New Horizons: Telecommunications Policy in Israel in the 21st Century

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Abstract

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 important background material on the current structure in the various sectors 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.

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I. Introduction

Until recently, telecommunications was a highly regulated sector in nearly every country in the world. Nearly every developed country has pursued a deregulatory policy 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), interexchange 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 and significant changes in the sector have ushered in a new era of competition in the Israeli Telecommunications Industry: In 1999, there was a major (structural) rebalancing of regulated tariffs. The tariff rebalancing reduced 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 and well as Broadcasting, is the most significant change in the Israeli Telecom 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 playing fields open, not just to a limited number of licensees, but also to all firms that meet certain conditions.

Hence the telecommunications industry in Israel has changed significantly. This goal of this paper is to examine key issues that will arise in Israel as a result of these major changes and to argue that the major changes in the telecommunications industry require significant changes in the regulatory structure.

The paper is organized as follows. In section 2, I briefly provide important background material on the current structure in the various sectors of the telecommunications industry in Israel. In section 3, I discuss the current regulatory environment and make

[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.

recommendations regarding the future regulatory structure in Israel and the role/scope for regulation. Section 4 provides brief conclusions.

2. The Telecommunications Industry in Israel in 2002

It's hard to believe that it was virtually impossible to complete an intercity call in Israel during peak periods in the 1980s. Rates for local, long distance, international, and mobile phone calls are among the lowest in the world. The Ministry of Communications estimates that the size of the telecommunications market in Israel grew from approximately $3.5 billion per year in 1996 to $5.0 billion per year in 2000.

Significant reforms have taken place in the Israeli Telecommunications Industry in the last two decades. The first 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. Several stock offerings followed. Currently the Israeli government owns slightly more than 50 percent of the company. The government plans to sell most of its remaining shares on the stock market in the near future.

2.1 Local and Intercity Fixed Voice 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 the first Gronau Committee based on a detailed cost study as well as on principles about how to allocate common and joint costs.[3] The committee first

[3] The report was issued in September 1998 and is available at the Ministry of Communications' website at http://www.moc.gov.il.

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.[4] 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.[5] Using this methodology and the Bezeq data, the committee estimated that direct costs (or LRICs) accounted for 63.5% of Bezeq's total network costs. Hence joint and common costs accounted for 36.5% 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 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 at the very minimum, each part of the service had to cover 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 .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% (i.e., the price should be 3.2 times LRIC), and an overhead on interconnect traffic of 110% (i.e., the price should be 2.1 times LRIC). This

[4] Tariffs cannot, however, be set equal to long run incremental costs because there are common and joint costs in the network.
[5] For discussion of the approximation, see pages 39-41 of the full report at the website of the Ministry of Communications at http://www.moc.gov.il.

recommendation led to a significant reduction in these tariffs because the "old" rates had higher mark-ups over LRIC.

Since the cost of interconnection depends on whether the call uses just Bezeq's local network or Bezeq's intercity network, the Gronau committee recommended that there be an equivalent matrix for interconnect calls, identical to that for end-user traffic. When the committee made the calculations, there was a 3x3 matrix. Based on the allocation of fixed costs as described above and the relationship between the LRIC of an interconnection call and the LRIC of an end-user call in the same cell of the matrix, the committee determined that the price of interconnect calls in Agorot per minute (P_I) be set so that

(1) $P_I = (2/3)\, P_{EU} - 2,$

where P_{EU} is the corresponding tariff to the end-user.[6] This formula provides a linkage between P_I and P_{EU}; the formula was derived from the relationship between the costs of interconnection and end-user calls.

Before the first Gronau committee rebalancing of tariffs:

- Interconnection rates were considerably higher in Israel than in the U.S. and Europe. The first Gronau committee reduced interconnection tariffs dramatically (by approximately 60%).
- Interconnection rates did not explicitly depend on whether on whether the calls were handed off to Bezeq in the local area code or whether intercity transport in the Bezeq network was required. The Gronau committee explicitly linked interconnection rates to interconnection costs. This policy encouraged cellular firms and international firms to invest in their networks and hand-off most of their calls within the local area code.

[6] See the first Gronau committee report at www.moc.gov.il.

As a result of the committee recommendations and initiatives by the Ministry of Communications, the following major changes were implemented in 1999 and 2000:

- Access (monthly service) & connection rates rose by approximately 10 percent.
- End-user traffic rates fell by slightly more than 20 percent.
- Interconnect rates were (i) made uniform across carriers, (ii) a function of cost (similar to other domestic calls), and (iii) fell by 60 percent on average.
- The tariff structure was greatly simplified (in stages). (I) In 2000, there was a reduction in the number of "call types" from three -- Local, Intra Region, and Intercity -- to two: local calls, which are defined to be calls within the same area code, and Intercity calls, which are calls to another area code within Israel. Additionally, the time of day category was reduced from three to two: peak and off peak. Hence the calling matrix was reduced from a 3x3 matrix to a 2x2. The interconnection matrix was reduced accordingly. At the same time, the "counting unit" was replaced by per second billing in the fixed network, with a minimum charge of approximately 22 agorot charge per call.[7] (II) In May 2002, the Knesset Finance Committee approved a Ministry of Communications proposal to unify the "local" and "intercity" calls into a single tariff (for end-user rates). Hence, the matrix was reduced to 2x1. The new tariff is 14 agorot per minute during the peak period and 2.5 agorot per minute during off-peak period for all domestic calls.

2.2 International Telephone Service

Until July 1997, international telephone service was provided exclusively by Bezeq. Beginning in July 1997, two additional firms (Barak and Kavei Zahav) began providing international telephone service. Bezeq International, which is fully owned Bezeq subsidiary, is the third international provider.

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

Following the introduction of competition into the provision of international telephone service, rates fell by 60-80 percent. There were also dramatic falls in rates for international calls to Western Europe and Japan. Bezeq International's share of this traffic fell from 100 percent to less than 60 percent during the first three months of competition. Currently all three firms offer rates for calls to the U.S. that are approximately 15-20 cents minute; these rates are in force 24 hours a day.

The dramatic fall in prices led to a huge growth in outgoing international phone calls. Between 1995 and 2000, outgoing international traffic grew from 265 million minutes to 1,022 million minutes, an increase of 385 percent! During the same period, incoming calls grew from 404 million minutes to 661 million minutes, an increase of 64 percent.

2.3 Wireless (Cellular) Telephony

This sector has the largest share of the market, both in terms of revenues and in terms of total lines. Currently there are three main providers of cellular telephone service in Israel: Cellcom, Pelephone, and Partner. At the end of 1997, there were approximately 1.8 million cellular subscribers split equally between Cellcom and Pelephone, the only two providers at the time. Cellular penetration reached 4.8 million lines in April 2001, a figure which represents a penetration rate of more than 75 percent of the population. By contrast, growth in fixed lines has been fairly small. There are 2.8 million wirelines in Israel, representing a moderate increase from 2.5 million wirelines in 1997.

2.4 Video-to-the home (VTTH) services

A 1986 decree and subsequent amendments led to the establishment of a cable television industry in Israel. Several mergers and consolidations have left three regional operators, who currently have monopoly rights to provide cable service in various areas of the country. The cable companies would like to merge into a single firm. This issue is currently under consideration by the Antitrust Authority. In 2000, VTTH services competition from direct broadcast satellite (DBS) service began.

2.5 Internet Sector

The Internet sector in Israel has grown more slowly than might have been expected given the huge increase in cellular and international calls. This is due, in part, to the fact that all local phone calls, including calls to Internet Service Providers, are metered. Unlimited access was offered by Bezeq for approximately $25 per month, in addition to the fees to be paid to the Internet service provider. Recently, Bezeq began offering broadband Internet service via ADSL. The advantage of this service is works on top of the regular fixed line to the home, so that the line is split. One can be online and use the phone line for (voice communications) at the same time.

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 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 due to the fact that 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 as well. Prior to the establishment of the (רשות לשירותים ציבורם: חשמל) Public Utility Authority-Electricity in 1996, there were a series of ad-hoc committees that 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.[8]

The establishment of the Public Utility Authority-Electricity 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 (רשות להגבלים עסקים). The mandate of the Israeli Antitrust Authority is to encourage competition. Although Israel 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 Israeli Antitrust 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.

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

3.1 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 Shorer committee (1993), the first Gronau committee (1998), and the second Gronau committee (2002).
- Committees that focus on competition policy, such as the Rosenne committee (1998) and the Kroll committee (2002). The mandate of these committees includes regulation of "market structure" issues such as entry and merger policy, etc.

It is interesting to observe such a dichotomy. Clearly this dichotomy was not planned; it simply evolved as a response to regulatory needs. However, the issues of pricing and competition policy are 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 at rates that are too high or rates that are 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 coherent fashion.

3.2 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.[9]

[9] Source: (Except Israel), Gillick, David, 1992, "Telecommunications policies and regulatory structures," Telecommunications Policy, 16:726-732.

MODELS	COUNTRIES	DEGREE OF INDEPENDENCE
Autonomous, semi-judicial commission	USA, Canada	High
Independent Official and office	UK	Variable
Independent Official within Ministry	France	Medium
Government Ministry	Japan, Germany, Israel	Low

Table 1: Four Regulatory Models

3.3 The Future Regulatory Structure and the Role for 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 playing fields open, not just to a limited number of licensees, but also to all firms that meet the conditions.

Although the changes likely 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 (cost-based interconnection rates, interoperability, etc.). Hence, there is a need for a change in regulatory structure itself. In order to insure that evolution to a market based telecommunications industry will benefit the society as a whole, a single independent regulatory body should be in charge of all telecommunications regulation.

Assuming that most markets will be opened up to competition, the goal of regulation will be to insure 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 a couple of key issues that will likely arise in the near era of competition:

A. Interoperability 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, its not clear how a distinction can be made between telecommunications and broadcast services. The interoperability 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.[10]

B. Facilities Based Competition vs. Unbundling of Network Elements: Several years ago, the Israeli Government decided that competition in the Telecommunications industry would be "facilities-based" competition, rather than competition that would require Bezeq to unbundle of 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 alternate 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 on-going regulation rather than series of ad-hoc committees. The importance of ongoing regulation applies to prices as well competition policy issues and

[10] See Faulhaber (2001) for details.

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.

3.4 Regulation of Interconnection Tariffs

Recent and significant changes in the sector have ushered in a new era of competition in the Israeli Telecommunications Industry. Competition has led to new entry in both the cellular and international sectors of the market. The introduction of competition means that calls often originate on one network and terminate on another network. This typically requires inter-carrier compensation schemes. These compensation schemes typically involve access/interconnection charges. As a consequence, the determination of access/interconnection charges is perhaps the most important issue 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 first Gronau committee determined interconnection rates based on a methodology it developed and explained the logic of the recommended tariffs. Although the first Gronau committee set interconnection rates based on a clearly stated policy, we now have a second Gronau committee; one of its tasks is to determine interconnection rates. Why there is a need for a second committee? One can say that it is due only to changes in market conditions, i.e., changes in cost conditions, in demand etc. This is in part true, however, there is also disagreement about 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 Gronau committee indicates that changes proposed by the Ministry of Communications are not necessarily in the spirit of the first Gronau committee.

When the first Gronau 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 & 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, is inconsistent with the first Gronau committee recommendations because it would "unlink" interconnection rates and interconnection costs.

Equation (1) was derived by (I) the revenue requirement, (II) a methodology for how to allocate fixed costs and (III) by the relationship between the LRIC of interconnection calls and the LRIC of end user calls. Hence, equation (1) does not mean that the interconnection tariffs should always be a certain percentage of end-user tariffs. Changing the matrix and the end-user rates does not imply an immediate application of the same formula in order to determine the new tariff matrix for interconnection rates.

If interconnection rates were unified and equation (1) was applied, the peak-time interconnection rate for calls within an area code would rise to 7.33 Agorot;[11] this represents an increase of 33% over the current level of 5.5 Agorot.

If such a policy were adopted for interconnection rates, the achievements of the tariff rebalancing committee of 1998 would be reversed. Given an interconnection rate that is a weighted average of the interconnection rate for within area code calls and calls between area codes, the cellular and international firms end up paying prices for interconnection that greatly exceeds its cost. Since interconnection rates that reflect costs are critical to the entry of wireline competitors to Bezeq, this regime change might have

[11] The calculation is $P_I = (2/3)14-2=7.33$.

adverse effects regarding entry into the industry. (Entry of new firms typically leads to increased competition and lower prices.)

Additionally, since cellular and international firms hand-off most of their calls in the local area code, this proposal effectively unlinks interconnection rates and interconnection costs and penalizes these firms for investing in their networks. Given an interconnection rate that is a weighted average of the interconnection rate for within area code calls and calls between area codes, the cellular and international firms would have incentives to hand-off all of their calls immediately to the Bezeq network. This "distortion" is because a unified interconnection rate is not directly linked to LRIC. The Ministry of Communications has also proposed that interconnection tariffs be unified. This would not only reduce the value of the investment in the improved cellular networks; it would also unnecessarily increase costs in the Bezeq network since more calls will be handed off to Bezeq outside of the receiving party's area code. Coherent and continuous regulation in the framework of an independent authority would likely reduce the uncertainty associated with interconnection policy.[12]

4. Conclusion

It seems inevitable that an independent telecommunications regulatory authority will be created. Indeed it seems that political considerations are the only impediment to such a change. The last three Ministers (at the Ministry of Communications) have expressed support for an independent regulatory authority. Nevertheless, political considerations may slow down the process.

[12] Here I outline one possible solution that is consistent with (I) unified end-user rates and (II) interconnection rates linked to LRIC. The methodology from the committee would need to be modified as followed with a unified end-user tariff. In step 1, end-user rates would be calculated for a 2x2 matrix (i.e., different rates for calls within area code calls and calls between area codes) using the first Gronau committee methodology. End-users would not pay these rates, but the rates would be employed in step 2 to set interconnection rates based on equation (1). This would preserve the essential link between interconnection rates and LRIC.

On August 20, 2002, the Treasury Ministry announced 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 among the Ministry of Communications, the Finance Ministry, and the Justice Ministry as to how independent the authority should be. For example, according to Ha'aretz, the Finance Ministry wants continued influence over Bezeq's regulated tariffs and the allocation of spectrum, while the Justice Ministry apparently wants to make the authority a state corporation rather than an independent authority.[13]

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 than later.

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