



# The World Bank and Telecommunications Lending

A Preliminary Evaluation of the 1990s Using Cross-Country Data

By Charles Kenny and Anat Lewin<sup>1</sup>



This paper focuses on the performance of the World Bank Group's (the Group's) activities in the telecommunications sector during the 1990s, using data on telecommunications rollout and reform as well as data on the Group's projects. The data suggests that World Bank projects are associated with progress in telecommunications reform and an increase in the growth rate of telecommunications networks. The data also suggests that International Finance Corporation (IFC) projects are associated with more rapid rollout of telecommunications services at the national level.

## The World Bank and Telecommunications Reform

Since 1951, the World Bank has undertaken 265 telecommunications and information technology projects, totaling \$11.8 billion. For most of its history, the Group lent to public monopoly providers of telecommunications services. The loans were used to purchase network equipment and roll out services. This approach added substantially to the size of telecommunications networks in the countries in which the World Bank was active.

However, in the early 1990s, a combination of influences began to shift the World Bank's thinking about its activities in this sector, and the Group significantly altered its lending to telecommunications. Successful privatizations and the introduction of competition in some segments in the developed world combined with technology change and suggested that competition could flourish across an ever greater proportion of the sector. This meant that the World Bank could increase the impact of its lending dollar by supporting institutional change—privatization, competition, and regulation—rather than investing directly in equipment.

At the same time, the IFC became increasingly involved in lending to, and investing in, private telecommunications companies. Its average annual investment commitments in information and communication technologies grew from \$269 million in the period 1993-95 to \$457 million recently. In addition, the IFC attracted approximately \$8 in outside private financing for each dollar of IFC funding, and created 7 to 28 new telephone lines for each \$1,000 it invested.

Since then, the early evidence of the success of reform has been supported by numerous evaluations. A number of cross-country studies have linked elements of the reform agenda—competition, strong independent regulation, and privatization—to increased rollout of services, improved access, and lower costs of service.<sup>2</sup>

In turn, the World Bank's technical assistance activities in the sector have met with considerable success. At the individual project level for example, the introduction of private competition in Peru over the course of the 1990s—supported by the World Bank—saw dramatic improvements in service delivery. Between 1993 and 1998, the number of towns with telephone service doubled, fixed-lines in the country

nearly tripled, the number of public phones increased by more than six times, the number of mobile phones increased by a factor of twelve, and the percentage of poor households in Lima that owned a telephone increased twenty-one fold.<sup>3</sup>

This note looks at the success of the World Bank in fostering reform and improving teledensity in client countries on a cross-country basis. It also evaluates the impact of projects on rollout of telecommunications services as a result of reform.

## Data sources

The teledensity data (fixed plus mobile subscribers) used in this study were extracted from the International Telecommunications Union's (ITU) World Telecommunications Indicators 2002 database. Data on the level of sector reform were extracted from the ITU's Trends in Telecommunication Reform 2002 report. World Bank and IFC project data were extracted from the World Bank operations data systems (SAP and Business Warehouse).

It should be noted that the dataset used in this study contains errors of commission and omission in reporting on Bank projects, which we hope to remove in future work.<sup>4</sup> However, the effect of project miscoding is likely to reduce the perceived impact of World Bank telecommunications reform projects, suggesting that any results indicating positive performance are comparatively robust.

## Methodology

To examine the success of World Bank projects, this study examined average data for the year 2000, covering the range of reform indicators offered by the ITU, including presence of separate regulation, extent of competition in various subsectors, level of privatization, and growth rate in the total subscriber base over the 1990-2000 period. It analyzed averages for three groups of countries: all developing countries, developing countries in which there was a World Bank information communication technologies (ICT) project in the 1990s, and countries in

which there was an IFC ICT project in the 1990s. To assess the success of projects within countries over time, the study identified the countries in which the Bank project system flags ICT projects during the 1990s, and compared the total teledensity growth rate in the five years previous to project start with the corresponding rate in the five years after project start. Countries for which fewer than two years of post-project growth rates were available (i.e., countries with the most recent projects) were omitted in this study but will be included in later iterations.

## Results

Based on the evidence in Table 1, World Bank ICT projects are associated with significant improvements in the environment for private, competitive provision of services in developing countries. It should be noted that there are questions about causality governing these results. Clearly, the World Bank is more likely to become involved in telecommunications sector reform in countries where there is already a commitment to reform. Bank assistance plays a role in higher growth rates and reform; it is not solely responsible for reform. Nonetheless, some results are impressive. Compared to the average developing country, countries in which there has been a World Bank project have a 21 percent higher proportion of separate regulators, a 19 percent higher proportion of competition in the data sector and a 7 percent higher proportion of mobile digital competition. And, notably, this has been reflected in higher subscriber growth rates in Bank project countries—13 percent growth in World Bank project countries as compared to 11.8 percent in the average developing country.

Looking over time within countries, performance has been impressive, with growth rates averaging 10 percent prior to World Bank involvement, and rising to 26 percent after the project. Given that average growth rates for telecommunications rollout worldwide (even in countries that did not reform) increased over the decade, some of this jump will be associated with the global change rather than individual project impact. As a point of comparison, the average annual teledensity growth

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rate for developing countries increased from 8 percent in 1990-04 to 19 percent in 1995-2000. This global average of an 11 percent increase compares to a 15 percent increase in Bank project countries.

At the same time, it should be noted that progress on some measures of reform is comparatively weak. For example, despite the World Bank's reputation for ideological commitment to privatization, a higher percentage of World Bank project countries have a state-owned operator than the average developing country. This is in part because the main focus of stand-alone World Bank operations in the telecommunications sector is usually market opening and regulatory

reform rather than privatization (examples include projects in Afghanistan, Algeria, Mali, Mauritania, Morocco, Samoa, and Tunisia, for example). This prioritization reflects cross-country evidence suggesting that regulated competition has a far more dramatic impact on sector performance than privatization alone.<sup>5</sup> And despite the privatization data, the overall picture is that World Bank involvement is associated with both reform and a more rapid rollout of services.

Regarding the IFC, since the Corporation is unable to invest in countries in which there is a monopoly public provider with no intention of reform, higher scores on privatization variables spark IFC involvement rather than vice-versa. Furthermore,

**Table 1: Telecommunications Indicators for Bank and IFC Projects in the 1990s**

Project/Nonproject Comparators	All available developing countries (%)	Bank ICT Project Countries in 90s (%)	IFC ICT Project Countries in 90s (%)
Average annual growth rate of total subscribers 1990-2000	11.8	13.0	14.6
Countries in which growth rate increased	95	97	100
Countries in which growth rate decreased	5 <sup>2</sup>	3	0
Separate regulators	59	80	87
Countries in which incumbent is state-owned	46	48	27
Countries in which incumbent is partially privatized	37	37	53
Countries in which incumbent is fully privatized	11 <sup>3</sup>	12	20
Countries in which there is competition: fixed	21	23	20
Countries in which there is competition: mobile digital	47	54	45
Countries in which there is competition: mobile analog	43	55	46
Countries in which there is competition: domestic long distance	18	22	17
Countries in which there is competition: int'l long distance	18	22	13
Countries in which there is competition: ISP	74	90	96
Countries in which there is competition: data	53	72	86
Countries in which there is competition: leased lines	23	28	30

Intraproject Comparators	Before Bank ICT Project	After Bank ICT Project <sup>1</sup>
Average growth rate of total subscribers (%)	10.11	25.91

<sup>1</sup> Only countries in which at least three years of post-project growth data are available were included.

<sup>2</sup> The countries in which the average annual growth rate 1990-2000 has decreased are: Afghanistan, Armenia, Congo, North Korea, Tajikistan, Uzbekistan, and Iraq.

<sup>3</sup> Status of incumbent data are unavailable for 7 percent of countries.

the picture regarding IFC involvement and competition is mixed, perhaps reflecting an early preference for IFC investments in companies granted exclusivity rights (since abandoned). Nonetheless, the IFC's association with rollout of services appears strong, with average annual growth rates in IFC project countries nearly three percentage points higher than the developing country average.

## Conclusions

These results are preliminary, using simple techniques and imperfect data. Nonetheless, it is fair to say that World Bank projects appear to be associated with progress on the telecommunications reform agenda and with faster rollout of services as a result. IFC projects also appear to be associated with faster rollout of services. While the lion's share of credit should be attributed to the governments that implement the reforms and the companies that provide the services, this evidence suggests that the World Bank Group's project work facilitated the rapid rollout of telecommunications services to the citizens of its client countries over the last 10 years.

## Notes

<sup>1</sup> The views expressed in this paper are those of the authors and do not necessarily reflect those of the World Bank, its Executive Directors, or the countries that they represent. Thanks to Carlo Maria Rossotto for helpful comments on an earlier draft.

<sup>2</sup> Kenny, C. (2001). Prioritizing Countries for Assistance to Overcome the Digital Divide, *Communications and Strategies*, 41. Wallsten, S. (1999). An Empirical Analysis of Competition, Privatization and Regulation in Africa and Latin America, World Bank Policy Research Working Paper 2136. Fink, C., A. Mattoo and R. Rathindran. (2002). An Assessment of Telecommunications Reform in Developing Countries, World Bank Policy Research Working Paper 2909. Kenny, C. B. Lanvin and A. Lewin. (2003). The Digital Divide: 1990 to 2000 and Beyond, mimeo, World Bank.

<sup>3</sup> World Bank. (2002). Information and Communication Technologies: A World Bank Group Strategy Washington D.C.

<sup>4</sup> Analysis of ICT operations by the Bank is hampered by a coding scheme enacted in 2001, which does not allow for reliable tracking of ICT components and their volume in Bank projects. Primarily, the issue is that the World Bank project data captures a number of projects that did not involve a significant telecommunications component, and a number of early projects that were not primarily aimed at reform. However, capturing these "spurious" countries is likely to weaken the results, rather than strengthen them, so in all probability these results underestimate the impact associated with World Bank reform-based projects rather than over-estimate them.

<sup>5</sup> See the studies cited in footnote 2. It should be noted that in cross-sectoral operations such as structural adjustment loans, privatization was a more frequent component—including operations in Albania, Armenia, Georgia, Papua New Guinea, Ukraine, and a number of African countries.

*Cover photos (left to right): Curt Carnemark, Alan Gignoux, Bill Lyons, Alan Gignoux, Eloy Vidal.*