

Telecommunication Reform in Ghana

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I. Introduction

A great deal of research has found that competition in telecommunications has improved performance over monopoly provision around the world, resulting in lower prices, better service, wider access and faster expansion of capacity (Fink, et al. 2002; Li and Xu 2001; Noll 2000; Ros 1999; Wallsten 2001; Wellenius and Stern 1994). These findings are consistent with the notion that technological progress, diseconomies of scale in management, and inefficient operation of firms not subject to the discipline of competition will offset any scale economies in the sector.

While the benefits of competition in telecommunications have been demonstrated in numerous settings, achieving and sustaining it are not easy. As we discuss below, political conditions must be met for reforms to be successful, and institutions that can nurture competition must function effectively. Unfortunately, Africa's frail political systems are especially vulnerable to opposition from interests who stand to lose from competition, while weak regulatory capacity raises doubts that a level playing field for competitors can be enforced. Moreover, government's need to raise revenues from the sale and concern about potential accusations of "giving away the crown jewels" may favor granting an exclusivity period to the incumbent operator to increase the proceeds from privatization. Investors who perceive high risk or reformers who perceive the need to cross-subsidize investment to expand access to the poor might also favor monopoly over competition.

Ghana provides a good case for examining the effort to introduce competition in a weak institutional setting. In December 1996 Ghana partially privatized its incumbent telecommunications firm, Ghana Telecom, and sold a license to another investor to build a competing telecom network. While head to head competition for basic services had been discussed theoretically, it had rarely been attempted in developing countries. Competition between such networks was considered difficult to achieve in most settings and impossible in Africa, with its large investment needs and perceived high risk. Moreover, a competing cellular firm had begun operations in 1992, a second mobile operator entered in 1995, and a third in 1996.

This case study will explore the effects of competition on telecommunications performance in Ghana. It first analyzes the circumstances in the telecommunications sector prior to reform and documents in Section III the historical and macro-economic circumstances leading to the privatization decision. Section IV describes the initial design of the reform and its

implementation and in Section V we consider whether competition is likely to be sustained. Section VI assesses the outcomes, including the political and institutional factors that may explain the results. Section VII concludes with an assessment of how well the case substantiates our premise and what the implications of the findings are for policy.

II. Sector Conditions Leading to Reform

While most analyses evaluate sector performance after reforms, it is important to recognize that performance also affects the decision to reform and to introduce competition in the first place. Where access has been constrained and service poor, the public tends to have little sympathy for the incumbent, making competition more popular. Meanwhile, an unprofitable incumbent requires subsidies from the government, making privatization and competition potentially more palatable to the government, as well.

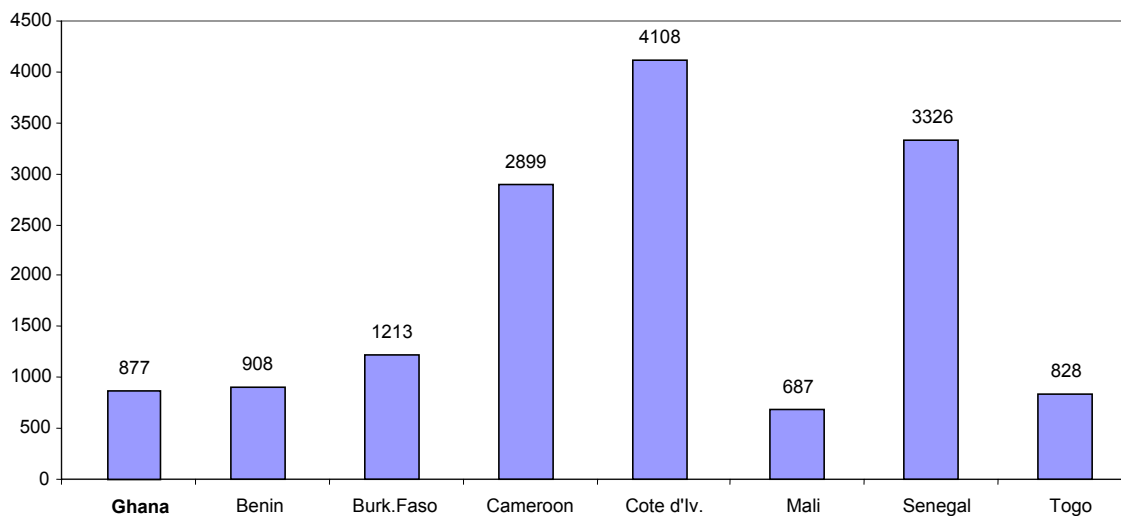
Conditions in Ghana's telecom sector increased the chances of introducing competition. First, the incumbent, Ghana Post and Telecommunications Corporation (GP&T), was notably inefficient, offering considerably poorer services than were available in many of its African neighbors. Second, while the firm posted *accounting* profits, large foreign exchange losses led to declining equity. Moreover, real local tariffs, already heavily subsidized through high long-distance and international charges, were declining rapidly and required increasing direct government transfers. Thus, while the bureaucracy was reluctant to cede control of GP&T, the alternative would ultimately have put the government in the position of increasing consumer tariffs in order to keep the company afloat, which was politically unpopular. Finally, control of the firm and regulation of the sector was dispersed across the government, exacerbating the problems listed above, but also increasing the likelihood of reform by making any given agency less likely to oppose reform.

(i) *Service before Reform.* A history of poor telecommunications service, including lack of access, poor quality for those who had access, and high international tariffs made the incumbent provider unpopular. Before the sector was restructured in 1992, the state-owned GP&T had almost a complete monopoly over all telecommunications services.¹ Compared to

¹ A few corporate private networks were allowed to operate, but even those were "regulated" by GP&T, which

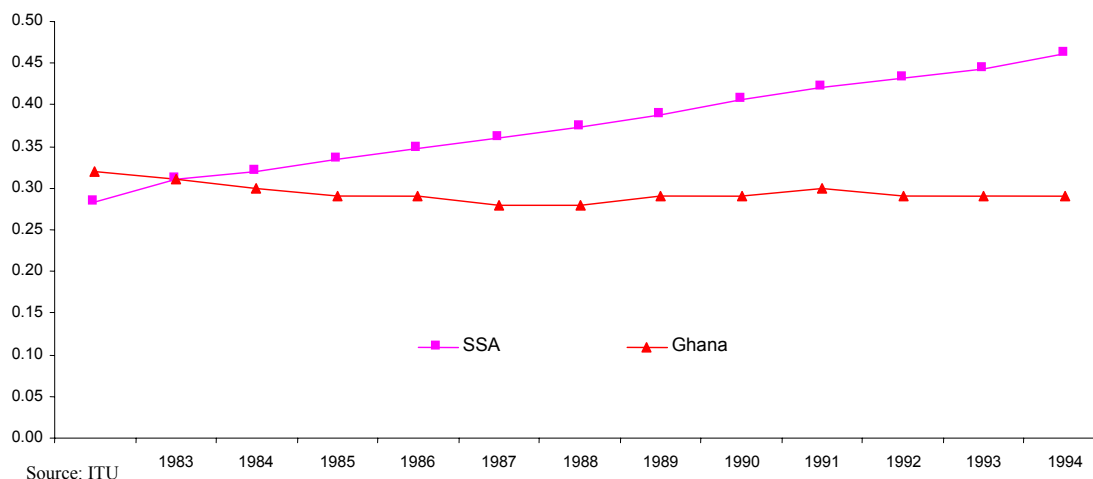
other countries in Sub-Saharan Africa, which were themselves poor performers compared to other developing countries, telephone penetration rates in Ghana were low and stagnant (Figure 1 and Figure 2). Only three out of every 1,000 inhabitants had access to a phone in their homes or businesses. From 1980 to 1993, the number of telephone main lines increased by only 1,000 a year on average, and from 1981 to 1987, the total actually declined (WB STP completion report). Payphones were almost non-existent: Ghana had only 25 payphones in 1993, all in Accra (Anderson Management International A/S 1993).

Figure 1: Comparison of Average Annual Growth in Main Lines (1980-1993)



Source: ITU

Figure 2: Main Telephone Lines per 100 Inhabitants

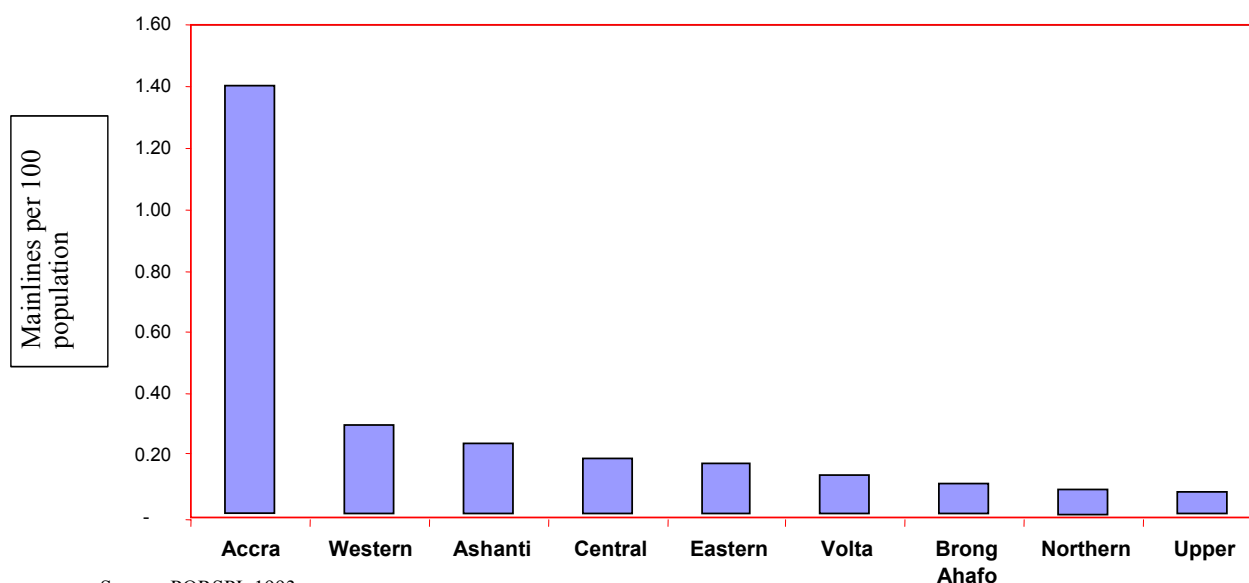


Source: ITU

required corporations operating such networks to pay GP&T exorbitant “by-pass” fees.

Service was highly skewed towards Accra and other urban areas (Figure 3). Over 80 percent of all phone lines were in urban areas (International Telecommunications Union 1994) and 53.6% were in Accra in 1990 (PORSPI, 1993). The northern part of the country, with 40 percent of the population, had only about one percent of the nation's telephones (fewer than six lines per 10,000 people) in 1993. Only 37 of the 110 district capitals were connected, meaning that large parts of the country were not connected to the communications grid at all.

Figure 3: Regional Distribution of Telephone Lines In Ghana in 1990



Source: PORSPI, 1993

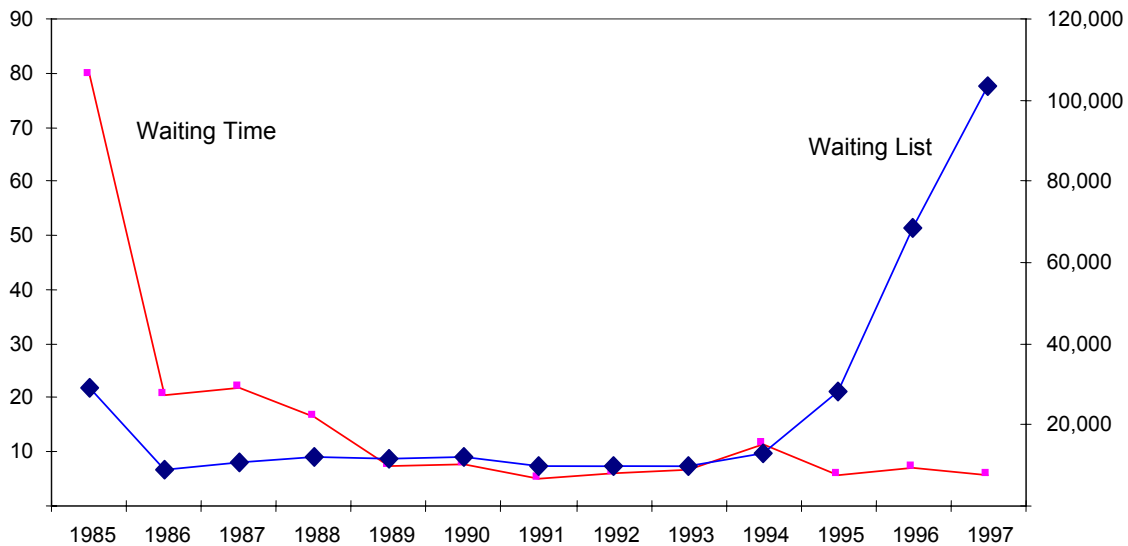
Stagnant growth was not due to lack of demand. Demand estimates varied widely but were all well above GP&T's service provision. In 1990 GP&T estimated excess demand at about 12,000 lines, or about 25 percent of main lines, while in 1993 a consultant report estimated excess demand at 150,000, or three times the existing number of lines (Anderson Management International A/S 1993). By 1985 the International Telecommunications Union (ITU) estimated that at the then-current rate of line growth it would take 80 years to connect everyone on the telephone waiting list. The waiting time dropped after that partly because expansion of the system resumed, but also because discouraged customers removed their names from the waiting list (Figure 4).² Further evidence of excess demand was the emergence of so-called

² The sharp increase in the list after waiting times fell in 1994 (Figure 4), is indicative of the number of customers who were not on the waiting list out of despair of ever receiving a phone.

“Communication Centers.” These centers, principally located in urban areas, sold the use of phone and fax lines to the public at prices as much as ten times higher than the GP&T’s tariff.

Figure 4: Waiting Time and Waiting List for Main Lines

(Time in years left scale; List in number of people right scale)



Source: Authors’ estimation based on ITU Data (for waiting time), ITU (for waiting list)

The range of value-added services offered by GP&T was limited because the company had not invested in the necessary infrastructure (Ampah, 1997). Even in the late 1980’s firms in Ghana relied largely on telex machines because the unreliable lines could not support fax machines. Poor quality motivated larger firms, including parastatals such as the ports and harbor authority, the railway, and the electricity companies, to invest heavily in their own private communications networks.

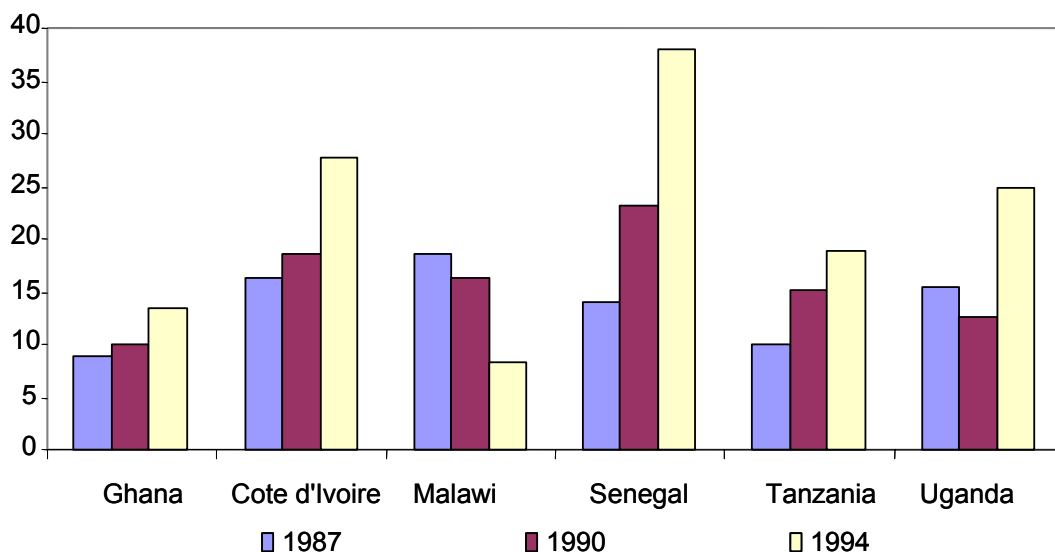
GP&T’s failure to expand was also not initially the result of lack of funds: the company had borrowed heavily from foreign aid sources for investment. Rather, the problem was inefficiency and poor management. For example, the World Bank and multilateral donors made available US\$173 million for telecommunications investment in 1988, but the project was completed in 1994—three and a half years behind schedule. GP&T’s high investment costs also meant that available funds purchased less new infrastructure than it could have elsewhere. The ITU estimated Ghana’s cost per main line added to be \$3,624 in the early 1990’s, which is below

the African average of \$6,200 per line but well above the average for developing countries of \$1,500 (Laidlaw, et al. 1995).

When service was available, quality was very poor. On average, nearly 20 percent of all mainlines were not functioning at any time (Anderson 1993). Only 47 percent of outgoing international calls were completed while just 21 percent of incoming calls got through in 1992 (World Bank 1997). Domestic service was not much better; 49 percent of long distance calls and 58 percent of local calls were completed that same year (Ibid.). GP&T's poor service was partly the result of mismanagement, but incompatible infrastructure was also responsible. Donor countries, which had funded most of GP&T's investment, often required their funds to be used to purchase equipment manufactured in the donor's country. As a result, GP&T had switches from six different manufacturers. This contributed to long repair times and high maintenance costs (Anderson Management International A/S 1993).

The company was heavily over-staffed, slow to respond to consumer complaints, and employees frequently demanded side payments to repair faults when they did respond (field interviews). In 1994 GP&T had 13 mainlines per employee in the telecommunications part of its business, well below the Africa regional average of about 25 (Figure 5) and only a fraction of this efficiency measure in other developing countries: East Asia averaged 77 mainlines per employee and Latin America averaged 119 (Calculated using ITU data).

Figure 5: Main Telephone Lines per Employee



Source: ITU

(ii) *Finances.* Financial factors also favored privatization and competition in Ghana. GP&T was not the “cash cow” that telecommunications monopolies were in some developing countries; hence, the government did not have much to lose in terms of revenue. To the contrary, the government was transferring money to GP&T. While GP&T routinely reported profits, these were largely the result of questionable accounting practices, such as reporting financial losses as negative “capital reserves” and not including them in the P&L statement. Table 1 shows GP&T’s declared profits in line one, and actual profits after adjustment for exchange losses in line two. The table also shows that GP&T paid essentially no taxes or dividends to the government.

Table 1: Ghana Telecom: Financial Indicators (in millions of Cedis)

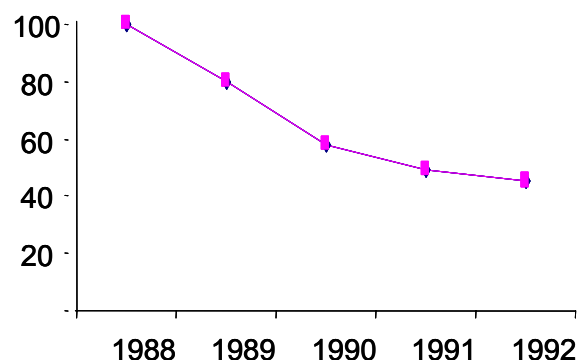
	1991	1992	1993	1994	1995
Declared profit	2,026	3,293	6,202	(54,134)	(77,188)
Actual profit ¹	(9,260)	(18,400)	(40,043)	(54,134)	(77,188)
Dividend	0	0	0	0	0
Corporate taxes paid	0	0	0	0	0

Source: Ghana Telecommunications Company Ltd., Annual Reports 1991-1997

1. Declared profit is adjusted for foreign exchange losses, which were put in a separate account until 1993.

Moreover, the losses in Table 1 are understated because they do not fully account for the many customers who were not paying their bills. According to a 1992 consultant report, GP&T’s commercial department did not routinely update payment records and did not even track government non-payment, so the company could not accurately determine who had actually paid its bills (Nepostel 1992). In 1992, for example, accounts receivable averaged 252 days and 69 percent of recorded sales.

Figure 6 : Real Average International and Domestic Long distance Tariffs Index (lines overlap)



Source: Authors’ calculation [Data from Staff Appraisal Report, Second Telecommunications Project (1988), World Bank, and Telecommunication Charge Regulation (1993 & 1996)]

These losses continued to mount in the late 1980s and early 1990s, exacerbated by falling real tariffs (Figure 6). Tariff setting was cumbersome: GP&T proposed tariff changes to the Ministry of Transport and Communication, with final determination made by the cabinet. As a result, nominal tariffs could go unchanged

for years, obviously leading to declines in real rates. This problem affected all rates, including long-distance and international calls, which ostensibly were used to cross-subsidize low local tariffs (see Table 2). Putting aside the issue of the inefficiency of cross-subsidies, these real declines meant that ever-increasing subsidies had to come from government revenues.

Table 2: Ghana Telecom Real Tariffs* (in USD, Base=1995)

	1990	1991	1992	1993	1994	1995
1. Domestic call charges						
A. Local (per unit) ¹	0.03	0.02	0.02	0.16	0.12	0.08
B. Calls to mobile/ 3 M	n/a	n/a	n/a	1.40	1.07	0.75
C. Long distance/3 M ²						
0 – 32 km	0.08	0.07	0.06	0.23	0.18	0.12
32 – 80 km	0.20	0.17	0.15	0.39	0.30	0.21
80 – 160 km	0.29	0.24	0.21	0.62	0.48	0.33
> 160 km	0.41	0.34	0.31	0.78	0.60	0.42
2. International Calls/Min ³						
UK	2.20	1.83	1.65	2.33	1.79	1.25
USA	3.85	3.21	2.89	2.33	1.79	1.25
India	3.63	3.03	2.72	3.72	2.86	2.00
Japan	4.55	3.79	3.41	3.72	2.86	2.00
Brazil	3.63	3.03	2.72	3.72	2.86	2.00
Australia	3.63	3.03	2.72	3.72	2.86	2.00
Nigeria	3.63	3.03	2.72	1.86	1.43	1.00
3. Annual Rental charges ⁴						
Business	20.34	16.94	15.34	18.61	14.32	10.00
Residential	10.77	8.97	8.07	18.61	14.32	10.00
4. Main lines installation charges	23.92	19.93	17.93	77.53	59.65	41.65

Source: Staff Appraisal Report, Second Telecommunications Project, Republic of Ghana, 1988 [from 1990 to 1992], Post and Telecommunications Charge Regulation, Republic of Ghana, 1993, Ghana Telecom License, 1996

*The Real tariff is estimated by deflating the nominal tariff using GDP deflator and by converting it to USD at 1995 constant exchange rate.

1. Unit = a call with unlimited time from 1990 to 1992, 5 minutes from 1993 to 1995 and 4 minutes from 1996 to 1998

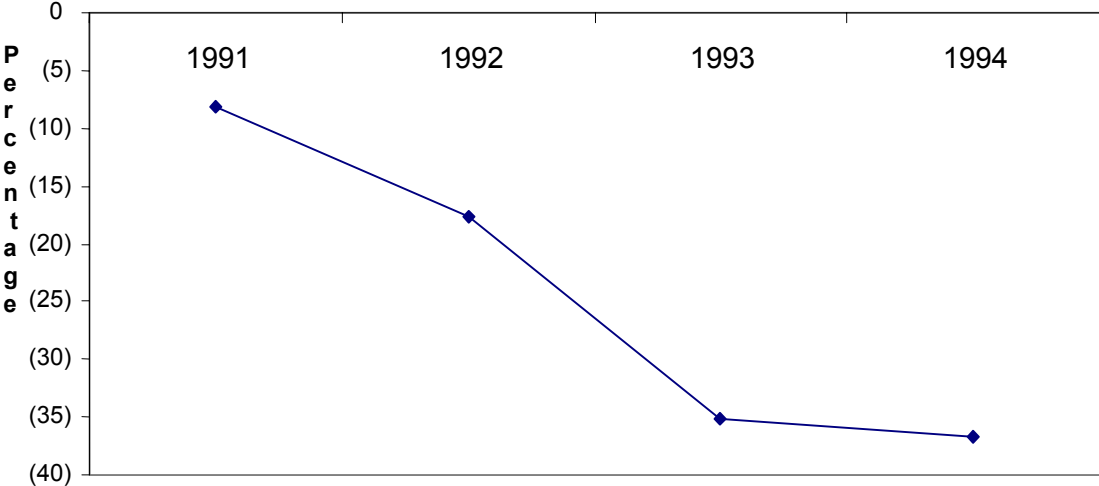
2. The domestic long distance tariffs are for operator-connected peak-time calls with STD facility. Non-peak time calls and calls without STD facility are about 24% and 15% cheaper, respectively.

3. International tariffs are for operator-assisted calls. IDD calls are 20-35% cheaper than operator-assisted calls. For example, IDD calls to US and UK cost Cedis 2,600 (US\$1.12 or US\$ 0.18 in real terms) in 1998.

4. The charges are for automatic main lines within 3 km of exchange area. Beyond 3 km, the charge increases in proportion to distance.

Finally, losses also resulted from the company’s high level of debt service denominated in foreign currency, which made it vulnerable to currency fluctuations, especially since parastatals lacked the authority or capacity to hedge. Almost all of GP&T’s capital expenditures were financed by multilateral and bilateral aid from the World Bank, Japan, France and the Netherlands, complemented by government loans. Figure 7 shows GP&T’s increasing negative net worth as a percentage of its total assets, the product of foreign exchange losses much larger than equity. The company was not fully servicing its debt and by 1996 had accrued loan service payments totaling Cedis 105 billion.

Figure 7 : Ghana Telecom – Net Worth as Percentage of Total Assets



Source: Ghana Telecom Ltd.

(iii) *Responsibility for Regulation* Responsibility for regulation of GP&T was divided, with many overlapping oversight agencies. Three different agencies—the Ministry of Transport and Communications (MOTC), the Ministry of Finance and the Ghana Frequency Regulation and Control Board (GFRCB)—were formally responsible for various aspects of firm operations. In addition, the firm itself was the telecommunication regulator and had responsibility over some of its own actions. Table 3 gives a sense of the multiple regulatory roles. The table does not include the Ministry of Finance, which supervised GP&T’s budget, borrowing and performance contract, among other things.

Table 3 : Key Regulatory Tasks and Regulators

Regulatory Tasks	Formal Regulator
Licenses: A. General	MOTC
B. Frequency	GFRCB
Tariffs: A. Service charges	GP&T, MOTC
B. Frequency charges	GFRCB
Allocation of number services	GP&T, MOTC
Frequency regulation	GFRCB
Type approval	GP&T, GFRCB
Interconnect agreements	MOTC, GP&T
Arbitration	MOTC, GP&T
International regulatory cooperation	MOTC, GP&T, GFRCB
Legal means of enforcement	MOTC, GP&T, GFRCB
Advisory function vis a vis MOTC	None/GP&T

Source: adapted from Andersen, 1993.

GFRCB: Ghana Frequency Registration and Control Board

MOTC: Ministry of Transport and Communication

GP&T: Ghana Post and Telecommunication Corporation

PO: Private Operators

These multiple oversight agencies slowed procurement procedures and tariff adjustments, and reduced accountability and transparency in decision-making. This structure, however, also meant that no single, powerful bureaucratic actor had such a large stake in GP&T that it might oppose privatization or competition.

By the early 1990s some tangible factors encouraging reforms existed in Ghana: an inefficient incumbent monopoly that provided extremely limited service of poor quality where it existed at a growing financial loss to the government, large unmet demand for even the poor services available, and a government oversight structure that minimized the potential loss to any particular agency that might be hurt by privatization. Still, those factors were only part of the story. As we discuss below, several political conditions had to be met before reform could be considered an attractive option to Ghanaian policymakers.

III. Political Conditions Leading to Reform

While the physical and financial condition of Ghana's telecommunication sector favored reform, the decision to reform also depends on political conditions. In general, reform occurs only when three conditions are met: it is politically desirable, in that the political benefits from

reform are greater than the political costs; it is politically feasible, meaning the reformers are able to implement the reform and overcome opposition and; it is credible to investors, workers and other actors (World Bank 1995). Reform is politically desirable when the groups that benefit from the status quo and have the power to block reform lose influence. This can happen because of a change in the ruling regime or coalition or from a shock such as hyperinflation that lowers the benefits from the status quo or raises the cost of not reforming. Reform becomes politically feasible when the leadership can secure the support of other parts of the government whose cooperation is necessary for success and can withstand any opposition to reform. Reform is credible when the leadership's promises to investors are believable, perhaps because of the government's reputation, or the existence of credible enforcement mechanisms or restraints on policy reversal.

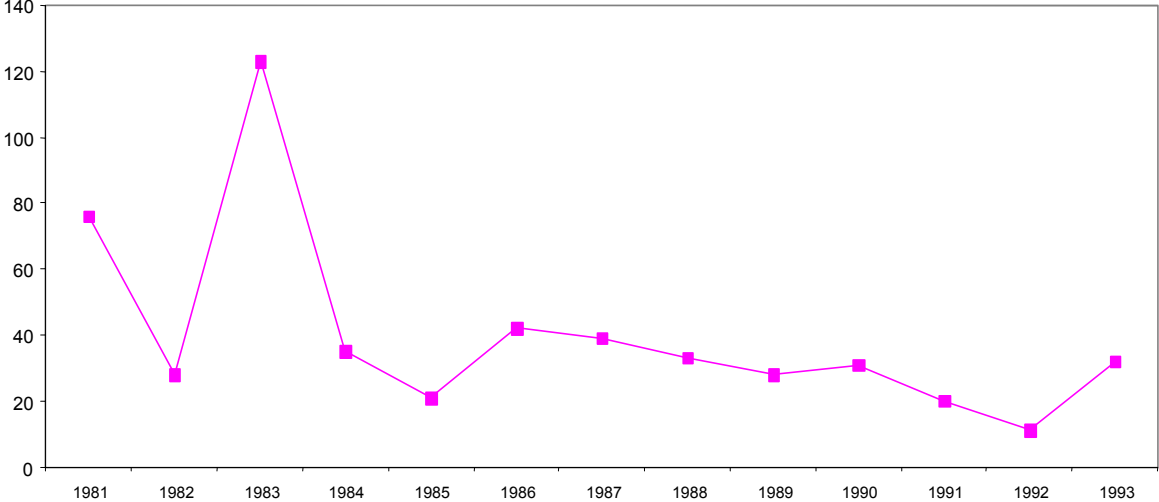
This section first examines how crisis contributed to political change in Ghana, and analyzes what ultimately made telecommunications privatization and competition politically desirable, feasible, and credible.

(i) Crisis and Reform. Drazen and Easterly (2001) find evidence that a severe macroeconomic crisis with hyperinflation can induce substantial reforms. Indeed, such conditions preceded a change in policy direction in Ghana. In December 1981 Flight-lieutenant Jerry Rawlings led a military-backed coup-d'état, which overthrew the constitutionally elected government and established the rule of the Provisional National Defense Council (PNDC). The PNDC was a coalition of various class and political groupings ranging from Marxist-oriented revolutionary groups such as the New Democratic Movement (NDM) and The June 4th Movement, to elements of previously pro-capitalist parties such as the United National Convention (UNC), PNP, and the Popular Front Party (PFP). The PNDC introduced extensive wage and price controls, primarily to win the support of urban workers. While perhaps politically popular, this move accelerated an already-persistent economic decline. The situation was compounded by severe (interrelated) crises in 1983 that included runaway inflation, draught, capital flight, extensive brain drain, and the forced repatriation of nearly 1.2 million Ghanaians from Nigeria.

The severity of this crisis and the weakening of the hard-line revolutionary groups within the coalition allowed the Rawlings government to implement IMF and World Bank Structural Adjustment Programs (SAP) and expand beyond its original base of support in the military,

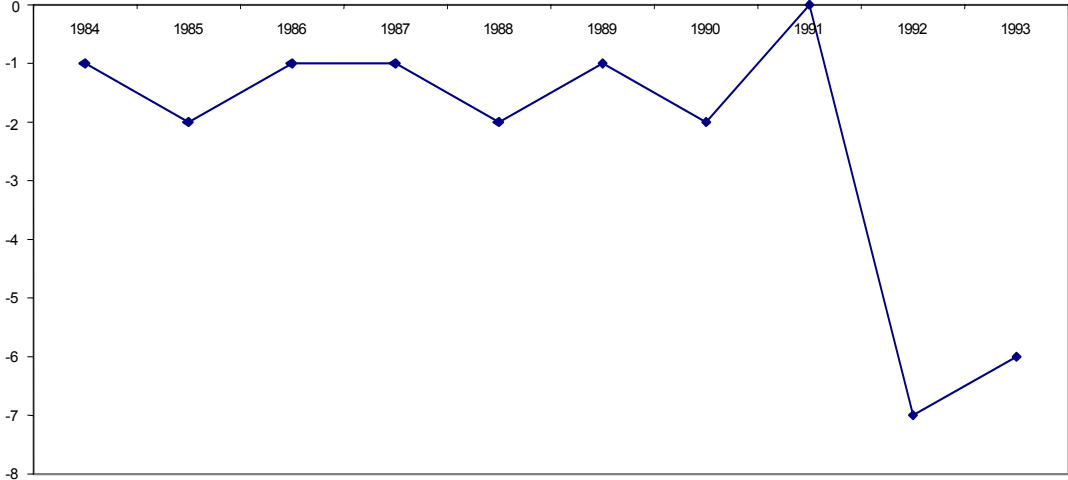
workers and some rural populations. The SAP included, among other measures, devaluing the Cedi by 300 percent against the dollar, curbing public spending, and eliminating 6,000 price controls (Herbst 1991). These policies had a rapid effect on inflation, which fell to below 40 percent a year by 1984, and the fiscal deficit, which dropped to about one percent of GDP in current prices (Figure 8 and 9).

Figure 8 : Change in GDP Deflator, Annual Averages



Source: World Bank, SIMA Database

Figure 9 : Government Deficit as Percentage of GDP



Source: World Bank, SIMA Database

Although the PNDC did not eliminate its anti-capitalist rhetoric, the government continued its pragmatic policy in the late 1980's, including cost recovery for public services and divestiture of state-owned enterprises (Nugent 1996). Politically the country was more stable, and the number of attempted coups began to decline.

Judging from its policies, the Rawlings government no longer needed to woo urban workers, who had been early supporters. The cost of the government's pragmatic policies after 1983 fell most heavily on urban wage earners, including employees of state-owned enterprises. Formal sector employment fell by 60 percent from 1985 to 1991, and prices for food and other consumables rose in urban areas with the end of price controls. The government also curbed the power of unions by breaking strikes and manipulating elections of union officials (Nugent 1996).

In this context of radical reforms throughout the economy, changes in the telecom sector—one of the most visible parts of the economy—were not far behind. We next discuss political factors that specifically impacted telecommunications.

(ii) Political Desirability of Telecommunications Reform. Several factors worked to increase the potential political benefits of reforms, while the political costs remained low. In the late 1980's under domestic and international pressure, the Rawlings government began to restore democracy, starting with popularly elected District Assemblies in 1988-89. As it became clear that the PNDC would be likely to win a popular election, further steps were taken. A new constitution creating a democratically elected president and unicameral parliament was approved by plebiscite in April 1992. In preparation for the election the PNDC transformed itself into a political party, the National Democratic Congress or NDC (Nugent 1996).

In the 1992 elections Rawlings carried all regions except Ashanti and was elected by about 58 percent of the total vote (Jeffries and Thomas 1993).³ He did least well in Accra (53%) and lost some other major urban-industrial areas, such as Tema West and Sekondi, but won heavily in rural areas. The opposition political party, the New Patriotic Party (NPP) had a core constituency of Ashanti, but also won the support of most business groups, and garnered about 30 percent of the vote.

³ Although there were widespread accusations of fraud and reported irregularities, Nugent 1996 argues that the final outcome would not have been very different with free and fair election practices, although Rawlings would probably not have won on the first ballot. In the 1996 elections, which are generally regarded as honest, President Rawlings won with a similar percentage of the vote.

Telecommunications privatization became politically desirable to the Rawlings administration after the election for several reasons. First, privatization was seen as a way to attract private capital to eventually bring communications to NDC constituents in the rural areas. Second, the administration wanted to correct the deficiencies in the communications system that threatened to derail the government's economic reforms and harm the President's popularity in the 1996 elections. In particular, the administration wanted to improve infrastructure in order to attract new private investment. The government had spent heavily in the run up to elections, contributing to the rise in the public sector deficit and up-tick in inflation shown in Figure 8 and Figure 9.

The Rawlings administration hoped that private investment would accelerate growth at the same time that government cut spending to restore fiscal discipline.⁴ There was evidence that problems in telecommunications were impeding new private investment. A number of prominent investors, such as Coca Cola, had decided not to locate in Ghana and had specifically mentioned its poor communications infrastructure as a factor (Field interview 1998).

A third factor explaining the telecommunications reform was the size of the gap between supply and demand. Government officials considered the gap to be so large that it would be impossible to finance the necessary investment out of public sources according to the then Minister of Communications (Salia 1993). The Ministry was projecting that demand would reach between 300,000 and 500,000 lines by the end of the century, compared to a network of less than 50,000, growing at a rate of about 1,000 lines a year. At GP&T's average costs per new line, this would require an investment of about \$1 billion, about equivalent to the country's total investment of any kind in 1992 (Laidlaw, et al. 1995).

In contrast to high expected benefits, the political costs of privatization appeared to be low to President Rawlings. The main opponents were the workers and managers of GP&T. The PNDC had always been critical of the performance of Ghana's parastatals and earlier attempts to reform them under state ownership had been disappointing (Nugent 1996). Moreover, as we have seen, the workers were not part of the PNDC's constituency. The government regarded the management of Ghana Telecom as entrenched bureaucrats who were incapable of responding to expanding demand (field interviews). While no polling data are available, most people consulted

⁴ The government's stated goal was a real increase of 8 percent a year in GDP by the late 1990's, compared to an average of about 5 percent during form 1990-1993.

for this study, while expressing general concern about the sale of national assets to foreign nationals, agreed that GP&T's history of poor performance made its privatization popular and introduction of competition less controversial. There was little support for the workers, who as we mentioned, were a cause of complaints. Since most people did not have a telephone, there was also less concern among the public about how a sale might affect tariffs.

What explains the political desirability of competition? One reason already discussed was the small scale of the existing network, plus the fact that GP&T had been a drain on the treasury. Under those circumstances it seemed unlikely that GP&T's assets would command a large enough price, even with exclusivity, to make up for the potential costs of a monopoly. Second, although the inner workings of the NDC are not well documented, at the time of reform several powerful men were vying for the President's favor. The President appeared to shift his support to avoid any one individual or faction from becoming dominant.⁵ This situation favored competition, which would allow rents to be contested among several rivals.

A third factor favoring competition was GP&T's poor track record in providing access to rural or poorer urban areas, despite the large cross subsidies. We might otherwise have expected that the NDC's interest in increasing rural access to telecommunications would have made competition less politically desirable, as long as politicians believed that cross-subsidies were necessary to reach under-served communities. Competition is incompatible with cross subsidies because new entrants drive down the prices of wealthier users or more costly services to market levels. The government expected that access would expand at least as fast with competition as with a cross subsidy if a levy on all telecom users could be used to fund uneconomical services (called GIFTEL).

(iii) Political Feasibility of Telecommunications Reform. For a reform to be politically feasible, reformers have to secure the support and approvals necessary to enact the reform and overcome opposition (World Bank 1995). Telecom reform was feasible in Ghana because after the 1992 presidential elections, the opposition claimed widespread fraud and boycotted the parliamentary elections that followed (Nugent 1996). As a result, President Rawlings had a full majority in Parliament during his first term and complete control of his cabinet. Hence, his

⁵ There are several possible reasons for such shifts. One reason may have been that the President was trying to prevent ethnic rivalries from becoming important in politics (Laidlaw, et al 1995). Another possibility is that this was a method to reduce the risk that a dominant or disgruntled group would attempt to seize power in a coup.

administration could pass and implement the necessary legislation to privatize telecommunications and introduce competition.

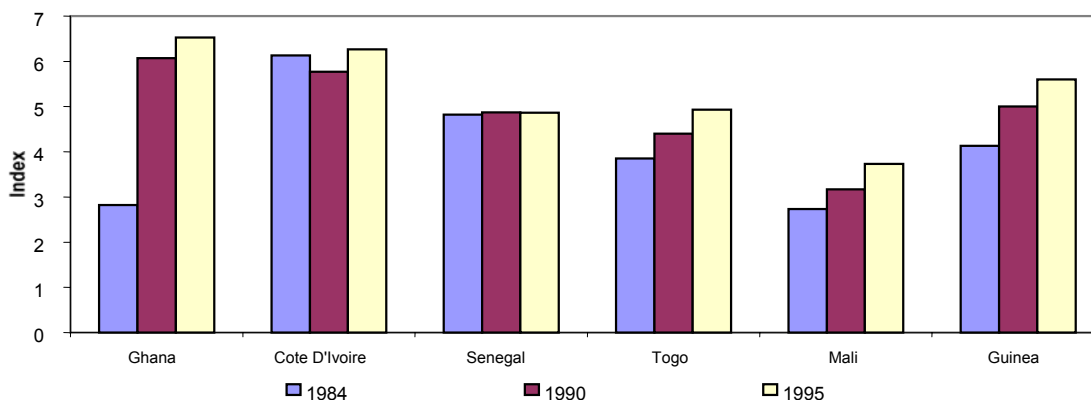
In addition, any opposition to the reform could be withstood. GP&T's workforce were not constituents of the government, so their main threat would be to disrupt the sale and the economy by strikes. Although the government had taken a number of steps to reduce union power in the mid-1980's, including reorganizing the Industrial and Commercial Workers Union, strikes were a real threat. To overcome worker opposition, the government negotiated with the union to allow 474 workers to be laid off for cause in exchange for a promise of no retrenchments as a result of privatization. They also promised that workers would eventually receive shares in GT (field interviews, EIU)

(iv) Credibility. Privatization with competition must pass a higher credibility hurdle than with monopoly. A buyer in Ghana's competitive telecom market would have to compete with a new, second network operator as well as three cellular companies. At the same time the investor would also have to replace and repair an unknown fraction of GP&T's assets and tolerate a high rate of over-staffing. Under these circumstances, there was concern that foreign investors would regard the purchase of the incumbent as too risky and shun the bidding or offer a very low price. On the other hand, the perceived risks of telecommunications investment were declining, thus reducing the credibility hurdle. Advances in technology and declines in wireless costs reduced not only the dollar amount of investment required to roll out a given system, but also the amount that is sunk in fixed wire and similar immovable assets. For example, fixed cellular costs in sub-Saharan Africa declined from US\$5,000 per subscriber in 1985 to US\$500 by 1996 (ITU 1996).

Privatization was credible to investors for several reasons. First, Ghana was perceived as less likely to expropriate private assets than many of its neighbors in Africa. Its ratings in the International Country Risk Guide had improved since the 1980's and were high by the time of privatization (Figure 10). Although the Rawlings administration had expropriated the assets of Ghanaian investors in the past (World Bank 1995), it had respected the property rights of foreign investors, largely stuck to its pragmatic reform program and privatized other important state-owned enterprises, such as the Ashanti Goldfields, so its reputation was improving. The return to democracy introduced checks on arbitrary government action that provided further safeguards to investors. A third source of credibility was that investors believed that they could protect

themselves from regulatory expropriation by allying themselves with powerful champions with ties to high government officials (field interviews).

Figure 10 : International Country Risk Guide (ICRG) Index*



Source: World Bank

*The ICRG index is on a scale of 10; the higher the index, the lower the risk.

A fourth factor was the government's agreement to take over GT's old debt, which meant that an efficiently operated GT could earn a good return at current prices and compete. Finally, the Rawlings administration had close ties with the Malaysian government, which may have encouraged Telekom Malaysia (the largest component of the consortium that purchased a minority share of GT) to participate, although these close ties may also have deterred other firms from bidding.

IV. Reform Objectives and Methods

In this section we describe the stated objectives for the reform, the changes that were introduced, and the privatization transaction. We show that competition was a stated objective of the reform, but that neither the transaction nor the legal structure of the regulation achieved the original intent of a highly competitive sale or a level playing field. The next section analyzes the outcomes.

(i) *Objectives of Reform.* Reforms were introduced gradually starting in 1992 when cellular entry was allowed. Competition began in a fairly ad hoc fashion with no intent to challenge the incumbent. Initially, mobile entry was allowed without charge and with minimum

regulation. Multiple licenses for cellular were awarded in 1992, although only one firm, Mobitel, began operations in 1992-93. A second mobile operator, Celltel, began in 1995. The third entrant, Spacefon, paid the government US\$500,000 in order to enter the market and began operations in 1996. All three mobile operators developed interconnection agreements with GT through bilateral negotiations facilitated by the government.

The government stated its telecommunications objectives in the Accelerated Development Program (ADP) for 1994-2000 (Government of Ghana, Ministry of Transport and Communications, 1994). The ADP followed an extensive process of consultation during 1993-94 that brought together telecom service providers, policy makers, financiers, donors and, to a lesser extent, users. It was also influenced by a consultant's report (Anderson Management International A/S 1993) that strongly recommended privatization and competition.

The ADP assumed competition would result in improved access, reliability, and quality of services. It called for competition from a second network operator (SNO) and expansion of mobile services, as well as no restriction on private networks, "a liberal policy towards the authorization of value added services," and a promise to allow operators to recover the full cost of service provision while offering competitive prices to customers. Provision was made for a single regulatory body to regulate the sector under "the direction for the Ministry [of Communications] on policy." Although the ADP did not mandate universal access, it did call for one payphone in every village of more than 500 people. The ADP focused on business consumers, with the objective of enhancing "Ghana's competitive advantage in the region through the provision of high quality communications services to businesses."

(ii) The Transaction. The sale of GT and the SNO license was carefully planned. In 1995 Ghana Telecom (GT) was incorporated as a public limited liability company and separated from postal services. (Also that year, value added services were liberalized.) Legislation to regulate the privatized GT and SNO was passed in 1996. The licenses set network expansion (Table 4) and quality of service targets for the two operators that were estimated to require a total capital investment of about US\$500 million. There were no universal service obligations, although the two national operators were asked to inform the regulator of intended expansion into rural areas so these would not be targeted for other operators. In addition, as we mentioned, it was agreed that GT would not lay off workers to reduce the workforce. The two operators

would be given a five-year exclusive duopoly over fixed voice telephony and international voice gateways.

Table 4. Expansion and Service Requirements for Basic Service PTOs

	1997	1998	1999	2000	2001
Expansion Targets					
a) <u>New lines</u>					
GT	25,000	50,000	50,000	50,000	50,000
SNO	n/a	n/a	50,000 by 1999	n/a	n/a
b) <u>Payphones</u>					
GT	300	300	300	300	300
SNO	100	100	100	100	100
Service Quality Targets¹					
a) <u>Faults per 100 lines (%)</u>					
		5%	4.5%	4.5%	4.5%
b) <u>Faults repaired in <48 hrs. (%)</u>					
		50%	60%	70%	80%
c) <u>Call Completion rates</u>					
Local		75%	78%	81%	85%
National long dist.		70%	75%	80%	80%
International		50%	65%	70%	70%
d) <u>Average Operator Response time (seconds)</u>					
		10	8	6	5

Source: GT and SNO Licenses, 1997 (for all targets) and GT and Westel (for actual figures)

¹Same for GT and SNO.

After an extensive road show, twelve firms pre-qualified to bid on either of the two licenses and paid a commitment fee of US\$5,000 (Table 5).⁶ To qualify a consortium had to have an operator with the technical expertise and financial and managerial ability to meet the targets set for either operator (Ampah 1997).

⁶ Firms could bid on both licenses but would be awarded only one.

Table 5. Firms that Pre-Qualified to Bid in Ghana’s Telecommunication’s Auction

Telia (Sweden)	Telekom Malaysia
Nepostel (The Netherlands)	African Communications Group (USA)
Balton / Bezeq (Israel)	Comtech Group (Ghana)
Telekom (South Africa)	Advanced Systems Communications
Spacotel Ghana	Associated Telecom (Ghana)
Volta Communications (Germany)	Afritel (USA)

Despite this initial show of interest only four consortia chose to submit bids in the final round, which required a US\$ 5 million bid bond. The sale was therefore less competitive than many had hoped. Some believed that the presence of the SNO reduced interest in GT. The evidence, however, suggests that the SNO had little to do with bidder attrition. Firms stated that they dropped out because of problems finding financing or suitable local partners (Ampah, 1997 and field interviews). People involved in the process reported that other factors that may have influenced the drop out rate were the proximity of the elections in Ghana, competition from other African sales (Cote d’Ivoire, Senegal), and inadequate time for investor due diligence (field interviews). Only one bidder complained about the SNO and asked for exclusivity (field interviews).

Two of the final four bidders had to be dropped, one for failing to post the bid bond and the other because its bond proved to be fraudulent. This left two bidders for two licenses: G-com (Telekom Malaysia and local investors), which bid for both licenses, and African Communications Group (ACG and Western Wireless(US)), which bid for the SNO license only. G-com was awarded a 30 percent stake in GT and majority representation on GT’s board, which gave them management control, for US\$38 million. The price paid for GT was slightly above the independent valuation prepared by the advisors to the government (US\$100 million for the entire firm). ACG’s outbid G-Com’s for the SNO, thus winning the second license for US\$10 million on December 16, 1997.

(iii) The Legal Structure of Regulation. The December 1996 Act creating the National Communications Authority (NCA) gave the regulator considerable authority including responsibilities for: granting licenses; allocating and regulating the use of radio frequencies; setting standards; providing tariff rules and guidelines; and providing advice on policy and strategy for the sector to the Minister of Communications. The Act empowered the NCA to

require operators to permit interconnection (by imposing default interconnection agreements if necessary), to adhere to specified tariff terms and conditions, to pay fees to the NCA, to provide any information the NCA requires, and to operate according to standards set by the NCA. It also empowered the NCA to inspect the operators, as well as issue fines and revoke licenses for non-compliance with its rulings.

The Act failed to safeguard the NCA's independence from politically motivated intervention. All members of its Board of Directors were appointed by the President and could be removed by the President at any time "for stated reasons" (Republic of Ghana 1996)⁷. Board members are appointed for a term of four years and can be re-appointed upon completion of term; terms are not staggered. Thus, nothing prevented the President from replacing the board after each election or whenever he deems advisable.

The NCA's independence was further weakened by its subservience to the Minister of Communications. The Act specifically empowers the Minister to instruct the NCA: "[The Minister] may give to the Authority such directions of a general character as appear to him to be required in the public interest relating to the discharge of the functions of the Authority" (Republic of Ghana 1996). Parties that disagree with a ruling of the NCA must first appeal to the Minister. Only if they are unsatisfied with the Minister's ruling can they appeal to the High Court.

The regulations prepared to accompany the act have not yet been passed by Parliament. The NCA has budgetary autonomy and generates funds by requiring a fixed percentage of total turnover of fixed and mobile telephone operators (as stipulated in the license) to be paid by each operator yearly to NCA to finance its operations. (A further 1% of turnover is collected for the Ghana Investment Fund for Telecommunications (GIFTEL) to promote the development of telecommunication and promote rural telephony.) These funds are as likely to compromise the NCA's independence as secure it, however, since they potentially make the agency a relatively well endowed part of the government and hence a more attractive target for meddling. It is believed that the control of this account is one of the main incentives that delayed the formation of the NCA board. Neither the act nor the proposed regulations establish how the NCA will use

⁷ The Board of Directors is to be made up of: a Chairman, a Director-General, a representative of the National Security Council and four other members with knowledge of the sector.

these funds or set a budget, although the board must present the Minister with an annual report, which he, in turn, presents to Parliament.

There is no way to assess the full effects of these legislative weaknesses because to date the NCA has never functioned as envisioned in the Act. As mentioned, the accompanying regulation necessary to implement the Act has not been passed by Parliament. Moreover, the NCA board has been problematic from the start. Although names were submitted to the NDC government several times, the NCA Board was not named until just prior to the 2000 elections, meaning that the NCA had no substantive director-general in its first few years of life. Even the Acting Director changed three times within a period of 4 years. The longest serving acting director general and several of the staff were retired professionals from GT, which reduced NCA's credibility as a neutral regulator in the eyes of some operators consulted for this case study. The new government suspended the board appointed in the last days of the Rawlings administration and put together a new board, but with the Minister of Communications as chair, further compromising the NCA's independence. As a result the NCA has remained directly under the direction of the Ministry of Communications, led by interim management, and operated without the full complement of trained professionals necessary to carry out its responsibilities.⁸

V. Reform Outcomes: Progress and Disappointment

When the licenses for GT and the SNO, dubbed "Westel," were signed in February 1997, the stage was set for considerable competition in the market with three mobile and two fixed operators. Given the regulatory weaknesses, though, it may not come as a surprise that the results of Ghana's telecom reforms have been mixed so far and future development is uncertain.

We should emphasize that even with the problems that we will discuss below, the sector is in much better shape than it was before reforms. Fixed line growth has soared since privatization, and even with that growth mobile penetration now exceeds fixed line penetration. On the other hand, GT did not reach its expansion targets and the government has abrogated its management agreement with Telekom Malaysia and is negotiating with a new strategic investor; Westel (the SNO) is still struggling to truly launch its service; two mobile operators—Celltel and

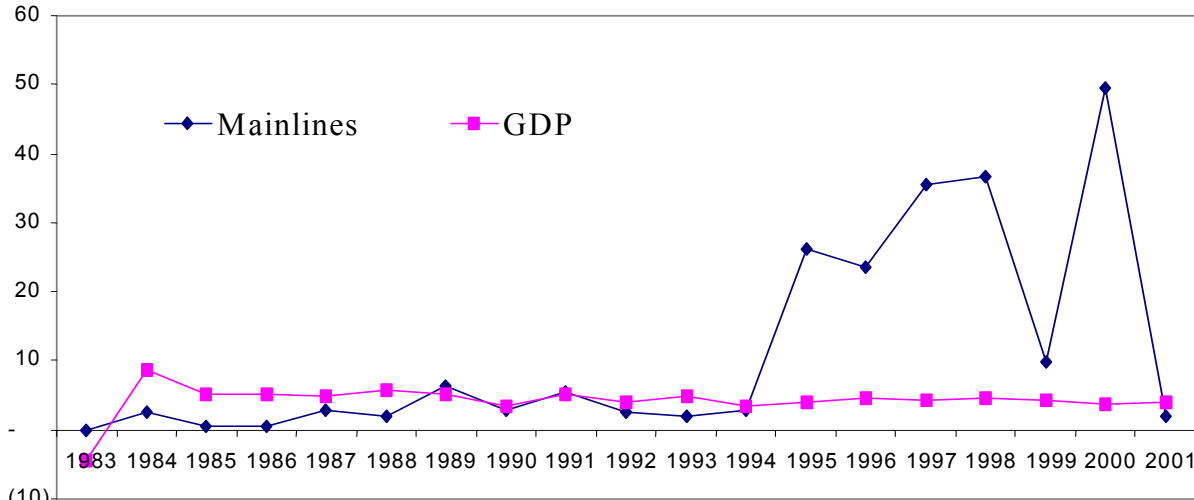
⁸ Although the NCA aims to hire about 20 professionals, it has only 6 on board plus the acting Director.

Mobitel—are teetering on the edge of dissolution; the regulator is weak and subservient to the Ministry; and the successful telecom firms now face increased taxes, tariffs, and import delays. In this section we review events since the reforms, discussing both the improvements in the sector and the intense uncertainty now hanging over it.

(i) Telephone penetration

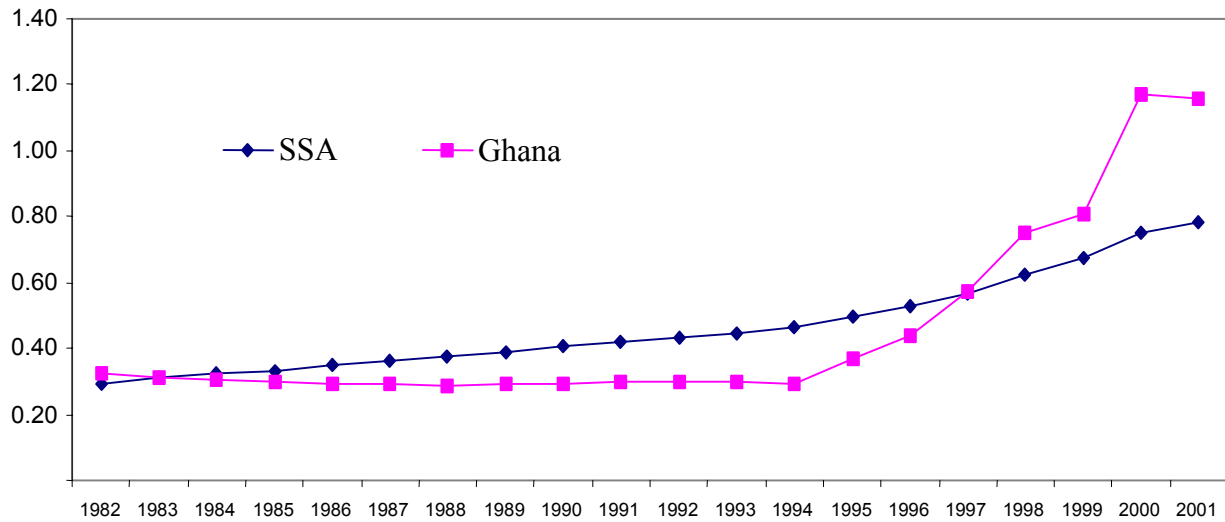
The reforms produced a rapid growth in fixed lines (Figure 11) from Ghana Telecom. Several factors contributed to this growth. First, much of the expansion was financed with donor funds, including the World Bank’s Second Telecommunications Project that preceded privatization. Second, the firm faced the threat of heavy penalties for non-performance. Third, for the first time GT faced competition from rapidly growing mobile services and the threat of entry by a direct competitor, Westel. While donor assistance may have provided much of the capital for initial expansion, it is likely that these funds would not have been used for this purpose in the absence of competition and penalties, given GT’s long history of inactivity and past donor assistance projects that yielded no increase in fixed line growth. The First Telecommunications Project, for example, was nearly seven years behind schedule. Moreover, prior to reform GDP growth (the best measure of likely demand) outstripped growth in telecommunications supply: GDP grew by 66 percent from 1984 to 1995, while the number of lines in service increased by only 44 percent (CS First Boston 1996).

Figure 11 : Real GDP Growth and Main Telephone Lines Expansion



Source: World Bank, SIMA (for GDP) and ITU (for main lines)

Figure 12 : Main Telephone Lines Per 100 Inhabitants (Ghana vs. SSA)

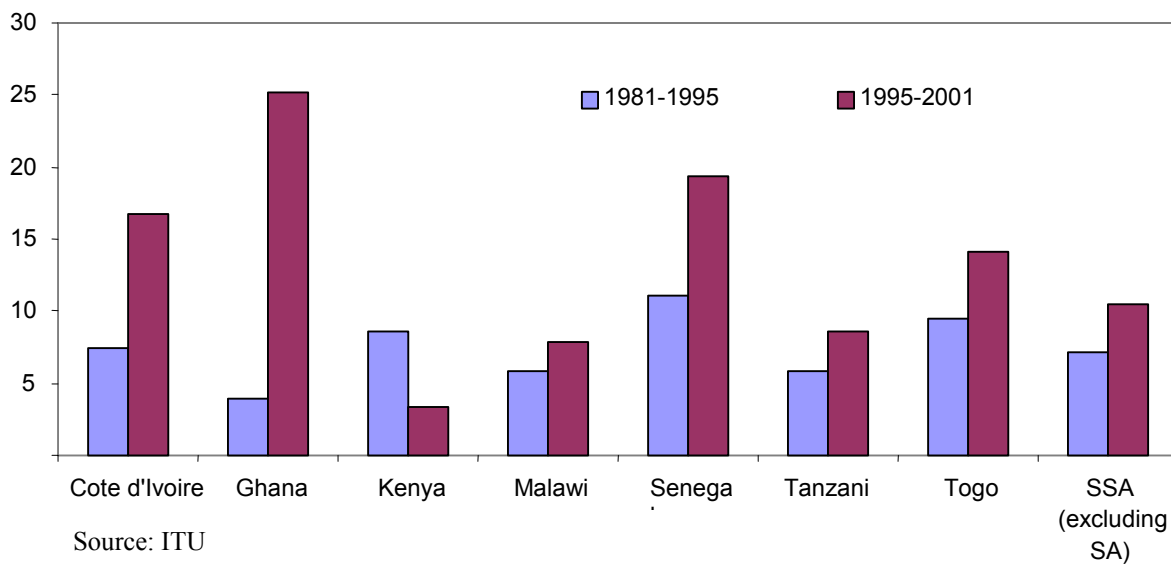


Source: ITU

*SSA = sub-Saharan Africa excluding South Africa

As a result of this expansion, mainlines in service more than doubled in just three years, from 50 thousand in 1994 to 105.5 thousand in 1997; by early 2002 GT had nearly 240,000 lines installed. Ghana not only caught up with its neighbors, but outperformed them (Figure 12). Ghana's mainline teledensity increased by 287 percent, from about 3 per thousand in 1994 to 11.6 in 2001, while the average in Sub-Saharan Africa grew by only 66 percent over the same period, from 4.7 to 7.8 per thousand (Figure 12).

Figure 13 : Comparative Average Annual Main Lines Expansion Rate

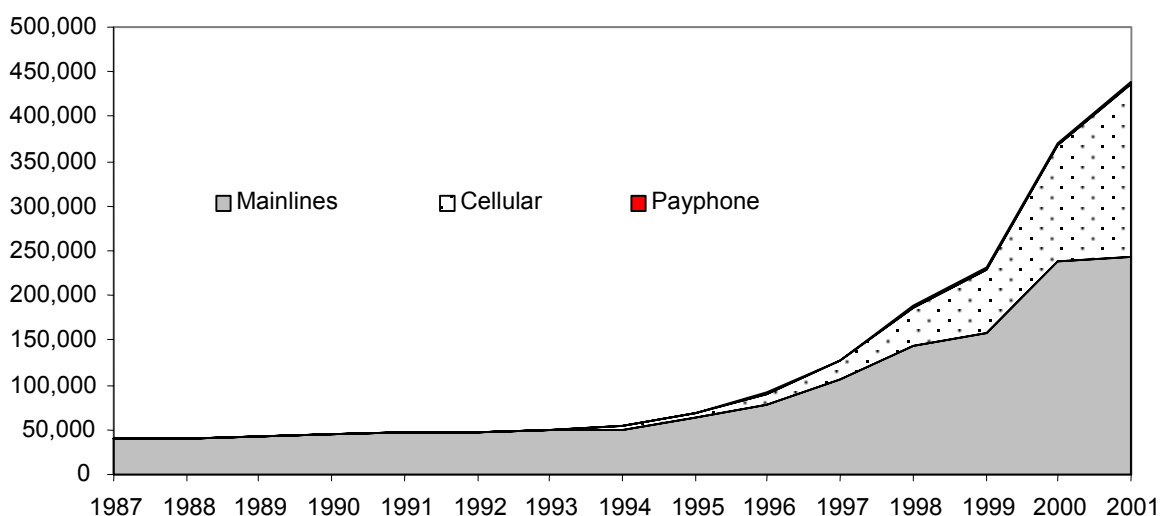


Source: ITU

Other services have also expanded. The number of public phones operated by GT increased from just 27 in 1995 to over 4,000 in 2002, well above the target specified in their license. The company reports that it expanded payphones rapidly in response to competition, in particular the pending entry of Westel (field interviews).

Cellular service, as in much of Africa, is in many ways is responsible for the most dramatic changes in the sector. The mobile sector has grown from a single provider in 1993 to four providers today, with close to 300,000 subscribers in total. Figure 14 shows the total number of telephones in operation in Ghana, revealing both the sharp growth since reforms as well as the large share of that growth for which mobiles are responsible.

Figure 14 : Total Number of Telephones in Operation



Source: ITU

(ii) *Tariffs.* GT's fixed-line tariffs are regulated and are still subject to long delays between tariff reviews. They were initially set in 1996 as part of the privatization process and did not change until June 2001 (see Table 6). The rapid devaluation of the local currency since 1996 resulted in a sharp reduction in real tariffs. In June 2001, the government approved new tariffs for GT, though the currency devaluation continued to erode the new tariffs. Westel's tariffs remain unregulated until they have 25 percent of the market, but to compete Westel has no choice but to match GT's rates.

Table 6
Ghana Telecom Tariffs

SERVICE	1996-JUNE 2001		As of June 2001	
	Cedis	1996 US Dollars	Cedi	US\$
a) Local	200/4min	0.115	¢200/3min + ¢100/min	0.014
b) Internet	(local) 200.00/4min	0.115	¢200.00/4min	0.007
TRUNK				
0 – 32 km	80/min	0.046	¢ 150/min	0.021
32 – 80 km	133/min	0.076	¢ 200/min	0.029
80 – 160 km	200/min	0.115	¢ 300/min	0.043
> 160 km	300/min	0.172	¢ 450/min	0.064
INTERNATIONAL				
Ecowas	2,000/min	1.149	¢ 2,500/min	0.357
Direct (non-Ecowas)	2,600/min	1.494	¢ 2,500/min	0.357
Transit	4,000/min	2.299	¢ 5,500/min	0.789
RENTAL				
Fixed	2,500/month	1.437	¢ 10,000/month	1.429
WILL	5,000/month	2.874	¢ 10,000/month	1.429
Internet	2,500/month	1.437	¢ 2,500/month	0.357

The exchange rate in Dec. 1996 was 1740 cedis = US\$1

The exchange rate in June 2001 was 7000 cedis = US\$1

In contrast, operators reported that competition and the drop in cellular costs were responsible for drastic declines in tariffs in cellular service (field interviews). The connection charge for an analogue phone fell from \$750 in 1993/94 to \$100 in 1997 below the world average (Table 6) (Economist Intelligence Unit Ltd. 1997). The rates were still high compared to some countries, such as in Latin America, but can be expected to drop further with growth in the size of the systems and if competition continues to grow.

Table 6: Comparison of Analog Cellular Connection Charge (US\$)

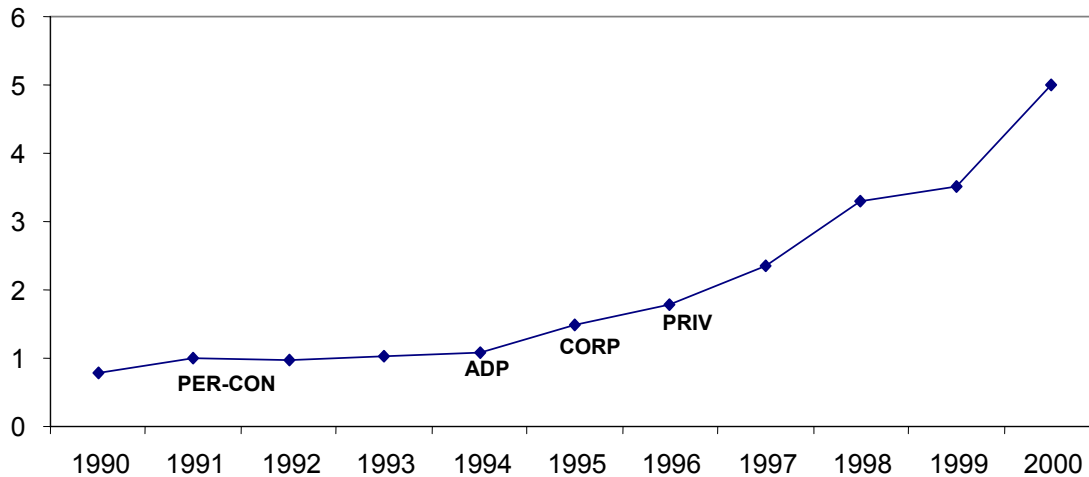
	1993	1994	1995	1996	1997
Ghana	750	750	550	550	100
East Asian Average	329	317	308	277	NR
LAC Average	197	149	118	78	NR
World Average	474	446	421	220	209
World Max	13,431	13,431	13,431	3,846	3,846
World Min	4	6	7	7	7

Note: Averages have been estimated using sample data. 6 samples for EA, 14 for Latin America & the Caribbean (LAC) and 69 for World.

Source: World Telecommunications Indicators Database, ITU

(iii) *Profitability and Productivity.* GT's solvency has been restored, partly because of efficiency improvements and expansion, and partly because the government absorbed past debts as part of the privatization. Labor productivity in GT is also up (Figure 15) since expansion has been rapid while the labor force remained largely changed. Productivity continues to be low by OECD standards, however, and there is considerable room for improvement should competitive pressures continue.

Figure 15 : Labor Productivity in GT
(Real Revenue per Employee, 1991 = 100)



Source: Authors' calculation using Ghana Telecom Ltd. Data

**PER-CON=Performance Contract; ADP=Accelerated Development Program; CORP=Corporatization; PRIV=Privatization

(iv) Disappointments

While the sector overall has improved, it has not been as successful as the government had hoped. First, Westel never really got off the ground. After three years of operation it had only about 2,600 subscribers by the end of 2001. The company reports that GT worked to ensure that Westel would never be a real competitor—blocking its calling card access and making interconnection difficult. Westel appears to have lasted as long as it has because of its primary valuable asset: one of Ghana's two international voice gateways.

GT asserts that it never blocked interconnection, but that congestion in its network and switches are to blame. And, indeed, congestion is a severe problem—subscribership has increased, especially on mobile networks, as fast as operators install equipment. Nonetheless, with a weak regulator GT has every incentive to make interconnection difficult for all potential competitors that need access to its customers.

Westel's performance, however, was not the only disappointment. GT, despite fast growth, did not meet its fixed line targets either. The company had promised to reach 300,000 lines by 2002, but only got to 241,000. The NCA recently imposed a fine of approximately \$US 69 million as a result. Westel, which was obligated to install 50,000 lines, was fined \$US 71.5 million.

Privatization and the threat of competition has thus far had little effect on access in underserved areas. The dramatic expansion in lines documented above has been almost entirely concentrated in the greater Accra area. Although the Government plans to charge all operators one percent of their revenues for a fund for rural telecommunications, this fund, called GIFTEL, is not yet operational. GT and Westel were given the right of first refusal over all regions of the country during their first two years, after which underserved areas not claimed were to be opened to competitive bidding. Unfortunately, while the two years expired, the competitive bidding never took place. One firm, Capital Telecom, was the only bidder on an earlier plan to initiate service to rural areas in the South. Capital reports one site in service and only several hundred customers, most of them in district capitals and similar semi-urban areas.

It is too early to judge whether the GIFTEL tax scheme will be more successful at expanding access than cross subsidies have been. A number of issues related to GIFTEL have yet to be resolved. One is the definition of rural or under-served areas. Many sites would be part of any roll out of services and do not need special support from such telecommunication taxes.

Another issue is administration. Earmarked taxes and fees are notoriously difficult to administer, since once funds are in government hands they tend to be diverted to other public expenditures. However, most countries, including advanced ones such as US and UK collect and earmark funds for their universal service programs. With the NCA functioning as an adjunct of the Ministry of Communications this risk of misapplying the funds may be higher than if it were established with its own independent board as the law intended.

While official plans for connecting areas outside the capital have not yet been successful, some progress has been made. The largest mobile operator, Scancom Ltd., recently began to provide coverage in towns across the country.

(v) Elections, a new government, and intense uncertainty

GOVERNMENT OF GHANA
MINISTRY OF COMMUNICATIONS AND TECHNOLOGY

NOTICE OF TENDER:
STRATEGIC INVESTMENT IN THE
GHANA TELECOMMUNICATIONS COMPANY LIMITED (GT)

<p>The Government of Ghana invites proposals from interested companies willing to be selected as a strategic investor in Ghana Telecommunications Company Limited (GT).</p> <p>2. GT is incorporated under the Companies Code 1963, Act 179 as a public limited liability company.</p> <p>3. The Project involves:</p> <p>i. financial resources, sufficient to expand the fixed network of Ghana Telecom by a minimum of 400,000 fixed lines within 2-3 years in order to extend telephone services to every town with a Senior Secondary School or Teacher Training College for internet and other applications (List available). A fixed line in this context, is any technology which allows one to make broadband telephone connection to the computer so, that not only voice, but high speed data transfer, the internet and other applications including video streaming can be transmitted at competitive tariff.</p> <p>ii. provision of management expertise and technical services to facilitate the positioning of Ghana Telecom in the Global Market.</p> <p>iii. Offer of shares in GT at a fair and reasonable consideration.</p> <p>iv. Improvement of the quality of service on the existing and proposed telephone infrastructure.</p> <p>v. Improving existing infrastructure to broadband so as to facilitate the introduction of multi-media applications including the internet, e-commerce etc.</p> <p>vi. provision of training and development of capacity within the telecom industry.</p> <p>vii. development, with the co-operation of the Ghanaian authorities, of effective methods for the investigation of malpractices in the telecom sector.</p> <p>viii. the performance of such other functions to satisfy the conditions and regulations of the National Communications Authority (NCA), the regulatory body.</p> <p>4. The Company chosen must provide evidence of:</p> <p>1. Funding - Company's financial strength</p>	<ul style="list-style-type: none"> - last 2 year's financial statement - viable business plan - continuing investment <p>ii. Experience - Record of network operation, and type Number of subscribers</p> <p>iii. Operations - Evidence of roll-out networks - Speed of roll-out - Access to billing and business support systems</p> <p>iv. Human Resource Development - Quality of management - Training Programme - Community support Programme - Job creation</p> <p>v. Proposed Products and Services for Ghana Telecom</p> <p>vi. Programme to extend services to Under-served areas - Demonstrate experience - Social Responsibility track record</p> <p>vii. Technical - Access to technology - Own expertise</p> <p>5. Interested companies may submit proposals detailing their ability to achieve the requirements of the Government of Ghana, outlined above, and the willingness to provide a performance bond to cover undertakings made.</p> <p>6. Proposals should be submitted to:</p> <p style="text-align: center;">The Minister Ministry of Communications and Technology P.O. Box M38 Accra-Ghana</p> <p>Proposals (12 copies) marked "GT Proposals" should reach the Minister by 12 noon of Tuesday 30th April 2002.</p> <p>7. Any further information may be obtained from the Chief Director, Ministry of Communications and Technology per Fax. No. 233-21-667114.</p>
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In December, 2001, the opposition New Patriotic Party (NPP), led by John Kufuor, defeated the NDC. The post-2000 government was distrustful of decisions made regarding the telecom sector under the previous regime and dissatisfied with progress in the sector. It thus decided to implement its own brand of changes (Owusu-Agyapong 2001). In particular, in February 2002 it abrogated the management contract with Telekom Malaysia, giving them only an additional three months of management control of GT. This term expired in the summer of 2002.

While the government said it would honor Telekom Malaysia's 30 percent ownership share, it would no longer permit TM to hold a controlling majority of the board. Eventually the Malaysian management was removed and replaced with an "interim management committee." This decision was controversial since it

was not clear that the government had the right to unilaterally change the board composition under the 1996 contract. When TM won the original bidding, the government had agreed to eventually sell an additional 15 percent of GT. That agreement has also since fallen through, and TM reportedly wants the government to buy back its 30 percent holding if the government will not allow it management control, as per the original contract.

These changes may cause some financial problems, as well. The International Financial Corporation (IFC) had approved a \$US100 million loan to GT. With the government's decision to end TM's management of GT and general confusion about the firm's future, the IFC cancelled the loan. How this cancellation will affect GT's expansion and upgrading remains unclear.

At the same time that it was canceling TM's management control, the government also decided to look for a new strategic investor. The government placed an ad in the local media on April 9, 2002, with a deadline of April 30 for investors to respond. Among other conditions, the government wants the network expanded by 400,000 fixed lines within 2-3 years "in order to extend telephone services to every town with a Senior Secondary School or Teacher Training College for internet and other applications." Moreover, the government modestly defines a fixed line as "any technology which allows one to make broadband telephone connection to the computer so that not only voice, but high speed data transfer, the Internet and other applications including video streaming can be transmitted at competitive tariff."

In addition to these requirements, the tender notice also specified that the investor should develop, "with the co-operation of the Ghanaian authorities, . . . effective methods for the investigation of malpractices in the telecom sector." This phrase suggests a further blurring of the lines between an independent regulator and the rest of the sector by—if the statement is taken at face value—giving the firm powers normally granted to a regulator.

The process for choosing the investor and the nature of the agreement remain shrouded in mystery. By August 2002 the government had announced that it was negotiating with the Norwegian firm Telenor, but had provided no information on how Telenor was selected, what they would pay (or be paid), or what role they would play in running the firm. While a good outcome is possible, many have expressed grave concerns over the complete lack of transparency in the process.

VI. Sustainability of Competition

Whether the sector will become more or less competitive is uncertain at the moment. While there are many bright spots, as discussed above, many factors do not bode well for the future of competition. In particular, the regulator is still weak and under the control of the Ministry, GT continues to exercise market power both in interconnection and in its foray into mobile services, two of the mobile firms are in a precarious situation, and all operators face new obstacles from various levels of government. We discuss these issues below.

(i) *Weakness of the Regulator.* The NCA does not have the full complement of staff and expertise to meet its regulatory mandate. Moreover, the Authority operates with more than the usual information asymmetry and does not have even the most minimal information it needs to regulate. Furthermore, judging from their annual accounts, the amount of public information available about GT diminished drastically with privatization, despite the fact that the incumbent is 70 percent state-owned. In effect GT has been left virtually free from public scrutiny. As for the other operators, although they all report complying with regulator's requests (as does GT), the NCA says that their requests for information are routinely ignored.

The NCA has been unable to resolve major disputes without the intervention of the Minister. A number of issues dragged on for months and years, during a period when each of the players are strongly motivated to try to establish monopoly power. The independence of the regulatory agency has only decreased with time. Indeed, the Minister of Communications is now the chair of the NCA's board.

The various rivals in telecommunications have tried to protect their positions by aligning themselves with politically powerful champions, rather than appealing to the courts for resolution of their disputes. Lawsuits are usually a tool of last resort in business, and indeed in the early years of reform the telecommunications rivals stated that it would be hard to do business in Ghana if they pursued their claims in court. However, the ineffectiveness of the regulator and anticompetitive practices by the incumbent led many operators to use the courts as a defense of last resort. In July 2000, the mobile phone companies and Westel took GT to court to seek an injunction from the court to prevent GT from launching its mobile phone service until GT met its interconnection and other requirement to them to facilitate a level playing field. The case was eventually settled out of court through the help of a Consultant hired by the NCA. The

Operators state that the reason why the courts are now being used to settle problems in the sector is that the operators have lost confidence in both the NCA and the Ministry to act as impartial adjudicators. Thus, the weakness of the NCA undermines Ghana's progress toward law-based, rather than influence-based, rules, and confidence in the sector.

(ii.) *Interconnection.* Not surprisingly in the absence of effective regulation, major disputes have arisen over interconnection. These disputes center around several issues: establishment of nondiscriminatory terms and conditions, prevention of cross-subsidy between GT fixed and GT mobile services, adequate interconnection capacity between networks, interconnection traffic settlement and rates. In the latter part of 2000, the NCA, with the assistance of consultants undertook a major step at resolving some key issues in the sector including drafting of new licenses for all operators, revised frequency plans and revision of the regulations (O'Melveny & Myers LLP 2000).

A follow up to this work was a more detailed look at the protracted interconnection problems within the industry. Among the problems was the lack of a cost based tariff system and discrepancies between the traffic measurement of the operators. This led to the formation of an inter-operator Technical Committee that has become a permanent working committee. (Benjamin Adu)The TC was to determine the criteria or methodology for the measurement of traffic. All operators were supposed to implement decisions and agreements reached at Joint Technical Committee meetings, and the NCA was to enforce those decisions.

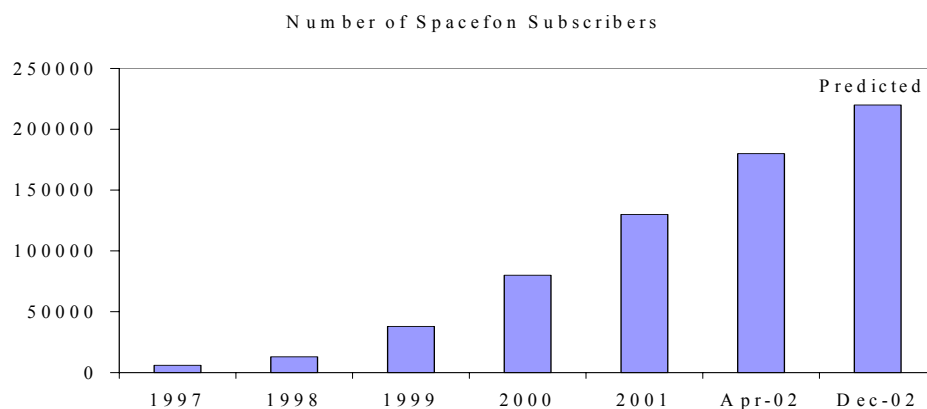
Interconnection traffic settlements and rates are time based. The per minute rates which, in theory, should cover the cost of the resources required to complete the call through the network receiving the call. Interconnection terms and rates strongly influence a new entrant's investment decisions. Unfair terms and high rates will discourage entry or expansion; indeed one of the mobile operators, Mobitel, had at one point suggested it may be forced to exit in part because of GT's demand that they pay higher interconnection rates in their sender-takes-all interconnection agreement, which persisted until 2001. High rates can also lead to inefficient investment to bypass interconnection, as well as high consumer tariffs. Interconnection charges that differ for different operators can distort the market. The sender-takes-all agreement has been replaced by a fixed per-minute based rate that considers the network cost. Under the new arrangement, revenues across networks are now split at a 2/3 ratio, where the mobile firm receives three cedis for every two cedis the fixed network receives. In other words, under the

current tariff of 600 cedis per minute, the fixed operator receives 240 cedis while the mobile operator receives 360.

(iii) Mobile Competition The recent interconnection agreement may have been facilitated, in part, by the emergence of a dominant mobile provider. Scancom Ltd. (Spacefon) had nearly 200,000 subscribers by 2002, and hoped to reach 220,00 by the end of the year (see Figure 16). As a result of this rapid expansion, it is as important for GT’s customers to be able to reach Spacefon’s customers as vice-versa. Under these circumstances, GT has much to lose without a workable interconnection agreement.

GT, however, is not ready to cede the mobile market. In 2000 it launched its own mobile service—OneTouch. OneTouch grew quickly, reaching 60,000 customers by the end of 2001. Growth seemed to be constrained by a lack of switching equipment and from underestimating the demand for pre-paid, as opposed to post-paid, services. OneTouch is supposed to operate as a completely separate business unit from the rest of GT. However, the extent to which they are actually separate is unclear. GT’s 2000 Annual Report, for example, seems to treat OneTouch as an integral part of the company. While more competition is likely to improve the sector, GT has several advantages which could be detrimental to the sector in the long run. Especially in this weak regulatory environment with interconnection problems reported by other mobiles, GT’s mobile operations raise the possibility of unfair cross-subsidies and unequal treatment.

Figure 16: Number of Spacefon Subscribers



Source: Spacefon (field survey 04/02)

An additional and ongoing problem in the mobile sector is the division and allocation of spectrum. In the early 1990s the government gave a large share of spectrum to Mobitel, which

was the only operator at the time. It later took back spectrum to give to Spacefon and others. At that point Mobitel had 15 MHz and Scancom had 10 MHz of spectrum. In April 2000, the NCA, in an attempt to resolve the spectrum disputes on GSM, re-allocated some spectrum to accommodate GT's mobile operations and created a reserve to be allocated to Westel or the company that manages to increase its subscriber base to warrant additional frequency. The lack of a coherent spectrum policy has clearly created a great deal of confusion and uncertainty. While the government probably made a mistake early on in giving away a valuable natural resource—spectrum—simply taking that spectrum back without a coherent plan created more uncertainty, since it raises the possibility that spectrum allocated one day may be taken back the next.

(iv) Government interference. While the central government expresses its desire for increased activity and improvements in the telecom sector, not all government decisions are consistent with this objective (as is certainly the case in many countries). For example, the NCA blocked Mobitel's expansion and conversion from an analogue to digital GSM network. In 2000 the company decided to convert to a GSM system, and reportedly received approval to do so in March 2001. Once its equipment was in place (after an unexplained three month delay while the equipment was held in customs), the system was finally ready to begin operations in June 2001. Just before service was to start, however, the firm received a letter from the NCA dated July 13, 2001, denying the firm's right to operate the equipment and instructing the firm to dismantle the equipment and send it to the NCA for storage. Ultimately Mobitel did not have to dismantle the equipment but was not given permission to use it until August, 2002, when it finally launched its GSM service. Under these circumstances, Mobitel's customer base dwindled from more than 51,000 subscribers at the end of 2000 to 45,000 in April 2002.

In addition to problems with the customs agency (Scancom, too, has had imported equipment severely delayed there), other agencies are beginning to see the telecom sector as a potential source of revenue. For example, the Accra Metropolitan Assembly recently imposed a new fee of 50,000 cedis per mobile telephone subscriber and 20,000 cedis per fixed line subscriber (Accra Metropolitan Assembly 2002). Scancom estimates that this tax will cost them nearly \$US 1 million a year. By comparison, the city tax for a 5-star hotel is 20 million cedis. One telecom firm reported that many other import- and customs-related taxes have recently been imposed, as well.

Finally, the government seems reluctant to liberalize parts of the sector where bottlenecks remain. For example, Scancom has requested its own international gateway so that it does not have to interconnect through Westel or GT to complete international calls. The NCA is reluctant to authorize one, despite the fact that competition in international telephony would bring the prospect of lower consumer prices and better access.

(iv.) Future competition. The exclusivity period granted to GT and Westel has now expired, meaning that almost all aspects of telecom are open for competition. One potential competitor is the Volta Telecommunications Company (Voltacom), a subsidiary of the state-owned electricity company, the Volta River Authority. Voltacom has a license for data transmission and has laid fiber optic lines along the electricity network to all district capitals, connecting with Togo and Cote d'Ivoire. Because fiber optic is considerably cheaper to operate than wireless and offers higher quality service, this investment offers the potential to expand access rapidly in alliance with one of the two network operators, or with a new entrant to basic services after 2002.

Voltacom's entry would present many risks and opportunities for the telecom sector. One benefit would come from increased competition, especially to outlying areas with pitifully poor service today. One concern is that Voltacom could, as a state-owned firm, be an unfair competitor able to use its power revenues to cross-subsidize telephone service. On the other hand, Voltacom would be a relatively small player compared to the firms already in the market, limiting its potential market power. This potential entrant is another example where better regulatory capacity could help the sector: a stronger regulator could help ensure a level playing field to make it feasible for Voltacom to enter while simultaneously monitoring that the firm does not act in an anticompetitive manner as it builds its own network.

Other forms of competition are technically already possible, but have not been approved. Internet Protocol (IP) telephony, for example, provides a low-cost option for voice communication, and international telephony in particular. So far, however, only GT is authorized to provide it. Indeed, the owner of a local Internet Service Provider (ISP) was recently arrested and her equipment confiscated when the government accused her of making IP telephony available through her equipment. Whether or not IP telephony could emerge as a real competitor to more common methods of voice communication is not yet clear. Instead, the

approach to IP telephony reveals a reluctance to allow true openness and competition, which may not bode well for future development in the sector.

VII. Conclusion

Privatization and competition have spurred considerable activity in Ghana, but there has not been as much improvement in the sector as everyone hoped back in the heady early days of reform. These early achievements notwithstanding, several lessons emerge from Ghana's experience. First, the weakness of the NCA was not inevitable. Experience in the Public Utilities Commission that regulates electricity shows that an effective regulator is possible in Ghana. The most opportune moment to create such a regulator for telecommunications was probably before the sale, when the government was most concerned about establishing its reputation with potential investors, and would have been most motivated to appoint a strong, neutral board. Second, the process could have been designed to protect against a weak regulator, even if that would have meant a less than optimal design from some standpoints. For example, GT's privatization could have been delayed until after the SNO was operating. A less commercially-oriented, state-owned GT arguably would have been less effective in foreclosing entry opportunities or acting strategically. This would have reduced the sales price for GT, but raised the value of the SNO license and possibly could have attracted more bidders. GT could also have been prohibited from cellular and other wireless entry, which would have reduced its incentive to fight interconnection with the mobile operators. But this prohibition would have reduced the value of GT even more, and may not make much sense given the disappearing distinction between wireless and fixed wire services.

Competition is still relatively strong in Ghana and an active and effective regulator could still be appointed. Experience in other countries suggests that such agencies are most able to resist capture if their powers and responsibilities are carefully delineated in law and regulation, and if their procedures are transparent and give voice to opposing interests, including consumers. It is also crucial that the regulator receive all necessary information, and that as much information as possible—about firms subject to regulations and government actions affecting the industry—be shared with the public.

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