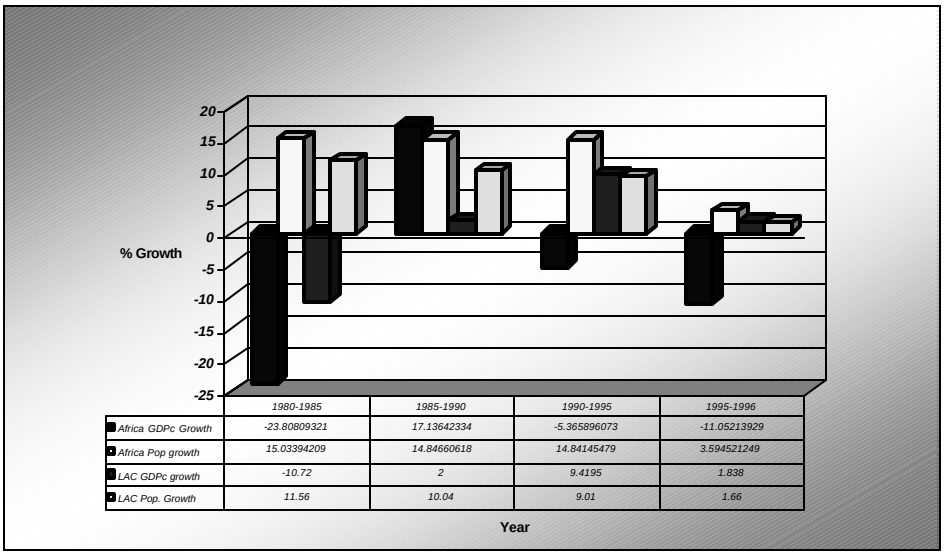
Source: World Development Indicators, World Bank CD-ROM, 1999

Figure 11.1 Telephone access in developing regions

Many countries in Africa are now concerned with telecom infrastructure for the same reasons that they limited foreign and private ownership in the past. Telecom investment is strategic and can contribute to a country's economic development (Madden and Savage 1998). Most African countries, however, still require a substantial increase in investment in telecom infrastructure to even catch up with other developing regions. As Figure 11.1 shows, basic telephone service in Africa is way below the level in Latin America and the Caribbean. Even northern Africa, which has been doing significantly better than the rest of the continent, lags behind other developing regions.

Growth in the number of telephone lines in Africa has been moderate for the most part, but the growth in teledensity has been slow, mainly because of rapid increases in population in some countries. It is difficult for network development to match high population growth unless incomes are also rising. Madden and Savage (1998) found some evidence that growth precedes investment in transitional economies of Central and Eastern Europe. Figure 11.2 shows that, apart from the 1985-90 period, per capita GDP has been declining in the region as a whole (Collier and Gunning 1999), despite the fact that GDP per capita has been growing in some African countries at a higher rate than in other developing countries. Although GDP per capita in Latin American and Caribbean countries has not been growing at a phenomenal rate, growth there has been far more consistent than in Africa. In Africa, even when GDP growth is positive, the growth in population is 1.3-2 times that in Latin America and the Caribbean. During the periods when Latin America and the Caribbean had higher per capita GDP growth, it was as much as 6.3 times that of Africa. The data, however, indicate that the growth in population does not provide a complete explanation for the sluggishness of economies in Africa. Collier and Gunning (1999) and Sachs and Warner (1999) have provided possible explanations, including the degree of Africa's openness to trade and geographical factors such

as climate and the landlocked location of many countries. The rankings given in Table 11.1 show differences between regions in Africa in terms of per capita GDP and teledensity.



Source: World Development Indicators, World Bank CD-ROM, 1999.

Figure 11.2 GDPC growth in developing regions

Table 11.1 Regional ranking

Region	Per capita GDP	Teledensity	Cellular subscriptions
North Africa	1	1	Fewer than in sub-Sahara
Sub-Sahara	2	2	More but less per capita
Arabic-speaking	1	1	2
English-speaking	3	3	1
French-speaking	2	2	3

Throughout the 1980s and 1990s, access to main telephone lines in North Africa was almost twice that of sub-Saharan Africa, on average. However, the sub-Sahara has been catching up with the north in terms of teledensity growth. Between 1990 and 1996, teledensity in the sub-Sahara grew by about 10 percent, which is more than in North Africa. In the early stages of cellular competition, sub-Saharan Africa outperformed North Africa in the number of subscriptions received. This is significant only insofar as the sub-Saharan countries were some of the first in Africa to introduce this service. Per capita subscription is much higher in North Africa. In terms of public policy, the initial apparent reluctance in North Africa to introduce competition parallels an initial reluctance to allow private participation.

Former French colonies tend to have lower access to both cellular and main telephone service. Although the regional ranking in Table 11.1 suggests a positive correlation between per capita GDP and telecom performance, former French colonies perform worse than English-speaking nations in all categories despite higher per capita income. Some researchers have suggested a link between the laws of the land and governance. La Porta et al. (1999) found an inferior quality of government in countries with a French or socialist background and laws. If the quality of government is taken to mean the degree of democracy, this may be one explanation for French-speaking nations' relatively poor performance. However, in a more comprehensive study, Hamilton (2001b) showed that, after controlling for other institutional and economic factors, French-speaking nations perform significantly better than English-speaking nations.

PUBLIC VS. PRIVATE OWNERSHIP

It is no longer a foregone conclusion that government must operate telecommunications in order to meet national objectives. Many socialized entities have not performed well. The extent of investment required in developing countries is usually too large and expensive for the government to manage on its own. This is one reason infrastructure (telecommunications) development in Africa has been slow and sometimes nonexistent. There is evidence of successful telecommunications privatization in many developing nations, including those in Latin America and the Caribbean (Gutierrez and Berg 2000). Once privatization is accomplished, modernization and system expansion can increase the efficiency and availability of the service. As Table 11.2 indicates, the telecommunications sector in Africa is still largely state-owned. However, following world trends as well as demands by international lending agencies, including the World Bank, some African countries are in the process of reforming the sector. Joint ventures are a typical first step employed by African countries to change the market structure of the sector. The extent to which governments commit to privatization and sector development depends on economic and political considerations, as well as the risk environment of the country.

The approach of most African nations then has been to comply with the World Bank's advice to open up their markets, but they are doing so only tentatively. The lack of government commitment to privatization is impeding the speed of sector development. In the last two or three years, however, more and more governments are turning to the private sector for investment in and proper development of the telecom infrastructure, which is now recognized as a necessity if a country is to participate effectively in the global economy.

Table 11.2 Ownership of telecommunications in Africa

100% state-owned	Privatized by 1998	Amount and year privatized	Commitment to privatize
Algeria	Cote d'Ivoire	51% , 1997	Botswana
Botswana	Gabon	39%	Congo
Cameroon	Ghana	30%, 1996	Egypt
Congo	Madagascar	34%, 1995	Kenya
Egypt	South Africa	30%, 1997	Morocco
Kenya	Tanzania		Uganda
Malawi			Zambia
Mali			Zimbabwe
Morocco			
Niger			
Nigeria			
Rwanda			
Sierra Leone			
Togo			
Tunisia			
Uganda			
Zambia			
Zimbabwe			

The increased commitment to private investment shown in Table 11.2 is an indication that African countries have come to accept that there are benefits from privatization. Some of these include increased services and quality of service, as well as improved access at lower cost and the availability of additional capital and management skills. Countries that have recently privatized or are currently involved in privatization efforts include Cote d'Ivoire, Kenya, Tanzania, Uganda, Zambia and Zimbabwe. These countries expect increased private-sector participation to result in rapid telecom network expansion and improved quality of service. Competition is also promoted along with the establishment of the required regulatory agency. To foster competition, many African countries issue licenses for cellular service.

Countries in Africa began to privatize their telecommunications industry as early as 1976-77 when Chad and Djibouti sold part of their operations to international companies. No further privatization took place until 1989, when Guinea-Bissau and Sao Tomé each privatized by 51 percent. Although the public sector still has majority control of the industry, by 1998 eighteen countries had either sold portions of their telecom operations to local or international investors or had seen a fusion of partly private international operators with the state-owned operator. It would be interesting to compare telecom performance in these countries before and after privatization.

BASIC ECONOMIC CONDITIONS: NATURAL MONOPOLIES VS. POTENTIALLY COMPETITIVE MARKETS

The view that the telecommunications sector is a natural monopoly has been challenged, just as government ownership and operation is no longer presumed necessary for strong sectoral performance. For example, technological change enables the use of radio spectrum instead of fixed wireline systems. One important and noticeable trend in Africa is the emergence of widespread cellular networks, shown in Table 11.3. Experience in developed telecom markets indicates that competition brings with it substantial benefits for the consumer since it provides strong incentives for incumbent operators to increase efficiency, reduce prices and provide new services like call waiting and an answering service. A number of countries in Africa currently sustain multiple (at least two) cellular telephone operators, regardless of per capita GDP and access to main lines. With multiple operators, some degree of competition is certain, not only among cellular providers but also between incumbent firms and cellular providers.

Prior to 1990, cellular subscriptions were, on average, virtually nonexistent in Africa. Noticeable change began in 1990-91, with dramatic increases throughout the rest of the decade. Again, sub-Saharan Africa lags behind the north, although exceptions are Mauritius, Reunion, and Seychelles – all small islands in the Indian Ocean with relatively high access. Some small coastal countries, such as Djibouti, also have access comparable to the average rate on the continent. By 1996, Eritrea had relatively low access, but was doing better than Ethiopia. Size effects may explain this, since the necessary investment outlays are smaller in small countries and thus involve less sunk cost. However, this argument suggests that economies of density outweigh economies of scale. Note that Djibouti and Eritrea, although not islands, are situated along the coast. It would be interesting to explore the role of geography to see whether location along the coast or access to ports provides some positive incentive to invest in telecommunications infrastructure.

Table 11.3 Cellular networks in Africa (1998)

Country	Startup	Subscriptions	Subscription Date	Operator	Coverage
Algeria	12/89	15000	12/97	Algerian PTT	
Angola	2/94	7052	12/97	Angola Telecom	Luanda then nationwide
Benin	1995	4295	12/97	OPT	
Botswana	6/98			Macom: Portugal Telecom, Masiyiwa, DECI	
				Vista:FCR(51%), others (49%)	
Burundi	9/93	600	12/97	Telecel Burundi:ONATAL(40%), Telecel International(57%), others(3%)	
Burkina Faso	12/96	1503	12/97	Onatel	
Cameroon	1994	2200	9/96	Dirtel	
Central Africa Republic	1996	800	6/97	TELCEL-CAR:Telecel International(90%)	Bangui
Congo	Sep-95	1500	7/97	Crytel:Nexus(70%), ONPT(30%)	
Cote d'Ivoire	1996	3000	12/96	Comstar: International Wireless	
	1996	13000	12/97	Loteny Telecom	
	10/96	6000	10/97	Societe Ivoirienne de Mobile (SIM): FCR(70%), Comafrique	

				(30%)	
Djibouti	1996	110	12/96	OPT	
Egypt	5/87	7224	12/97	Arab Rep. Of Egypt Nat'l Telecom Org.	Cairo, Luxur, Alexandria, Aswan
Ethiopia	07/98			Ethiopia Telecom Auth.	
Eq. Guinea	10/96	61	12/97	GETESA	
Gabon	1987	9500	12/97	OPT	
Gambia, The	1992	3096	13/97	Gamtel	
Ghana	1/95	2000	12/96	CelTel: Ghanians(95%), AT&T (5%)	Nationwide
	6/96	400	12/96	Sancom : Investcom	
	5/92	10004	12/96	Mobitel: Millicom Ghana(80%), others(20%)	
	1996			Francis Walker Ghana Ltd.	
Guinea	6/93	1100	12/97	Telecel Guinee: Telecel International(90%), Guinean partners(10%)	
	1993			SpacetelGuinee: Investcom	
	9/97			Sotelgui	
Kenya	3/93	5345	6/97	Kenya Post and Telecom	
Libya	3/97	4500	7/97	ORBIT	
Lesotho	4/96	1262	03/97	Vodacom* Lesotho : Lesotho Telecom(40%), Vodacom South Africa(20%), others (40%)	
Madagascar	05/97			Sacel Madagascar S.A	All
	08/94	4000	12/97	Telecel Madagascar: telecel International (100%)	
	12/97			Madacom	
Malawi	12/95	2910	12/96	Telekom Network Ltd.:Telekom Malaysia(70%), Malawi P&T (30%)	
Mali	9/96	2842	12/97	Sotelma	
Mauritius	5/89	23000	10/97	Emtel: Millicom (50%), C. Jeewanjee Co.(50%)	
	10/96	5563	12/96	Cellplus:Mauritius Telecom	
Mauritius	6/89	12000	6/96	Emtel/Currimjee Jeewanjee Milicom	
	1/96	1000	12/96	Cell Plus Mobile Commis	
Morocco	5/87	74442	12/97	ONPT	Rabat, Casablanca
	1989	35000	12/96	Office National des Postes et Telecom	main cities and roads
Mozambique	9/97	3000	12/97	Empressa Nacional de Mozambique (TDM)(74%), DeTeCon (Germany)(26%)_	('97)-maputo, Matola, "Maputo Corridor"
Namibia	4/95	12500	9/97	Mobile Telecommunications Co. Ltd: Namibia Telecom(51%), Telia(26%), Swedfund(23%)	Windhoek/Rehobeth area
Nigeria	1995			EMIS Nigeria	Lagos
	1993	15000	12/97	Mobile Telecom Services	
	1995			Int'l Wireless Inc./Comstat	Lagos, Abuja
Reunion	9/95	20000	12/97	SRR (SFR 100%)	
Rwanda	7/98			Rwanda Cell	
Senegal	1994	6942	12/97	SONATELL	Nationwide
	4/92	500	mid-95	SONATELL	83 km radius of Dakar
Seychelles	1995	1149	3/97	Cable and Wireless	
South Africa	5/86	10000	6/95	Vodacom	
	6/1/94	1.1m	9/98	Vodacom	Nationwide
	6/1/94	470000	9/98	Mobile Telecommunications Networks:Multichoice(25%), Cable & Wireless(25%), Transtel, Naftel, FABCOS, Costau(50%)	Nationwide
	3/94	553000	7/97	Vodacom: Telekom South Africa(50%), Vodafone(UK)(35%), Rembrandt Finansiele Beleggings Beperk(15%)	nationwide, 80% population at 1995
Sudan	01/97	3800	12/97	Mobitel: Sudatel(40%)	Khartoum, Pot Sudan
Swaziland	7/98			MTN	Nationwide
Tanzania	1996	6200	10/97	Tritel: TRI(Malaysia)(60%), VIPEM(Tanzania)(40%)	Dar es Salaam, other cities
	1998			Zanzibar Telecom	Zanzibar
	9/94	14000	12/97	MIC: Tanzania Ltd.(25%), Millicom(51%), Ult. Telecom(14%), Reserve(10%)	Dar es Salaam, other cities
Togo	9/97	2995	12/97	Togo Telecom	
Tunisia	4/85	5539	12/96	Tunisie Telecom	60% territory at mid 1995
Uganda	5/95	5000	12/97	Colverem Celtel Ltd.:Vodafone(UK)(37%), msi(42%), ifc(10.5%), cdc(10.5%)	Kampala, Entebbe, Jinja
	7/98			MTN and Partner	
DR Congo	1991	8900	12/97	Telecel Zaire: Telecel International (90%), SAIT (10%)	
	1994			Trans Global Telecom	Kinshasa
	1986	11500	12/96	Telecel-Zaire	
Zambia	1995	2721	3/97	Zamtel	Lusaka only
	l6/97	800	12/97	Telcel-Zambia: Telcel International(70%)	Lukasa

	unknown			Zamtel and Partner	
Zimbabwe	3/97			Telcel Zimbabwe (PVT) Ltd.	Harrare and Bulawyo
	9/96	11300	6/97	NetOne:PTC	Harrare and Bulawyo
	1998			Econet	
	3/97			T.S. Maisiyiwa Holdingd/Econet	Local
North Africa		106705			
Sub-Saharan Africa		225050			
South Africa		1023000			
AFRICA		1354755			

Source: African Cellular Systems, Common Market for Eastern and Southern Africa (COMESA), Sept 1998; African Telecommunication Indicators (ITU 1998).

The trend toward cellular service can be viewed as an indication of the degree to which competition is beginning to pervade the telecommunications market in the region. It represents the level of government commitment to sector reform. Both foreign and private-sector participation are becoming commonplace. Ghana, for example, is just one of the many countries that have recently opened their doors to competition. CellTel Ghana enjoys nationwide coverage, as does Anglo Telecom. Likewise Vodacom is well established in southern Africa. In South Africa, cellular service has successfully introduced competition in the sector. Most countries now have access to cellular service, at least in the major cities. The use of cellular service not only indicates the development of a competitive sector, but substitutes for direct exchange lines where penetration (teledensity) is low. For example, Uganda has one of the lowest levels of penetration of telephone lines in Africa, but enjoys nationwide coverage in cellular service provided by Anglo Telecom.

One has to be cautious, however, in using the increase in cellular networks across Africa as an indication of the growth in private-sector participation and competition. In some regions with cellular ventures, the telecommunications sector is still state-owned or a monopoly. Angola, Mozambique and Zambia are examples. In Botswana and Lesotho, the sectors are still 100 percent state-owned despite the opening up of the market to competition in 1996. In addition, new monopolies may be created after the introduction of cellular service. TELECEL-Zaire mobile operator, for instance, operates its own system and is a virtual monopoly. In addition, the existence of cellular operators is not a perfect measure of competition since cellular service is often available only to the wealthy, who represent a small portion of African economies. However, present limitations on cellular service as a strong competitive force because of cost will become less notable as time passes.

Uganda and Cote d'Ivoire are examples of countries with per capita income below $1,000 and with at least two cellular operators. Cellular operators can be potential threats to incumbent firms, since they can increase penetration at relatively low cost per additional subscriber. The threat of competition may be enough to give the incumbent the initiative to improve service. The potential threat is enough to provide the impetus for telecom growth (Hamilton 2001a).

THE PACE OF CHANGE

Africa is currently one of the most troubled areas in the world. It faces many problems with diseases, environmental decline, poverty and internal conflicts. Often these conflicts are

politically motivated. Political conflicts throughout the 1980s and '90s created instability and are at least partially responsible for the relatively slow development in telecom infrastructure in the region. Bennett and Green (1972), Balkan (1992), Green and Korth (1974), Svensson (1998), and Levis (1979) are among studies that examine how political instability disrupts investment and retards growth. The data in Table 11.4 indicate that during the 1985-94 period, those countries that experienced political instability had, on average, nearly two times less growth in main lines than those that were stable. Despite this, countries that experienced political instability throughout the entire sample period managed to secure at least moderate growth in telecommunications. Growth was, on average, 27 percent. Countries that experienced political disturbance in the 1980s but none in the 1990s did worse than those that were unstable throughout the period, on average. This may seem counterintuitive, but might be explained by investors' being better informed regarding risk as the 1990s approached and therefore more willing to enter even politically unstable markets. In addition, countries like Zimbabwe were reluctant to allow foreign participation in the telecom market, which explains in part the stagnation of telecom infrastructure in that country. South Africa's network development far exceeds that of any of the countries whose political instability persisted into the 1990s. In South Africa, access grew from 7.6 to 9 main lines per 100 inhabitants. In countries with continuing instability, access remained below 1 per 100 individuals.

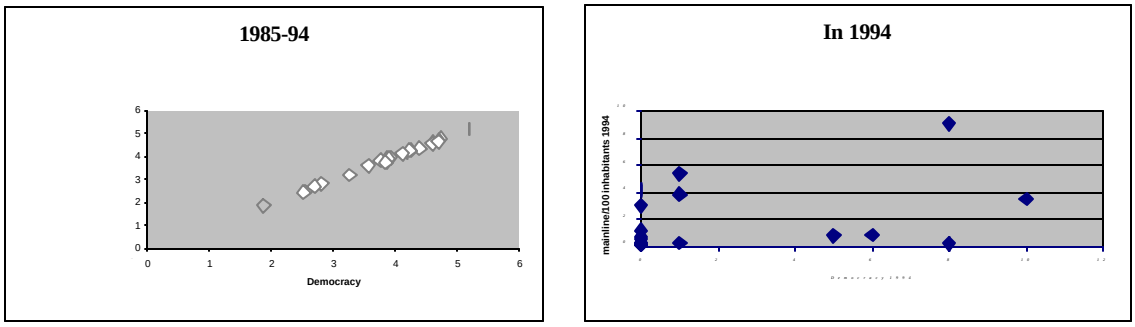
Countries that experienced political stability only in the earlier years did better than those that experienced stability only in the later years. On average, teledensity in the former grew by 43 percent, perhaps because investors are compelled to stay once investment take place and large sunk costs are incurred. Stability throughout the 1980s encouraged investments; as a result, instability in the 1990s had a smaller impact on telecom growth. Countries that remained stable throughout the period of study do better than any other group. Teledensity rose by 70 percent on average for countries in this category, although some did not do as well as others. Growth in Botswana and Morocco indicates that politically stable countries would probably have experienced even higher growth except for other political conditions. Property rights are less likely to be restricted, thus encouraging investments, if governments are stable (Clague et al. 1996).

Table 11.4 Growth of main telephone lines and political stability in countries

Time periods and stability	Politically stable, 1984-89	Politically unstable, 1984-89

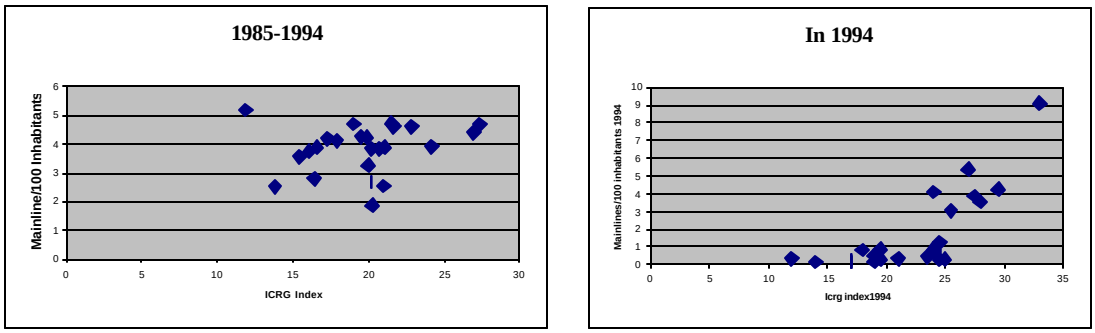
Politically Stable, 1990-94	Botswana	1.40	Togo	0.56
	Cote d'Ivoire	0.20	Gabon	0.69
	Niger	0.09	Mali	0.49
	Tanzania	0.16	Tunisia	0.59
	Morocco	1.64	Madagascar	0.20
			Rwanda	0.60
			Sierra Leone	-0.03
			Zambia	0.18
			Egypt	0.76
			Congo	0.29
	Average	0.70		0.43
Politically Unstable, 1990-94	South Africa	0.187	Algeria	0.408
	Zimbabwe	-0.003	Cameroon	0.359
	Uganda	-0.030	Kenya	0.314
	Average	0.16		0.270

Figures 11.3 and 11.4 summarize the institutional conditions in Africa during the period 1980-94, and their relation to the development of basic telecommunications.



Source: 1995 Polity III (Jaggers and Gurr 1995), IRIS-3 file of international country-risk data, 1982-97.

Figure 11.3 Political institutions and main line access, 1985-94 and in 1994



Source: IRIS-3 file of international country-risk data, 1982-97.

Figure 11.4 Institutional factors and main line access, 1985-94 and in 1994

As can be seen, the political environment and institutional framework at a point in time appear not to matter in terms of investment in telecommunications. There is little or no apparent relation between democracy and telephone access in any given year. Countries with high levels of democracy had very low access and vice versa.

This haphazard pattern may be explained by the fact that democracy in Africa does not necessarily guarantee the political and civic rights that most western countries would expect (Haan and Siermann 1993). Many African countries are democratic solely in the sense that political pluralism exists on paper. In reality, citizens in some of these countries are allowed only very narrow political participation. Some 'democratically' chosen governments manage to maintain their positions by political coercion and corruption. The 1990s witnessed a growth in the number of multi-party systems, but many elections were rife with corruption. For example, analysts have concluded that the elite manipulated elections in Ghana and Kenya. Despite weak democratic systems, the trend in the 1990s has been toward political pluralism and a more active role for citizens. It is this movement toward more accountable systems of government that explains the much clearer relation between main line access and democracy.

Institutional factors in Figure 11.4 indicate more of a pattern in 1994, but the trend is a lot more pronounced when measured over 1985-94. Throughout the period of this study, many countries in Africa have been undergoing some form of political adjustment. Some countries like Uganda and South Africa have experienced a more organized and smooth transition, while change in other countries has been chaotic. Even though some countries still experience political repression, many have made strides in improving their political environment.

Good government has been shown to contribute to the economic development of European countries (Knack and Keefer 1995). Likewise, Bergara et al. (1998) have shown that political conditions influence the level of electricity investments. The data utilized here show that political conditions and government do in fact have some correlation over time with telecom development. Investors' expectations play a major role in their decisions to invest. Current conditions are therefore important only insofar as they contribute to a picture over time. Telecom investors are more interested in the long view, especially given the nature of their investments. Potential investors are more willing to invest in countries with a stable institutional

history and more democratic systems of governance. Investments will occur so long as those in power have sufficient incentive to take the legal actions necessary for the protection of property rights. A democratic system allowing for participation by stakeholders promotes legitimacy and can result in greater policy stability. The trend in African institutions over the period studied conforms to theory and empirical evidence from other countries.

The large external debt of some countries also slows development. In addition, there are often conflicts between political and economic motivations, leading to indecision and delay. Public uncertainty increases perceived risk, raising the cost of capital and limiting private investment. Instability in certain countries is another factor. In Rwanda, for instance, civil war decimated the telecommunications sector. High risk provides a disincentive to potential private investors and managers of government firms (since high performance is beyond their control).

SOME POLICY IMPLICATIONS

Regulatory Considerations

The success of telecommunications development in Africa, as elsewhere, depends on the willingness and ability of governments to provide regulatory and legislative environments that promote development of telecommunications infrastructure and service offerings. Most African leaders realize the importance of regulatory reform, and countries that have not yet undertaken reforms are planning to do so in the near future. Politicians are becoming aware that shifting the burden of infrastructure management and investment to private firms can be beneficial, in terms of increased efficiency in this sector and also with respect to the possibility of securing additional private investments in other economic sectors of the economy. Table 11.5 is a summary of some recent legislative and regulatory developments in Africa, and Table 11.6 gives information on foreign ownership and market access in some African countries.

Table 11.5 Legislative and regulatory developments in Africa

Country	Year	Development
Ghana (accelerated development program)	1996	-Authorization of two national network operators: Ghana Telecom and a new independent operator. -Privatization of Ghana telecom through sale of strategic stake combined with measures to broaden share ownership in Ghana. -Removal of restrictions on private network construction. -Creation of a single regulatory agency (NCA) to regulate communications, including wire, cable radio, TV, satellite.
Botswana	Dec. 1995	-Telecom policy paper outlining planned sector liberalization and competition.
	July 1996	-BTC (amendment) bill and telecom bill became law in September. It defined sector development for the future. -End BTC monopoly over telecom services.

		-Allow BTC to enter joint ventures or partnership with the private sector but stopped short of mandating the privatization of the national operator. Still 100% state-owned. -Independent regulatory body established (the Botswana Telecommunications Authority – BTA) to oversee and regulate the sector. Duties include tariff setting and access licensing.
Lesotho	April 1996	-Lesotho Telecom Corp (LTC) has monopoly and is not subject to independent regulation. -Sector reform considered, including the establishment of a new independent regulatory body. -Planned competition in the supply of customer premise equipment and the issuance for VSAT, paging and radio trunk network.
Namibia	1992	Namibia Communications Commission established as a quasi-independent regulatory body.
Mozambique	1992	Telecom law established: -Telecommunications of Mozambique as an independent company. -National Telecommunications Institute of Mozambique (INCM) as an independent regulatory body. Responsibilities include licensing and interpretation of sector policy.
Zambia	1994	Telecommunications legislation created new regulatory body (ZCA) to oversee the sector.
Zimbabwe	Currently	No independent regulatory body. Tariff setting, licensing, etc. is made by the PTC.
Swaziland	Currently	No regulatory body; PTC operates under a 1994 performance contract with the government.
Tanzania	1994	Tanzania Communications Commission established to regulate the provision of telecommunications in Tanzania. Responsibilities include licensing, approval of tariffs and the promotion of competition.
Tunisia	10 April 1995	Law creating National Office of Telecommunications. It changed the entity from an administrative structure to a public enterprise with industrial and commercial orientation.
Mauritius	1988	-Telecom Act- establishment of independent regulatory body, Telecommunications Authority (TA), as sector regulator. -Mauritius Telecom Services Ltd. established as a state-owned company to provide domestic service.
	15 Feb. 1997	-Accepted a commitment to open the telecom sector to competition and to end the monopoly and exclusive rights by 2004.
	1997-98	Plan to create a new legislative body and to establish a new Mauritius Telecommunications Authority.
South Africa	1991	Transferred the running of telecommunications service from Department of Post and Telecommunications to a public company - Telkom South Africa Ltd.
	March 1996	White Paper on the telecommunications sector : -Outlined a structured six-year procress in the liberalization of sub-sector markets. No limit was set on the period of exclusivity or continued monopoly for Telkom, the sole provider of local access, pay phones, national long distance and international services in South Africa.
	15 Nov. 1996	Telecommunications Act provided a framework within which the sector will be liberalized. It includes the creation of a regulatory body, separate from the national operator and the Ministry of Post and Telecommunications Board.

Sources: Ministry of Telecommunications and Information Technology, Republic of Mauritius White Paper on the Telecommunications Sector. Ministry of Transport and Communications, Telecommunications Policy for an Accelerated Programme 1994-2000 (Ghana). *Africa Communications* (magazine), Privatization in Africa: Country Privatization Efforts, 1997. Telecommunications Policy in South Africa. South Africa Non-profit Internet Provider (SANGONET), South African White Paper on Telecommunications. The Southern Africa Regional Telecommunications Restructuring (RTR) Program. Luhanga, M. L., Telecommunications in Tanzania. Dierks, Klaus, Namibia's Telecommunications - Link to Africa. The National Communications Authority Act, 1996, Republic of Ghana.

Table 11.6 Regulatory principles, foreign ownership and market access (1998)

Country	Regulatory principles[1]	Maximum foreign ownership allowed	Commitment to market access
Cote d'Ivoire	Adopted entirely	100%	Monopoly for voice telephone over fixed network infrastructure and telex services for seven years. In 2005, full competition for all services. Open access for all other services, including data transmission services and satellite services, links, capacity and earth stations.
Ghana	Adopted entirely	No limitation, but local participation required	Commitment to duopoly operators for the provision of local, domestic and international long distance services and private leased circuit services for an exclusive five-year period. Commitment to competition in services, including telex, telegraph, facsimile, Internet, fixed satellite (excluding voice), teleconferencing, trunked radio and telecommunications equipment sales and rentals, and mobile services. Commitment to allow global satellite services to be supplied through arrangements with licensed public operators.
Mauritius	In the future	100%	Existing de facto monopoly and exclusive rights in all basic telecom services to be eliminated by 2004. Commitment to competition in paging, private mobile radio services and mobile satellite-based services.
Morocco	Partial adoption	Foreign equity participation may be limited (level as yet unspecified)	Telephone service over fixed infrastructure, telex and ISDN are reserved to a monopoly until 2001. Open market access for packet switched data transmission and frame relay. Licenses for various types of mobile services will be issued by means of public tenders.
Senegal	Adopted entirely	100%	Commitment to terminating monopoly between 2003 and 2006 in local domestic and international voice telephony, data transmission, telex, facsimile, private leased circuit services and fixed satellite services. In 2003, the government will consider whether to allow additional operators. Three operators are allowed to provide cellular mobile services, including mobile data, from 1998.
South Africa	Adopted entirely	30%	Commitment to end monopoly supply and introduce a second supplier by the end of 2003 in public switched, facilities-based services including voice, data, transmission, telex, facsimile, private leased circuits and satellite-based services. Commitment to review the feasibility of allowing additional suppliers of public switched services by the end of 2003. Cellular mobile services are provided on a duopoly basis with an additional license to be granted within 2

		years. No limitations on the number of suppliers of paging, personal radio communication, and trunked radio systems. Liberalization of resale services between 2000 and 2003.
Tunisia	49% from 2002, foreign participation in the capital of Tunisia Telecom will be allowed up to 10%	Competition in telex and packed switched data transmission from 1999, in mobile telephone, frame relay, paging and teleconferencing from 2000, and in local telephone services from 2003. Extend telephone coverage in certain areas as a condition for liberalization of basic telecommunication services in rural areas; to supply emergency telecommunication services, to contribute to the national formation and research in the telecommunication sector.

Source: African Telecommunication Indicators (ITU, 1998).

Autonomy of Regulatory Agencies

Many regulatory agencies in Africa are still connected to a government ministry and have no real autonomy or power because the ministry often maintains the authority to appoint members and issue directives. Policy must move toward greater autonomy of the agencies if private investors are to be attracted. Independence of the regulator is required to ensure that short-term political objectives or pressure do not influence policies. This will be challenging for countries where politics have so much influence on everyday life. Because infrastructure development is so important, governments are reluctant to relinquish control. Zimbabwe, for example, although committing to some degree of privatization, distrusts foreign operators and has not committed to allowing them. However, governments need not give up control; they need only to subject private entities to strict regulation of prices and service quality. Discretion has to be strict and specific enough to maintain agreed quality, but broad enough not to discourage efficient and effective participation. Investors are aware of the potential for governments to interfere and therefore require sound and credible guarantees against the expropriation or destruction of property during civil or political strife, and against bureaucratic hold-ups that negatively affect profitability.

Incentive Structure and Goals

As more countries privatize their operations, regulators need to implement incentive schemes that will guarantee increased service quality as well as higher penetration levels (Berg and Foreman 1996). If this is not done, the move to allow private participation will be a failure. One way to ensure efficiency is to encourage competition. Therefore, the next step for countries in the privatization process is to start thinking about how best to encourage competition and how much competition should be allowed. Competition is not always feasible, but the economic consensus is that competition in services such as cellular telephony improves infrastructure development. Countries planning to privatize should have clear goals and policies to attract potential entrants.

Since Africa's markets are relatively small because of low per capita incomes, the markets may not be particularly attractive to investors seeking big profits. Telecom access in Africa is mostly confined to urban areas because many people cannot afford telephones. The immediate

aim of public policy in privatization should be to achieve universal shared access to telephones in Africa, rather than universal individual access. This 'reasonable' access can be achieved though the provision of public telephones by private investors, who should supply achievable targets. Ghana, South Africa, Kenya and Malawi have adopted variations of this policy.

To take advantage of the positive effects of competition, regulators must guarantee appropriate interconnection agreements between competitors and the incumbent firm. Both parties must be clear on matters such as points of interconnection, cost responsibilities and pricing.

Country Risk and Transparency

The telecommunications industry is changing in Africa much more rapidly than it did in developed countries. As a result, governments are expected to adjust rules as changes occur. Development in African tends to leapfrog in the sense that, even with very low penetration of basic telephony, Internet and cellular usage is commonplace. The development process was more sequential in other countries. There has to be discretionary public policy to deal with rapidly changing conditions. This type of discretion can easily be used for political gains or to satisfy the individual interests of regulators (see Kerf and Smith 1996). In this instance, more specific rules are required. Possible misuse of authority can be curtailed by increasing the accountability of the policymakers.

Political conflicts resulting in disruption of service or discouragement of investment have been more of a problem in Africa than in other developing regions. Regulators will have to develop approaches that reduce the perceived risk of investing in Africa for private investors. Governments may enter into partnerships with the private entity, such as joint ventures where the government shares risks. When governments maintain a share of the profits, they will be more committed to creating an environment that will promote political stability. Obtaining stakeholders among private, local individuals may also encourage public interest. When private individuals are claimants to some of the profits, they have a vested interest in maintaining stability and freedom from political turmoil.

While telecom development in Africa has been slow, there are indications that improvements are likely. Even though only a few countries have privatized so far, many more are preparing to do so. Governments fully appreciate the importance of participation in an environment where economies are increasingly more global and more dependent on information technology. They are therefore more willing to encourage potential entrants. The potential gain to investors from tapping into this market, which is large despite low-income levels, is substantial. Regulatory and institutional reforms are necessary to indicate the intentions of governments and to encourage both foreign and local investments.

NOTE

1. The WTO has an agreement with the eight countries listed in Table 11.6. The countries have agreed to progressively liberalize their telecommunications market, and some have also

agreed to adopt the regulatory principles proposed by the WTO. These principles allow for transparent regulation, including the establishment of an independent regulatory body.

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