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NEW HORIZONS: TELECOMMUNICATIONS POLICY IN ISRAEL IN THE 21ST CENTURY

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The telecommunications industry in Israel has changed significantly in recent years. This paper examines key issues that will arise in Israel as a result of these major changes and argues that the major changes in the telecommunications industry require significant changes in the regulatory structure. The paper first provides background material on the current structure in the various segments of the telecommunications industry in Israel. The paper then discusses the current regulatory environment and makes recommendations regarding the future regulatory structure in Israel and the scope for regulation.

1. INTRODUCTION

Until recently, telecommunications was a highly regulated sector in nearly every country in the world. Most developed countries pursued deregulatory policies in the 1990s in order to introduce competition into the telecommunications industry. In the U.S., the Telecommunications Act of 1996 was passed to promote competition by encouraging the entry of local exchange carriers (LECs), inter-exchange carriers (IXCs), and cable television firms into each other's markets. Similarly, the European Council adopted a resolution requiring 'equal access' by 2000.[1]

Recent significant changes in the sector have ushered in a new era of competition in Israel's telecommunications industry. In 1999 there was a major (structural) rebalancing of regulated tariffs. The tariff rebalancing reduced the cross-subsidies inherent in the system and made the tariffs much more transparent. In 2001 the Knesset enacted the Communications Act.[2] The passing of this Act, which includes telecommunications as well as broadcasting, is one of the most significant changes in the Israeli telecoms sector since the formation of Bezeq in 1984. In theory, the act will permit competition in telecommunications and video to the home services, with both fields open, not just to a limited number of licensees, but also to all firms that meet

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[1] Several recent papers assess the effects of the U.S. Telecommunications Act five years later. See Garcia-Murillo and MacInnes (2001) and Mini (2001).

[2] The Act is online at http://www.moc.gov.il.

certain conditions.

Thus, the telecommunications industry in Israel has changed considerably. The goal of this paper is to examine key issues that will arise in Israel as a result of these changes and to argue that they require significant changes in the industry's regulatory structure.

The paper is organized as follows. In section 2, I provide background material on the current structure of the various sectors of Israel's telecommunications industry. In section 3, I discuss the current regulatory environment and make recommendations regarding the future regulatory structure in Israel and the role of regulation. Section 4 provides brief conclusions.

2. THE TELECOMMUNICATIONS INDUSTRY IN ISRAEL

Up until twenty years ago, all telecommunications services in Israel were provided exclusively by the Ministry of Communications. In 1979, the government decided to establish a government-owned company that would be responsible for providing telecommunications services in Israel. Formal reform began with the Telecommunications Act of 1982, which established Bezeq, the government-owned corporation. Bezeq replaced the Ministry of Communications as the provider of telecommunications services in 1984.[3] Since then competition has been introduced in most sectors as Table 1 shows.

The size of the telecommunications market in Israel grew from approximately $ 3.5 billion per year in 1997 to $ 5.0 billion per year in 2000 (see Table 2). The table shows that the

Table 1
Firms Providing Telecommunications Services, by Sector, 1993 and 2002

Service	1993	2003
Cellular	Pelephone	Pelephone Cellcom Partner MIRS
International	Bezeq	Bezeq International Barak Golden Lines
Fixed wireline	Bezeq	Bezeq
Video-to-the-home (VTTH) service	CATV	CATV Direct Broadcast Satellite (DBS)
Internet service provision	None	4 major Internet service providers and many smaller providers

[3] Currently the Israeli government owns approximately 54 percent of the company. The government plans to sell most of its remaining shares on the stock market in the near future.

Table 2
Telecommunications Revenue, by Sector

Sector	Revenue ($ mill.) 1997	Revenue ($ mill.) 2000
Domestic wireline	1,470	1,600
Cellular	945	2,450
International	455	350
Video-to-the-home (VTTH)	455	400
Internet service	35	125
Other	175	75
Total	3,535	5,000

SOURCE: Ministry of Communications.

cellular sector grew especially quickly. In 1997, cellular service accounted for 27 percent of industry revenues. By 2000, the cellular sector accounted for fully 49 percent of industry revenues.

I briefly describe the changes in the various telecommunications sectors.

a. Domestic wireline telephony

Bezeq still provides exclusive voice service for all local and intercity calls in Israel. Despite the fact that Bezeq has remained a monopoly on this service, there have been significant improvements in the provision of this service over the last twenty years. Recent changes in the tariff structure were implemented in 1999 and 2000.

The general level of Bezeq's tariffs as well as end-user and interconnection rates were determined by a 1998 tariffs committee, and are based on a detailed cost study as well as on principles about how to allocate common and joint costs.[4] The committee first determined Bezeq's total 'recognized' costs. In order to determine the individual tariffs, the committee adopted the principle that prices (tariffs) for telecommunications services should be based on the forward-looking long-run incremental cost (LRIC) of the service.[5] The committee estimated LRIC by the capital cost associated with each service. The committee used direct costs as an approximation for long-run incremental costs.[6] Using this methodology and the Bezeq data, the committee estimated that direct costs (or LRICs) accounted for 63.5 percent of Bezeq's total network costs. Hence joint and common costs accounted for 36.5 percent of Bezeq's total costs.

The committee adopted two principles in allocating the common and joint costs. (i) There should be no cross subsidy between services. This meant that tariffs must be set so that the

[4] The report is available at the Ministry of Communications' website at http://www.moc.gov.il.

[5] Tariffs cannot, however, be set equal to long run incremental costs because there are common and joint costs in the network.

[6] For discussion of the approximation, see pages 39–41 of the full report on the website of the Ministry of Communications http://www.moc.gov.il.

total revenue from the service (i.e., telephony) will cover all of its direct costs, common costs and joint costs. (ii) There should be no cross subsidy within a service. This meant that each part of the service had to cover at least its LRIC.

The committee recommended setting the monthly access and connection charges so that they would exactly cover LRIC, but not include any of the common and joint costs of telephony. Hence, the common and joint telephony costs were divided among the (end-user and interconnection) traffic components. The committee used weights of 1.0 (full allocation of joint and common costs) for calls that originate and are completed on Bezeq's network and 0.5 (partial allocation) for interconnection calls. This made sense, since interconnection calls are carried partially on the Bezeq network and partially on the cellular network or international network.

The committee calculated that, given the revenue requirements, there would have to be an overhead on end-user traffic of 220 percent (i.e., the price should be 3.2 times LRIC), and an overhead on interconnect traffic of 110 percent (i.e., the price should be 2.1 times LRIC). This recommendation led to a significant reduction in these tariffs because the old rates had higher mark-ups over LRIC.

The committee's report was issued in September 1998. In March 1999, the government approved the recommendations of the committee; they were then implemented in April 1999. The following key changes were implemented:

- Overall tariffs were reduced by approximately 10 percent.
- Access (monthly service) & connection rates increased by approximately 10 percent.
- End-user traffic rates fell by 20 percent.
- Interconnect rates were made (i) uniform across carriers, (ii) a function of distance (similar to other domestic calls), and (iii) lowered by approximately 60 percent on average.[7]

By implementing the committee's recommendations, the government eliminated the cross subsidy from access to traffic. Before the committee rebalanced the tariffs, interconnection rates were considerably higher in Israel than in the U.S. and Europe and the interconnection rates did not explicitly depend on whether the calls were handed out to Bezeq in the local area code or whether intercity transport in the Bezeq network was required. The committee thus explicitly linked interconnection rates to interconnection costs.

The 1998 committee recommended that the tariff structure be simplified because the 3x3 matrix[8] made tariffs unnecessarily complicated. During the 2000-2003 period, the tariff matrix was indeed greatly simplified by the Ministry of Communications, so that there is now a single type of call (effectively a single area code for the whole country) and two periods of time-sensitive pricing: peak and off-peak, i.e., a 2x1 matrix. During the same period, the counting unit was replaced by per second billing in the fixed network, with a minimum charge of approximately 4.89 U.S. cents per call.[9]

Table 3 shows the current rate structure for wireline tariffs in Israel, as well as the rate structure proposed by a 2002 tariffs committee that recently made its recommendations public.

[7] Since the cost of interconnection depends on whether the call uses just Bezeq's local network or Bezeq's intercity network, the 1998 tariffs committee recommended that there be an equivalent matrix for interconnection calls, identical to that for end-user traffic.

[8] The 3x3 matrix included 3 types of phone calls: local, within area code, between area code, and time-sensitive prices—peak, interim period, off-peak.

[9] Per second billing already existed in all other sectors of the industry. In other sectors there is no minimum charge per call.

Table 3
Tariffs for Calls Originating and Terminating in the Bezeq Network

	Current rates (US cents per minute)	Proposed rates (US cents per minute)
Peak time 7:00-19:00	3.04	2.80
Off-peak 19:00-7:00	0.54	1.28

In addition to the recommended tariffs shown in Table 3, the 2002 committee recommended that the minimum charge per call be eliminated.

b. Wireless (cellular) telephony

In 1986, Bezeq (in partnership with Motorola) began offering cellular phone service. The company (called Pelephone) is now a fully owned Bezeq subsidiary. In 1994, an additional cellular license was awarded to Cellcom. The number of cellular lines increased dramatically during the 1995-1997 period as a result of the relatively inexpensive cellular prices that Cellcom committed to in the auction. By the end of 1997, there were approximately 1.8 million cellular subscribers split equally between the two providers. A third license was awarded to Partner in 1999. By 2002 there were more than 5.5 million cell phones in use in Israel.

Table 4 shows the total number of Land-to-Land, Land-to-Mobile, Mobile-to-Land, and Mobile-to-Mobile minutes in 1997, 1999, and 2001. By 2001, Mobile-to-Mobile calls accounted for nearly 24 percent of total 'network' minutes.[10]

c. International telephone service

Table 4
Wireline and Wireless Traffic, in Millions of Minutes

	1997	1999	2001
Land-to-land	18,788	18,664	17,131
Land-to-mobile	1,839	2,656	3,692
Mobile-to-land	1,880	2,457	2,911
Mobile-to-mobile	1,161	2,928	7,352
Total network minutes	23,668	26,705	31,086

SOURCE: 2003 MOC Comittee, p.5, and sources cited therein.[11]

Until 1997 Bezeq provided all international services. Beginning in July 1997, two additional firms (Barak and Golden Lines) began providing international telephone service. Bezeq International, which is a fully owned subsidiary of Bezeq is the third international provider.

Following the introduction of competition into the provision of international telephone service, rates fell by 60–80 percent. Bezeq International's share of this traffic fell from 100

[10] The table does not include Internet minutes, which totaled 13,984 million in 2002.
[11] The 1997 numbers are estimates.

percent to less than 60 percent during the first three months of competition.

The dramatic fall in prices led to a huge growth in outgoing international phone calls. Between 1995 and 2001, outgoing international traffic grew from 266 million minutes to 1,120 million minutes, an increase of 321 percent. During the same period, incoming calls grew from 419 million minutes to 728 million minutes, an increase of 74 percent.

d. Video-to-the Home (VTTH) services

A 1986 decree and subsequent amendments to the Telecommunications Act of 1982 led to the establishment of a cable television industry in Israel. Several mergers and consolidations left the industry with three regional (monopoly) operators by the end of the 1990s.

Cable service reaches 90 percent of all households. The penetration rate, i.e., the number of subscribers/homes passed, is quite high and there were approximately 1.2 million subscribers at the end of 2002.

Recently the government provided a general license for direct broadcast satellite service in Israel. The YES firm began providing VTTH services in competition with the incumbent cable industry in 2001.

e. Internet sector

The Internet sector in Israel grew more slowly than might have been expected during the 1990s. This was due, in part, to the fact that all local phone calls, including calls to Internet service providers, were metered. Nevertheless, by 2002, there were more than 2 million Internet subscribers.

A recent change allowed consumers to pay a single price for unlimited Internet access. There are now four major Internet service providers (ISPs) and more than 60 additional ISPs. Additionally, broadband Internet access was introduced in Israel in 2001. By 2002, there were 100,000 ADSL subscribers in Israel and 15,000 cable modem subscribers. (Source: MOC at http://www.moc.gov.il/new/english/index.html, accessed on May 1, 2003.)

3. CHANGES IN THE REGULATORY ENVIRONMENT: FROM A GOVERNMENT MINISTRY TO AN INDEPENDENT AUTHORITY

The regulatory environment is critical because it sets the rules of the game, that is, it defines the way in which firms can or cannot compete. There is a need for clear and coherent rules. But the environment is dynamic, in part because of rapid technological change, but also in part because the process of adopting rules changes as well. It is critical that firms be familiar with these rules and procedures because they must undertake strategic decisions (that are often irreversible) based on these rules.

Hence a firm not only faces challenges in responding to changing market conditions, it also faces challenges in developing expectations about how the regulatory process will evolve

in the future. In the case of the latter, there is additional (unnecessary) uncertainty because the regulatory process in the Israeli telecommunications industry has been characterized by a sequence of ad-hoc committees that address different issues. Some committees set prices and tariffs, while other committees address changes in market structure, i.e. permitting entry into a particular sector, etc. An impressive list of committees and their reports can be found on the Ministry of Communications web page at http://www.moc.gov.il.

A similar regulatory process existed in the Israeli electricity industry. Prior to the establishment of the Electricity Public Utility Authority in 1996, a series of ad-hoc committees periodically reviewed and set electricity prices. The regulatory authority now handles all aspects of regulation in the provision of electricity including production, transmission and distribution and is dedicated to the ongoing regulation of the electricity industry.[12]

The establishment of the Electricity Public Utility Authority is part of the process of regulatory reform that has taken place in the last few years. Another example is the establishment of the Israeli Antitrust Authority, whose mandate is to encourage competition. Although Israel has always had antitrust laws, these laws were administered by a unit of the Ministry of Industry and Commerce prior to the establishment of the Antitrust Authority. Antitrust policy had little impact, however, until the Authority was established as an independent government authority in 1994.

It seems inevitable that similar regulatory reform must take place in the Israeli telecommunications industry of well. Like the electricity industry, external committees appointed by the Ministry of Communications have typically updated tariffs and implemented policy. While one could argue that these committees have been composed of experts and that the policies adopted by the committees have been reasonable, the rotating committee structure is not satisfactory as a long-term regulatory solution. This is because the dynamics in the telecommunications industry require regulators to respond to market changes on an ongoing basis.

Hence, it seems clear that there is a need to establish an independent telecommunications authority in Israel like the U.S. FCC (or Oftel in the U.K.) that will specialize in the ongoing regulation of the telecommunications industry.

a. The external regulatory committees

The external committees that have played a key role in telecommunications regulation in Israel can be divided into two types:

- Committees that set prices and tariffs, such as the 1993 Tariffs Committee, the 1998 Tariffs Committee, and the 2002 Tariffs Committee.
- Committees that focus on competition policy, such as the Competition Policy Committees of 1998 and 2002. The mandate of these committees included regulating market structure issues, such as entry and merger policy, etc.

This dichotomy warrants examination. It was clearly not planned, but simply evolved in response to regulatory needs. However, the issues of pricing and competition policy are

[12] For more details, see their web page at http://www.pua.gov.il/frame.html.

inherently interrelated. The setting of prices includes the pricing of usage of different aspects of the infrastructure and various interconnection fees. These prices, to a large degree, determine market structure. For example, setting the interconnection fees at inappropriate levels (either too high or too low) results in transfers from one segment of the market to another segment, making entry more attractive in one sector and less attractive in other sectors as well as creating the possibility for arbitrage opportunities. An appropriate regulatory regime would regulate prices and competition policy in a consistent and coherent fashion.

b. The current regulatory structure in Israel

There are several different regulatory models. These models typically vary in their degree of independence. One possible model is the U.S. FCC. The FCC is an independent commission. At the other end of the spectrum, regulation is handled directly by a government ministry. Israel falls in this category. The following table provides different regulatory models with varying degrees of independence.[13]

Table 5
Four Regulatory Models

Models	Countries	Degree of independence
Autonomous, semi-judicial commission	US, Canada	High
Independent official and office	UK	Variable
Independent official within Ministry	France	Medium
Government Ministry	Japan, Germany Israel	Low

SOURCE: (Except Israel), Gillick (1992).

c. The future regulatory structure and the role of regulation

The current regulatory structure (government ministry) was put in place when Bezeq was a government-owned company providing all telecommunications services in Israel. Since then, several major changes have occurred in the industry:

- Many sectors (such as the international and cellular sectors) have evolved from regulated monopolies to partially regulated oligopolies.
- Convergence of telecommunications, cable television, and broadcast industries. In July 2001, the Knesset enacted the 2001 Communications Act. In theory, the Act will permit competition in telecommunications and Video-to-the-Home services, with both fields open not just to a limited number of licensees but to all firms that meet the conditions.

Although the changes probably mean less price regulation of end-user rates in the future, the regulatory questions are more difficult. Additionally, there is an increased importance of a level playing field (determining interconnection rates, insuring interoperability among networks, etc.). Hence, there is a need for a change in the regulatory structure itself.

[13] Source: (except Israel), Gillick (1992).

In order to ensure that evolution to a market-based telecommunications industry will benefit the society as a whole, a single independent regulatory body should be responsible for all telecommunications regulation.

Assuming that most markets will be opened up to competition, the goal of regulation will be to ensure that fair competition exists. A key regulatory task will be to set the appropriate charges for use of the infrastructure. Other important regulatory functions include ensuring interconnection arrangements among competitors, setting technical standards where appropriate, and allocating the spectrum. We now discuss some key issues that are likely to arise in the near era of competition:

a. *Inter-operability and open access:* The Communications Act of 2001 tries to insure a separation between companies that sell infrastructure/telecommunications services and those that transmit broadcasts/content; convergence in these industries may make it very difficult to enforce separation. Although the 2001 Communications Act leaves the jurisdiction issue of boundaries between telecom and broadcasting to the Ministry of Communications, it is not clear how a distinction can be made between these services. The inter-operability and open-access conditions imposed on the AOL/Time Warner merger in the U.S. illustrate the types of issues that might arise in Israel.[14]

b. *Facilities-based competition vs. unbundling of network elements:* Several years ago Israel's government decided that competition in the telecommunications industry would be 'facilities-based' competition, rather than competition that would require Bezeq to unbundle network elements such as the local loop and sell them to potential rivals. While facilities competition has many positive aspects to it once it gets off the ground, the problem is getting the process going. Attempts to jump-start the process have by and large not been successful in Israel, although an upgraded cable system might eventually provide an alternative infrastructure for providing telecommunications services. The authorities may have to consider the possibility of selective unbundling of network elements. This requires setting access prices for network elements. There are disagreements in the literature about how to address this issue (see Laffont and Tirole, 2001).

These issues require ongoing regulation rather than a series of ad-hoc committees. The importance of ongoing regulation applies to prices as well as competition-policy issues and can be illustrated by examining the regulation of interconnection tariffs in Israel, that is, the tariffs that international and cellular firms pay to Bezeq for the completion of calls to and from their network to Bezeq's (fixed) wireline network.

d. An example: the regulation of interconnection tariffs

Competition has led to new entrants in both the cellular and international sectors of the market. The introduction of competition means that calls often originate in one network and terminate in another one. This typically requires inter-carrier compensation schemes. These compensation schemes generally involve access/interconnection charges. As a consequence, the determination of access/interconnection charges is one of the most important issues in enabling competition in industries such as telecommunications and electricity where (i) there are essential facilities and (ii) these facilities are monopolized due to first mover advantages, economies of scale, or regulation.

The regulation of interconnection rates illustrates the need for coherent and continuous regulation. The 1998 Tariffs Committee determined interconnection rates based on a

[14] See Faulhaber (2001) for details.

methodology it had developed, and it explained the logic of the recommended tariffs. Although this committee set interconnection rates based on a clearly stated policy, a second tariffs committee was formed in 2002; one of its tasks was to determine interconnection rates. Why was there a need for a second committee? One can say that it was due only to changes in market conditions, i.e., changes in cost conditions, in demand etc. This is true in part; however, there was some disagreement as to how the interconnection tariffs should change as a result of the changes in the structure (reduction in the matrix) of Bezeq's end-user tariffs. Careful reading of the findings of the 1998 Tariffs Committee report indicates that several changes proposed by the Ministry of Communications (see below) were not necessarily in the spirit of the committee's report.

When the 1998 committee made its calculations, there was a 3x3 matrix for end user rates. In subsequent years, the Ministry of Communications changed the Bezeq tariffs as follows: the end-user matrix was reduced, first to a 2x2 matrix with two time-of-day categories (peak and off-peak) and two geographic categories (within area code & between area codes), and then to a 2x1 matrix, when a unified peak-time tariff for end-user rates was adopted throughout the country.

The Ministry of Communications then proposed a unified peak-time tariff for interconnection rates as well. Such a policy, however, was inconsistent with the 1998 Tariffs Committee's recommendations because it would have unlinked interconnection rates and interconnection costs. In the end, the MOC did not enact the proposed policy and left the determination of Interconnection rates to the second tariffs committee. Coherent and continuous regulation in the framework of an independent authority would probably reduce the uncertainty associated with interconnection policy.

4. CONCLUSION

It seems inevitable that an independent telecommunications regulatory authority will be created. The last three Ministers of Communications have expressed support for an independent regulatory authority. Indeed, on August 20, 2002, the Ministry of Finance announced that an agreement had been reached to abolish the Ministry of Communications and replace it with an independent authority.

Progress towards this end may be slow, however, because of possible conflicts of interests between the Ministries of Communications, Finance, and Justice as to how independent the authority should be. For example, according to the *Ha'aretz* daily newspaper, the Ministry of Finance wants continued influence over Bezeq's regulated tariffs and the allocation of spectrum, while the Ministry of Justice apparently wants the authority to be a state corporation rather than an independent authority.[15]

The rapid changes in the structure of the telecommunications industry demand that political considerations be put aside in order to insure that an independent telecommunications will come into being sooner rather than later.

[15] See Hadar Horesh, *Ha'aretz*, 8/21/2002, 'The Bottom Line/Those Who Can't, Do PR,' online at: http://www.haaretzdaily.com/hasen/pages

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