

Regulation—the corridor to liberalization: the experience of the Israeli phone market 1984–2005

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Abstract The paper follows the regulatory experience of the Israeli communications industry over the last 20 years, and specifically the impact of the regulatory regime introduced in 1990. Since its initiation phone rates declined sharply, placing them among the lowest in Europe, the incumbent's profits tripled, and the company's labor force was slashed by 40 percent. What makes the Israeli experience unique is that throughout the period the monopoly was government owned and the regulatory process has been under government control. The Israeli regulator's experience, though often running counter to conventional wisdom, seems relevant to two central themes in the new economics of regulation: the impact of the institutional environment on regulatory outcomes, and the effect of the asymmetry in information on the regulatory regime.

Keywords ■

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1 Introduction

The regulatory experience of the Israeli telecommunications industry is unusual, and perhaps unique. For the last 20 years the regulatory process has been under government

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16 control, and until quite recently the major phone company was government owned as
17 a full wireline franchise monopoly. Conventional wisdom would have regarded this
18 combination as a sure prescription for inefficiency of various kinds. Still, at the begin-
19 ning of the 21st century Israeli consumers enjoy a wide variety of advanced commu-
20 nication services at some of the lowest rates of the Western economies. This record
21 is especially remarkable given the state of the industry 20 years ago when Bezeq, the
22 Israeli phone operator, was first incorporated. The thriving state of the industry and
23 the incumbent, on one hand, and the prevailing low phone rates, on the other, can
24 be traced to the special mix of liberalization and regulation policies adopted by the
25 government for the last two decades.

26 This paper tells the story of the Israeli industry, focusing on the interaction between
27 the regulated firm and its regulators.¹ Related lessons are of interest given that the
28 Israeli institutional environment was quite common prior to the wave of Western
29 nation privatizations and deregulation in the 90s. This experience also seems relevant
30 to two central themes in the new economics of regulation literature: the impact of the
31 institutional environment on regulatory outcomes, and the effect of the asymmetry in
32 information on the regulatory regime.

33 The paper opens with a description of the Israeli communications market, the insti-
34 tutional background and the changes in the size of the market and its composition. A
35 discussion of the regulatory regime is followed by three sections evaluating its impact
36 on three key parameters—consumers' welfare, the monopoly's profitability and pro-
37 duction efficiency. The paper closes with suggested lessons for the economic theory
38 of regulation from the Israeli experience.

39 **2 The Israeli communications market**

40 **2.1 Institutional background**

41 In 1948, the State of Israel had inherited responsibility for the provision of phone
42 services from the British regime, and for the next 36 years it followed the UK model
43 by granting a statutory monopoly to the Post Office (later renamed the Ministry of
44 Communication). In the early 1980s, it was decided that a governmental structure
45 lacked the flexibility required to provide a growing modern economy with adequate
46 telecommunications services. Bezeq was established in 1984 as a government enter-
47 prise and when the government issued part of Bezeq's stock on the Israeli stock-market
48 in 1990, it preserved its status as majority stock holder.

49 Bezeq was born into bad times. In the period 1977–1984 the Israeli economy had
50 suffered inflation of between 50% and 370% annually. Bezeq was born in the final
51 phases of the inflationary period, and in the first year of its existence faced an inflation
52 rate of 300%. Only in July 1985 was the government finally able to stop the process.
53 The high inflation years featured half-hearted policy responses, including two that

¹ Some aspects of the reform in the Israeli telecommunication market have been discussed by [Gandel \(1999\)](#) and [Levi-Faur \(1999\)](#). The regulatory regime and its reforms in the Israeli public utility industries are discussed in [Gronau \(2002\)](#).

54 hampered Bezeq directly: a price-freeze on government services, and a cut in gov-
55 ernment investment. Bezeq's first task was to catch up with an ever-widening excess
56 demand for phone lines these measures caused.

57 Given the dire state of the communications market hardly anybody protested when
58 Bezeq was granted a license that effectively transferred the government's monopoly
59 rights to the new company,² but as waiting lines for service shrank, more voices called
60 for structural reform in the communications market. These views reflected concerns
61 that the monopolistic structure of infrastructure industries impeded growth, that it was
62 desirable to reduce the role of government in the economy, and that the wave of struc-
63 tural reforms that had swept these industries abroad offered a useful example for Israel.

64 Despite earlier recommendations to this end, only in 1994 did the government
65 revoke Bezeq's all-encompassing general license in favor of separate permits to oper-
66 ate in the domestic market (local and intercity calls), the international calls market,
67 the mobile phone markets, and equipment sales and installations. To prevent cross-
68 subsidization between these services and assure any potential competitor open access
69 to Bezeq lines, the non-local service permits were granted to Bezeq subsidiaries, estab-
70 lishing a structural separation between the domestic monopoly and its subsidiaries in
71 other markets.

72 The first market opened to competition was for cellular phones, initially monop-
73 olized by Bezeq's subsidiary Pelephone. The government decided to begin with a
74 duopoly.³

75 The government selected the new competitor based on an open bid for the lowest
76 retail price to be offered—a critical choice for the market's ongoing development.
77 The Cellcom company won by offering something then unprecedented in the Western
78 mobile market—2.5 US cents per minute.⁴

79 Unprecedented market growth ended the wireless duopoly period after about 3
80 years. In July 1997, the government solicited a third competitor, this time (in light of
81 the market's growth potential) changing the main criterion to the highest bidder for the
82 permit. The winning company, Partner, paid 400 million US dollars, and adopted GSM
83 technology and an aggressive marketing strategy to compete against its entrenched
84 rivals.

85 Though the opening of the mobile phone market was, perhaps, the most important
86 structural reform adopted in the Israeli public utilities sector, it had few political reper-
87 cussions.⁵ This was not the case in October 1995, when the government announced
88 an auction for two new operators to compete against Bezeq's international calling
89 subsidiary—"Bezeq International". For years, the international calls market served as
90 a main source of subsidy to local access. Setting a high rate for outgoing calls allowed

² The broad definitions used in the license to describe Bezeq's monopolistic rights were formulated by members of the Ministry of Communication legal department assigned to move to the new company.

³ The duopoly period was defined as 5 years or until the market expanded to 200 thousand subscribers, whichever came first.

⁴ The winner was chosen on the basis of a weighted average of rates over the first 5 years of operation. Cellcom proposal was: a. A rate per minute of 2.5 cents in the first year, 4.67 cents in the second, and 9.33 cents thereafter; b. A monthly fee of 4.67 dollars from the third year onwards.

⁵ In 1993 mobile phones contributed only 3% of Bezeq's revenue.

91 Bezeq to charge high rates for its interconnect services for incoming international calls.
92 Since the retail price for an outgoing call from Israel was substantially higher than that
93 prevailing abroad, many more incoming calls were made, and interconnect charges
94 provided about a third of Bezeq's revenue in 1995. The regulator, though aware of
95 the resulting allocative inefficiency, did little to change this system of cross-subsidies
96 from foreign customers to Israelis.

97 Given the importance of these revenues, Bezeq's management and workers' union
98 threatened to deny the new entrants access to the company's lines unless Bezeq was
99 compensated for related losses. The government succumbed to this pressure and set
100 up a scheme intended to prevent a sharp decline in the company's profitability.⁶

101 The two winning international service bidders offered to reduce outgoing call rates,
102 on average, by 70%. Bezeq International was not permitted to match these prices.
103 Within 2 months (starting in July 1997), the incumbent lost more than 40% of the
104 market. At this point the restrictions on Bezeq International's minimum rates were
105 removed. Within a few years the shares of the three competitors stabilized at about
106 one-third of the market each.

107 A 1997 government plan called for opening the domestic market to competition
108 within 2 years. A series of government committees endorsed facility-based competi-
109 tion as the approach, rejecting "unbundling" as too time consuming. To prevent new
110 competitors from focusing only on the business sector, entrants were obligated to
111 provide virtually universal service throughout most of the country.⁷

112 The only operators seemingly positioned to meet this entry requirement were the
113 cable TV companies whose networks were spread all over the country, and who
114 enjoyed, at the time, remarkable profitability. But the scheme never materialized.
115 A disagreement between the Ministry of Finance and the Ministry of Communi-
116 cation⁸ led to a delay in entry; by the time the controversy was settled the ca-
117 ble companies had spent considerable amounts on buyouts of their competitors at
118 inflated prices, and communications companies lost their popularity in the capital
119 market.

120 Only after a new government committee recommended in 2002 to allow new opera-
121 tors providing a limited array of services in a limited number of districts did the
122 merged cable company enter the domestic phone market.

123 The declining popularity of communication companies in the capital market also
124 hindered the privatization of Bezeq. It took until May, 2005 before the government
125 was able to sell its controlling interest in the company to an investor group for an open
126 bid price of 3.1 billion US dollars.

⁶ The scheme consisted of three parts: (1) international providers had to pay Bezeq an access charge, in addition to the interconnect rates; (2) the government reduced the special tax imposed on phone services, and (3) the government decelerated the rate of decline of domestic phone rates. The access charge declined over time and was lifted in 2002. The interconnect rates and the adjustment factor (X) were modified in 1999.

⁷ Many large businesses handled internal communications (for example, between a bank headquarters and its branches) through lines rented from Bezeq—substituting for some lines and tarified services, but not providing a facilities-based alternative.

⁸ In this squabble the Ministry of Finance was backed by the Ministry of Justice, and the Anti-Trust Division backed the Ministry of Communication.

127 2.2 The development of the communications market

128 When Bezeq was established in 1984 the number of direct lines was 1.04 million, with
 129 a backlog of 220 thousand customers waiting to be connected to the network. Within
 130 6 years the waiting list was cut to 20 thousand, with 1.63 million lines in service and
 131 household penetration increased from 80% to 83%. Similarly rapid growth continued
 132 throughout the first half of the 1990s, spurred by the expansion of the Israeli economy
 133 accompanying mass immigration from the former Soviet Union. Network connections
 134 grew over 7% annually, while network traffic grew over 10% per year.

135 A dozen years' fast growth came to a stop in 1996 due to macro factors (a slowdown
 136 in the economy and in construction in particular), but also due to increasing popularity
 137 of the mobile phone. The annual increase in fixed lines slowed to 3%, and while per-
 138 minute traffic growth continued at 9.4%, its composition changed. Land to Land (LTL)
 139 minutes shrunk at a rate of 2.5%, with the difference consisting of increasing internet
 140 traffic and calls originating or terminating in mobile and international networks.

141 These traffic changes reflected a dramatic impact of competitive mobile commu-
 142 nications. Cellcom's aggressive pricing transformed the Israeli mobile market from a
 143 luxury offering to a mass service. Within 3 years of Cellcom's entry in 1994, wireless
 144 subscribers increased 10 fold—from a starting point of less than 5% of fixed line sub-
 145 scribers to almost two-thirds. Partner's subsequent entry further stimulated the market,
 146 which grew 36.5% annually from 1996 to 2001 (Table 1). By the end of 1999 mobile
 147 subscribers equaled those of fixed-line, and by 2002 surpassed them by more than
 148 half.

149 Traffic statistics again confirm this story. In 5 years from 1996, fixed-line origin
 150 calls fell from 90% to two-thirds, while mobile to mobile (MTM) calls rose from 3%
 151 to a full quarter of traffic.

152 Declining prices promoted high growth in international calls market even prior
 153 to its opening to competition (an annual rate of 14%). The entry of the new com-
 154 panies accelerated this process, but its major impact was on the direction of traffic.
 155 The sharp price cuts for outgoing calls led to a traffic reversal (Fig. 1), from 40/60%
 156 outgoing/incoming, to a 60/40 ratio under competition.

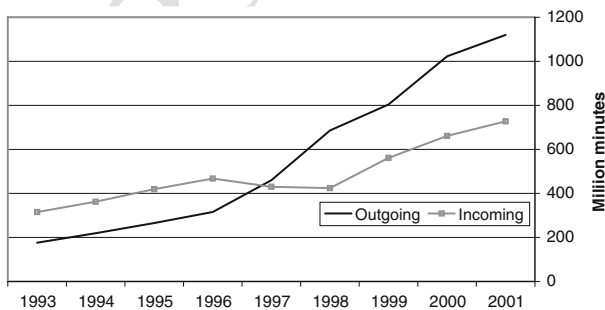


Fig. 1 International traffic 1993–2001. Source: The Rates Review Committee 2002, p. 4

Table 1 The fixed lines and the mobile markets 1995–2001

	1995	1996	1997	1998	1999	2000	2001
<i>Subscribers (thousands)</i>							
Fixed line network		2,545	2,675	2,807	2,878	3,021	3,033
Mobile network		1,162	1,700	2,290	2,855	4,260	5,511
<i>Traffic (millions of minutes)</i>							
Land to land (LTL)	18,072	18,759	18,788	18,950	18,664	18,327	17,319
Land to mobile (LTM)	628	1,314	1,384	2,163	2,656	3,341	3,775
Total fixed line origin	18,700	20,073	20,172	21,113	21,320	21,668	21,094
Mobile to land (MTL)	213	1,384	1,870	2,011	2,406	2,652	2,797
Mobile to mobile (MTM)	56	676	1,161	1,798	2,928	4,917	7,352
Within networks	38	515	858	1,361	2,046	3,338	5,007
Between networks	19	160	302	437	882	1,579	2,345
Total mobile origin	269	2,060	3,031	3,809	5,334	7,568	10,149
Total	18,969	22,133	23,203	24,922	26,654	29,236	31,243
<i>Index (1998 = 100)</i>							
<i>Subscribers</i>							
Fixed line network		90.7	95.3	100.0	102.5	107.6	108.0
Mobile network		50.7	74.2	100.0	124.7	186	240.7
<i>Traffic</i>							
Land to land (LTL)	95.4	99.0	99.1	100.0	98.5	96.7	91.4
Land to mobile (LTM)	29.0	60.7	64.0	100.0	122.8	154.5	174.5
Total fixed line origin	88.6	95.1	95.5	100.0	101	102.6	99.9
Mobile to land (MTL)	10.6	68.8	93	100.0	119.6	131.8	139.0
Mobile to mobile (MTM)	3.1	37.6	64.5	100.0	162.9	273.5	408.9
Within networks	2.8	37.9	63.1	100.0	150.4	245.3	368.0
Between networks	4.2	36.6	69.2	100.0	201.7	361.1	536.2
Total mobile origin	7.1	54.1	79.6	100.0	140.0	198.7	266.4
Total	76.1	88.8	93.1	100.0	106.9	117.3	125.4
<i>Traffic composition (%)</i>							
Land to land (LTL)	95.30	84.80	81.00	76.00	70.00	62.70	55.40
Land to mobile (LTM)	3.30	5.90	6.00	8.70	10.00	11.40	12.10
Total fixed line origin	98.60	90.70	86.90	84.70	80.00	74.10	67.50
Mobile to land (MTL)	1.10	6.30	8.10	8.10	9.00	9.10	9.00
Mobile to mobile (MTM)	0.30	3.10	5.00	7.20	11.00	16.80	23.50
Within networks	0.20	2.30	3.70	5.50	7.70	11.40	16.00
Between networks	0.10	0.70	1.30	1.80	3.30	5.40	7.50
Total mobile origin	1.40	9.30	13.10	15.30	20.00	25.90	32.50
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Rates Review Committee 2002, Table 1.2

157 3 The regulatory regime 1990–2002

158 Late 1980s communications regulation was akin to that of other Israeli public utility
 159 industries: a tariff system based on perfect pass-through ('cost-plus'), a rate structure
 160 not based on economic principles and multi-body regulators. Efficiency ranked rela-
 161 tively low in the government's priorities, and this attitude changed only little when the

162 government changed its role from direct provider to phone company owner. Elected
163 officials also preserved their direct hold on regulation: everyday oversight of the new
164 company was left with the Ministry of Communication, but any change in phone
165 rates required the consent of both the Minister of Communication and the Minister of
166 Finance, as well as the final approval of the Finance Committee of the parliament.

167 The rate structure reflected distributional priorities rather than economic efficiency.
168 As in many other countries, the residential sector was given preferential pricing. The
169 fixed monthly user-fee was set substantially below the costs of the local loop, and sub-
170 sidized by traffic revenues. Price/cost margins from traffic increased with distance:
171 international calls were the most profitable, followed by inter-city and local calls. The
172 involvement of the Parliamentary Finance Committee in the regulatory process made
173 distributional considerations a continuing priority even after Bezeq became a business
174 oriented firm.

175 For its part, Bezeq did not have enough time to recover from the impact of econ-
176 omy-wide hyper-inflation when it was hit by the fallout of the program to halt inflation.
177 The 1985 program called for a price freeze of government services, and Bezeq saw
178 its meager profits erode for the next 3 years. This brought Bezeq to the doors of the
179 regulator to seek pricing reform to restore its profitability.

180 In the absence of an independent professional regulating body, the role of peri-
181 odic tariff reevaluation was delegated to an ad-hoc public committee consisting of
182 representatives of the regulating ministries, independent experts and public represen-
183 tatives.⁹ This became the regulatory approach for the following 15 years, with the 1988
184 committee being followed by others in 1993, 1997 and 2002. While these were only
185 advisory bodies (their recommendations had to be approved by the Ministers and the
186 parliamentary committee), with the years they gained ever increasing independence.

187 The first committee was charged with setting rates, determining the length of the
188 tariff review period, establishing the formula for rate adjustments during the review
189 period, and eliminating cross-subsidies. Following the liberalization of the mobile
190 and international markets the 1997 and 2002 committees were also required to set
191 interconnection prices.

192 Following the British example, the first public committee recommended that the
193 “Pass-through” rate-setting procedure be replaced by “Price-cap.” The new procedure
194 was, however a hybrid. Following the Price-cap prescription, the regulatory review
195 period was set at 4–5 years, and the rate adjustment followed the RPI-X formula. The
196 Israeli scheme deviated, however, from the OFTEL model in two important respects.
197 First, where OFTEL modified average phone rates gradually through the adjustment
198 factor X (Spiller and Vogelsang 1996), the Israeli ad-hoc review committees adopted
199 a discrete change (up or down) at the beginning of each review period, followed by
200 annual changes based on RPI-X.¹⁰ Second, Bezeq was given no flexibility in setting
201 individual service prices under the overall average price cap.

⁹ Recommendations to establish an independent professional regulating body (similar to OFTEL) had been rejected by the government.

¹⁰ A similar modification was introduced by the UK electricity regulator (OFFER) in 1994, and used later by other regulators in the UK and elsewhere.

202 The discrete change in the average rate was based on a calculation of the monop-
 203 oly's "excess profits" and "inefficiency" at the end of each review period. These, in
 204 turn, called for an estimate of Bezeq's cost of capital. Precluding the firm from setting
 205 individual rates meant that they had to be set by the committee itself.

206 Table 2 summarizes the main parameters of the ad-hoc committees' recommenda-
 207 tions.¹¹

Table 2 The Ad-Hoc Review Committees main recommendations

Committee	I	II	III	IV
Rate period	1990–1993	1994–1998	1999–2002	2003–2007
Rate of return (%)	8.5	8.5	10.5	13.0
Overall change in tariffs (%)	+15.0	–10.0	–10.5	–5.5
X-factor proposed (%)	3.0–3.5	6.5	7	3.5
X-factor approved (%)	3.0–3.5	6.0–6.5 (3.5)	6.0 (3.5)	2.5
Change in fixed fee (%)	–	–	+12.0	+15.0
Change in price of calls (%)	–	–	–32.0	–23.4
Interconnect rate-peak (US cents)	–	–	0.7–2.1	1.0

208 The first committee's recommendations for the initial rate adjustment reflected its
 209 limited base of information and its attempt to gain Bezeq's approval for the new rate
 210 setting procedure. The committee adopted Bezeq's 1998 cost accounts as the base for
 211 its tariff, foregoing any modifications. Bezeq's depreciated assets were used to cal-
 212 culate capital costs, and no attempt was made to distinguish assets regarded as "used
 213 and useful" from others. When the next committee had to decide on the initial rate
 214 adjustment for the second review period (1994–1998) it determined "allowed" costs
 215 using its predecessor's adjustment formula. It distinguished between expenditures it
 216 felt that the company could control in the short run (e.g., wage and salary, and other
 217 operating costs) and expenditures the company might affect only in the long run (e.g.,
 218 the costs of debt and the interconnect charges for international outgoing calls); it then
 219 applied the adjustment formula to the "controllable" part, accepting the other part as
 220 given. The following committees abandoned this distinction, applying the adjustment
 221 formula to all the cost components.

222 The second part of the process involved setting an X factor. The first committee
 223 was aware of Bezeq's gross inefficiency, but again the lack of accurate information led
 224 it to adopt a conservative estimate. The low rates of adjustment during the first review
 225 period 1990–1993 ($X = 3\%$ for the first 2 years and 3.5% thereafter) were, at least par-
 226 tially, intended to make the new regulatory regime more acceptable to the monopoly
 227 and its workers. These considerations did not affect the second committee when it
 228 raised the adjustment rate to $X = 6.5\%$, a rate that, with the exception of OFTEL, was
 229 higher than any adopted by European regulators at the time.¹² The third committee
 230 had access to much more detailed information than its predecessors. Bezeq's costing
 231 system showed a sharp decline in its equipment prices. The committee estimated that

¹¹ The table and the discussion are based on the committees' reports.

¹² This rate exceeded by far any rate applied to the tariffs of other public utilities in Israel, and was partly intended to erode Bezeq's excess profitability.

232 the rate of decline was 10–12% annually, related to technological improvements in
233 the switching equipment and the fiber-optic network, and to increased competition
234 among suppliers. The committee recommended an X factor of 7% for the third review
235 period. Finally, the fourth committee adopted an X factor of 3.5% in light of the slow-
236 down in Bezeq's growth, and in acknowledgement of company cost-cutting efforts.
237 An additional mechanism was adopted to modify this factor to reflect output growth.

238 When the Price-cap procedure was first proposed there were hopes it would avoid
239 the need for a rate of return calculation (Armstrong et al. 1994, p. 174). These hopes
240 were shared also by the first committee, but the rate of return it set lasted for only 8
241 years. The increased uncertainty about the impact of the changing competitive envi-
242 ronment on Bezeq's profitability forced the third and fourth committees to readdress
243 the issue. The changes in the rate of return also reflected better information on Bezeq's
244 cost of capital. Whereas the first three committees had to rely on quite arbitrary eval-
245 uations,¹³ the fourth committee (2002) used a CAPM model based on 12 years of
246 Bezeq's experience in the Israeli stock market.

247 Ultimately, the first committee recommended an initial price hike of 15%, the sec-
248 ond committee recommended an average rate cut of 10%, the third—a cut of 10.5%
249 and the fourth—a cut of 5.5%. The second committee's calculations suggested a rate
250 cut of 16%, but it recommended 10% as a figure thought more politically acceptable.

251 Aside from setting the overall level of prices, a main challenge facing the com-
252 mittees was the construction of a cost-based tariff system. In the absence of reliable
253 cost information there was little the first committee could do about it. It took a while
254 before the Ministry of Communication appointed a committee of experts to develop a
255 system to produce such data.

256 The experts estimated that if monthly fees were to cover the direct costs of access,
257 they would increase by a factor of 6, allowing a reduction of 33–40% in call rates. The
258 second review committee (1993), being aware of the parliament Finance Committee's
259 sensitivity to the distributional impact of such an extreme change, adopted a gradual
260 approach recommending that every reduction in the call rates be accompanied by an
261 identical increase in the user fee.

262 The new costing system, and its updates by Bezeq, allowed the third committee
263 (1997) to completely overhaul the rate structure for the first time. It computed "Long
264 Run Incremental Costs" (LRIC) as the sum of average capital costs (at replacement
265 value) and average direct operating costs. To allocate overhead costs, the committee
266 rejected the Ramsey pricing principle in favor of a proportionate markup, imposing
267 on all services a markup of 50%. Since it was thought that such a high markup on the
268 basic access line would be unacceptable to the parliamentary committee, the com-
269 mittee recommended only a modest increase in the monthly fee to cover the access LRIC,
270 and all the phone service overheads were charged to traffic, resulting in markup of
271 220% (interconnect calls carried half that level).¹⁴ In spite of the high markups, the
272 committees were able to cut the price of phone calls significantly: the third ad-hoc
273 committee cut them by one-third, and the fourth- by a quarter (Table 2). At the same

¹³ Since the members of the first committee could not agree on the rate of return it was set by the Minister of Communication.

¹⁴ All other services were charged a markup of 50%.

274 time monthly fees were raised by 12% and 15%, respectively. Interconnect rates were
275 reduced by 60%, the new rates complying with the recommendations of the OECD.

276 An economist may blame the committees for excessive cautiousness. These accu-
277 sations are not completely unfounded. The committees were aware of their advisory
278 status, and that their recommendations required the approval of the Ministers and the
279 parliamentary committee. Consequently, they may have shunned away from recom-
280 mendations they feared might look extreme, to preserve their own credibility. To what
281 extent were these worries justified? Examining the recommendations' acceptance rates
282 reveals an interesting pattern. The political level always adopted the recommendations
283 concerning the initial rate adjustment at the start of a new review period. However, in
284 response to Bezeq's warnings that future rate cuts would undermine the company's
285 financial stability, the political level consistently reduced the adjustment rate (X).¹⁵
286 Perhaps surprisingly, recommendations concerning rebalancing had a perfect accep-
287 tance record. The weak opposition basic access line user fee hikes met in parliament
288 can be attributed to the modest increases in the user fees each time, and tying such
289 increases to cuts in calling prices so that most users' bills were expected to fall.¹⁶

290 **4 The change in tariffs 1990–2002**

291 Describing the challenge they tried to meet, all tariff review committees used a similar
292 language,—“The balancing of consumers' welfare and the preservation of Bezeq's
293 profitability.” Did the committees attain their goals?

294 Since the establishment of the new regulatory regime in 1990 real phone rates
295 declined by over 4% annually, summing over the period 1990–2003 to a 42% decline.¹⁷
296 Bezeq's revenue from domestic services in 2002 was 1.18 billion US dollars. Assum-
297 ing that the arc-elasticity of phone services is less than one-half, the rate reduction
298 increased consumer surplus by more than 0.75 billion dollars.¹⁸

299 Not less important than price reductions was the attempt to increase the trans-
300 parency of the rate structure and to base it on costs. The result was a considerable
301 simplification of the structure,¹⁹ and the rebalancing of access and traffic tariffs.
302 The monthly user fee in 1989 was equivalent to the cost of 24 min of an intercity
303 call at peak hours. In 2003 this ratio rose to 400. Since 1993, when the process of
304 rebalancing started, user-fees increased (in real terms) 2.5 times, while the average

¹⁵ Ministers approved only 6% of the second committee's recommended 6.5% X factor, which was reduced to 3.5% when the international market was opened to competition. The third committee recommended 7%, but the Ministers approved only 6%—which was reduced later to 3.5%, when Bezeq claimed that its output did not keep up with the committee's forecasts. The fourth committee was much more conservative in recommending 3.5%, but still it was cut to 2.5%.

¹⁶ A further compromise involved user fee discounts for seldom-used phone lines.

¹⁷ The price changes are the prices of phone services used in the calculation of the Israeli CPI deflated by the change in the average CPI. They include the 15% price increase at the beginning of the period. Since 1997 this index includes also the price of cellular phone prices.

¹⁸ For the exact calculation see Gronau (2006b).

¹⁹ The simplification is reflected in the abolishing of the distinction between local and intercity calls, moving to two time slots (i.e., peak and off-peak), and moving to a continuous measurement of the length of calls (in terms of seconds) rather than a discrete measure (of units).

305 price of a phone call was cut by one-half. The income from user fees increased, as
 306 a result, in the period 1988–2002 from one-quarter to one-third of Bezeq’s phone
 307 revenue. This achievement is especially laudable given the traditional bias of the Par-
 308 liamentary Finance Committee in favor of the residential sector.

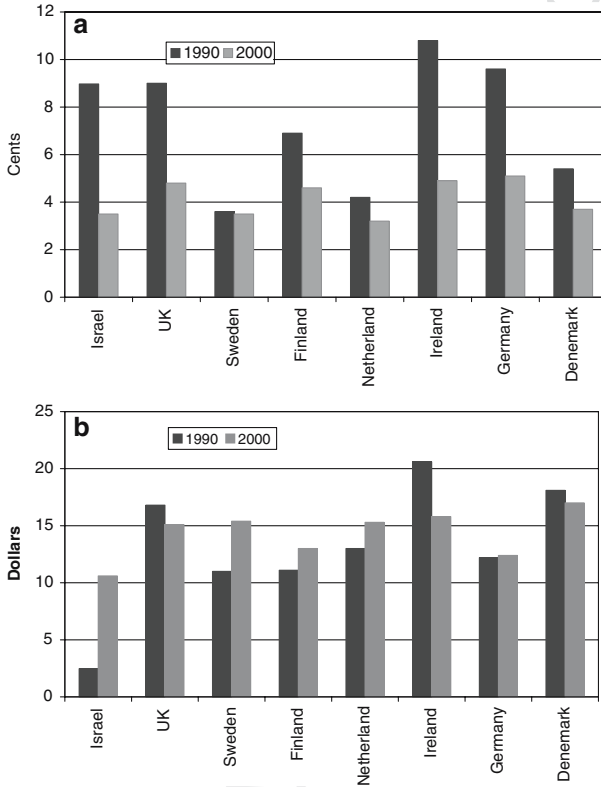


Fig. 2 (a) Phone rates in Europe and Israel 1990, 2000 (in cents) and (b) monthly fee in Europe and Israel 1990, 2000 (in dollars)

309 To gain a better appreciation of Bezeq’s performance under Israeli regulation it is
 310 worth comparing its prices with those abroad. Figure 2 describes the users’ fees and
 311 the average price of a domestic call in Israel and seven West European countries in
 312 1990 and 2000. At the start of the new Israeli regulatory regime Israeli call rates were
 313 among the highest in Europe. The price of an average (1 min) call was equal to that
 314 in England, and lower only than the prices prevailing in Ireland and Germany. By
 315 the end of the decade it was among the lowest (equal to that in Sweden and higher
 316 than that in the Netherlands). The lowering of the rates would not have been possible
 317 except for the sharp increase in the user fees. Though the Israeli monthly fees are still
 318 the lowest in the sample, the difference between the Israeli rate and those of the other
 319 countries has shrunk considerably. The Israeli regulator was able to rebalance to an
 320 extent unmatched in the sample, while making Israel at the same time the cheapest
 321 country in terms of overall phone rates.

322 The comparison of the price changes in the regulated wireline sector with those in
 323 the liberalized sections of the communication market is also enlightening. The entry
 324 of a second company into the wireless market by the end of 1994 was associated with
 325 a dramatic cut in prices. The terms of the government bid allowed, however, the new
 326 entrant to double his price each year for the next 2 years.²⁰ The period 1997–2002 is
 327 generally regarded as a period of intense competition in the mobile phone services,
 328 with the new entrant “Partner” trying to break into the market. It could be expected
 329 that the aggressive competition would be reflected in a price decline. The CPI mobile
 330 price series (Fig. 3) comes, therefore, as a surprise.²¹ Not only did mobile phone prices
 331 fail to decline—they rose over the period in real terms by 10% (by 40% in nominal
 332 terms).

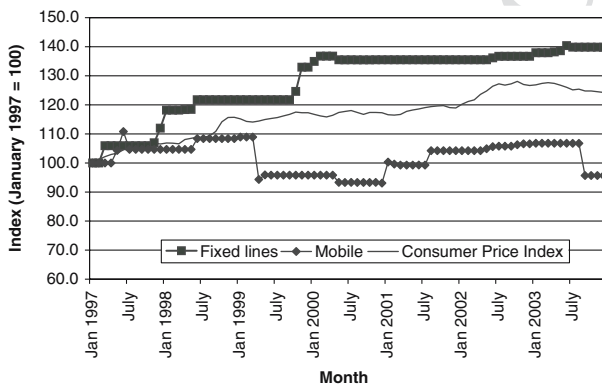


Fig. 3 Price indices fixed lines versus mobile 1997–2003

333 Prices changed similarly in the second competitive market—international calls. Fig-
 334 ure 4 reports international call rate trends since 1990. During the 7 years under regula-
 335 tion but preceding liberalization the real prices of international calls fluctuated sharply,
 336 declining over the period by almost one half. The entry of the new rivals forced the
 337 incumbent to cut his prices by 70%, but this was to be the last rate reduction. Since
 338 July 1997 international rates have crept upward at a cumulative rate of 75% (50%
 339 in real terms). It is hard to tell whether the upward trend in prices in the liberalized
 340 market is due to an unstable pricing scheme in the early phases of liberalization—
 341 the new entrant offering artificially low prices in order to penetrate the market,²² the
 342 oligopolistic structure of the markets,²³ or a pricing policy that discriminated against
 343 the residential sector.²⁴

²⁰ See fn. 4.

²¹ The inclusion of the cellular phone services in the CPI coincides with the entry of the Partner into the market.

²² The international providers were showing losses throughout the first years of their operation.

²³ In both markets the concentration indices (HHI) exceed 3,000.

²⁴ The CPI reports the price change to the residential sector. The wireless providers' income per minute from this sector was in 2004 1.5 times that of the business sector.

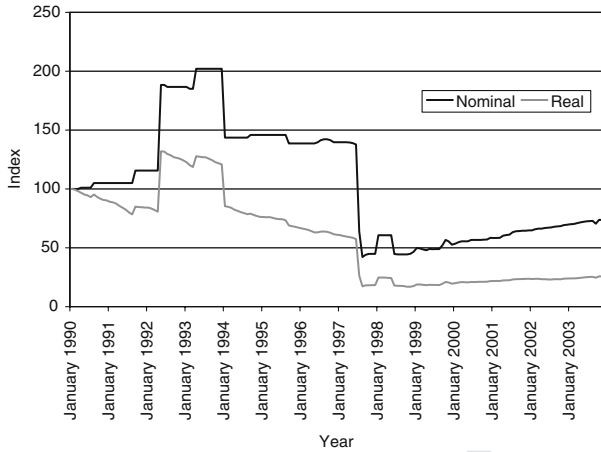


Fig. 4 International call rates indices—nominal and real (January 1990=100)

344 Rather than a sharp liberalization-induced reduction, regulated wireline prices experi-
 345 enced a gradual but steady decline promoted by fast technological change and by
 346 addressing gross inefficiencies that existed in Bezeq's operations at the beginning of
 347 the period. The regulator assured that at least part of these cost reductions would be
 348 transferred to the consumer, including both the residential and business sectors.

349 **5 The profitability of Bezeq**

350 To what extent did sharp rate reductions impair Bezeq's financial stability? Since the
 351 government accounting system does not report profits, the answer has to be confined
 352 to the period since the establishment of Bezeq in 1984. Another turning point occurred
 353 in 1997, when international calls were no longer an integral part of Bezeq's operation
 354 and the company was confined to the domestic market. Hence, the company in the
 355 post-1997 era is referred to as Bezeq domestic-operator (D-O).

356 Bezeq's 1984/85 results still reflected the destructive influence of hyperinflation,
 357 with profits of only 15 million dollars (2002 dollars) constituting a 1.5% return on
 358 net worth. Profits revived during the next 2 years (Fig. 5b), but the slowdown of the
 359 economy and the price freeze led to a sharp reversal in the years 1988–1989. Given
 360 this low base, the rate hike initiated by the first committee tripled earnings.²⁵

361 The fast growth of the early 1990s (especially in lucrative services such as inter-
 362 national calls) spurred profitability. By 1993, at the end of the first review period,
 363 earnings were eight times their 1988 level.

364 The second committee's initial rate cut affected profits only for 1 year, and by 1995
 365 they bounced back to their prior level. However, as Fig. 5a indicates, profitability
 366 depended crucially on one service—international calls, since income from domestic

²⁵ The recommendations were adopted only in July 1990, so their full effect on Bezeq's profitability is only noticeable in 1991.

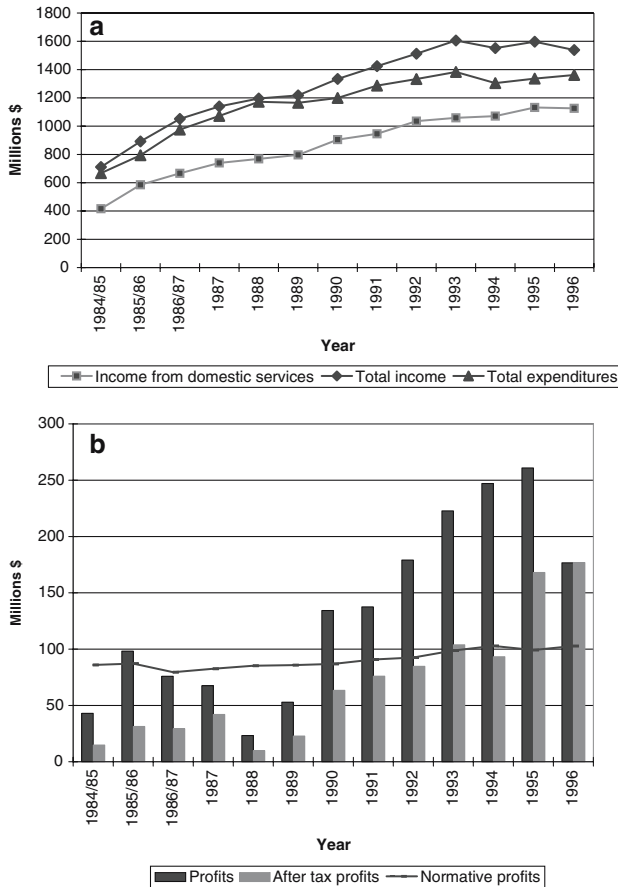


Fig. 5 (a) Bezeq income and expenditures 1984–1996 (millions of \$) and (b) Bezeq actual and normative profits 1984–1996 (millions of \$)

367 services did not cover the access deficit. This highlights why the liberalization of the
 368 international calls market was such an excruciating experience.

369 Figure 6 shows that Bezeq's profitability recovered quickly from this blow. The
 370 network business (Bezeq D-O) went from substantial losses in 1994–1996, to bal-
 371 anced books in 1997, and to booming profits from 1998 onward. The average rate of
 372 return from domestic operation in the third review period (1998–2002) was twice the
 373 10.5% recommended by the committee. The fast recovery is partly explained by the
 374 special arrangements made by the regulator on the eve of the opening of that market to
 375 competition, but also by increased productivity of the domestic operation. Ironically,
 376 Bezeq International, the Bezeq's subsidiary that inherited its international operations,
 377 slid into losses within 2 years of the new competitive environment—which took it 3
 378 years to overcome.

379 It was estimated that mandated price cuts reduced Bezeq's revenue over the period
 380 1990–2002 by about 5 billion dollars. The regulator was, however, careful not to under-

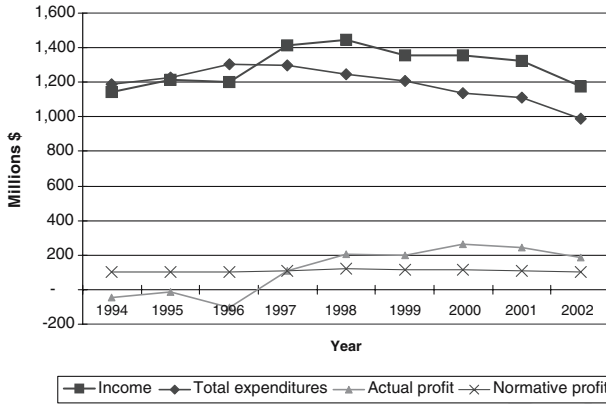


Fig. 6 Bezeq D-O profitability 1994–2002 (millions of \$)

381 cut the company’s financial stability. Bezeq’s average annual profits (before taxes) in
 382 the pre-regulatory era (1984–1989) were 60 million dollars. Average annual profits
 383 grew to 200 million dollars under regulation, a level hardly affected by the loss of the
 384 lucrative international operation.

385 Bezeq’s annual profits were on average twice the “allowed” profits. However, the
 386 owners of the firm received little of this in cash. Only about one-eighth of after-tax
 387 profits were distributed as dividends, and the capital gains recouped by the government
 388 from privatization were also modest. In September 1990 Bezeq stock was issued for
 389 the first time on the Israeli Stock Exchange at a market value of 1.25 billion dollars
 390 (in 2002 prices). In May 2005 the government sold its controlling interest in the com-
 391 pany at a price of 3.14 billion dollars, reflecting a real rate of return of 7.3% for the
 392 whole period.²⁶ One quarter of profits went to finance the employees’ early retirement
 393 plans, making them the great winners of Bezeq’s profitability.

394 Do the excess profits reflect a failure of the regulatory regime? In some sense, the
 395 answer is positive. As Figs. 5 and 6 indicate, Bezeq succeeded in showing excess prof-
 396 its even in 1994 and 1999, in spite of the tariff cuts by the review committees. These
 397 profits reflect the conservative approach taken by the committees in recommending
 398 the rate cuts, and by the political level when it had to determine the X factors. At the
 399 same time, Bezeq’s achieved profits supported reductions in labor and financing costs,
 400 and allowed the increased productivity that made the low prices possible.

401 **6 The regulator’s impact on Bezeq’s productivity**

402 Bezeq’s improved profitability reflects both of increases in revenue as well as cost
 403 reductions. As Figs. 7 and 8 indicate, there is, however, a substantial difference in the
 404 relative importance of these two factors between the first and the second half of the
 405 regulatory era—with fast growth in output and revenue to credit in the early 1990s, and

²⁶ At its height in March 2002 Bezeq’s stock hit a value of 4.9 billion, implying an annual real rate of return of 15.6%.

406 cost reductions the principal driver in the second half of the 90s. A natural question is
 407 how much the regulatory regime contributed to increased productivity.

408 An answer, perhaps simplistic, can be found in Bezeq's Board of Directors'
 409 repeating resolutions calling for increases in efficiency to meet the review committees'
 410 tariff cuts. This evidence is supported by Figs. 7 and 8. Whereas in the pre-regulatory
 411 era expenditures outpaced the growth of output, leading to an annual 1.5% increase in
 412 cost per unit of output, cost per unit of output declined at 6.2% annually from 1990 to
 413 1996, and the rate accelerated to 8.4% thereafter.²⁷ The decline was initially confined
 414 to capital costs, but spread in the second period to operating costs (including labor).

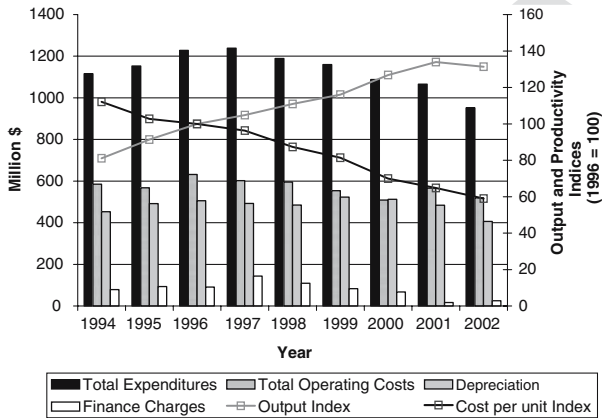


Fig. 7 Bezeq expenditures 1984–1996

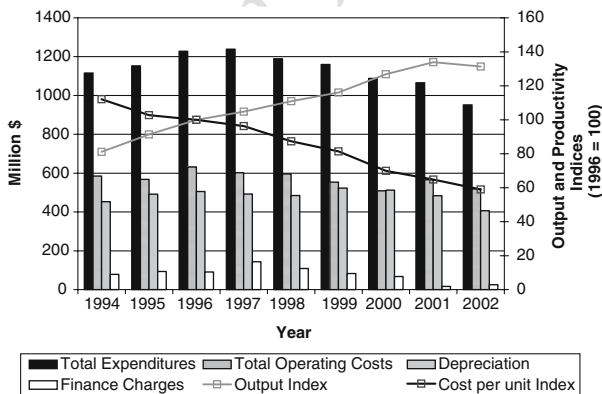


Fig. 8 Bezeq D-O expenditures 1994–2002

²⁷ The growth in output is measured as a weighted average of the growth in lines and the growth in traffic, the weights being 0.6 and 0.4, respectively.

415 The fast expansion in the late 80s, and the huge investment it required, were financed
 416 primarily through increased borrowing. This increase in capital costs (finance charges
 417 and depreciation) explained the increased unit costs in the pre-regulatory era. The new
 418 tariff regime, introduced in 1990, allowed Bezeq to self finance the huge investments
 419 required for the conversion to digital equipment, and use its improved profitability to
 420 pay back some of its debt to reduce finance charges. Finally, declining investment in
 421 the late 90s and the ample liquidity enjoyed by the company allowed it to get rid of
 422 most of its debt, reducing finance charges to a minimum, and trimming its depreciation
 423 allowances.

424 As impressive as is the decline in capital costs (an annual decline of 10% in the
 425 period 1997–2002), regulatory pressure contributed only marginally to the process.
 426 It appears to have led to increased effort exerted by Bezeq's management when bar-
 427 gaining with the company's suppliers, and may explain the conservative investment
 428 policy in the late 1990s. However, much of this achievement is due to exogenous
 429 factors, such as the decline in equipment prices on the world market that were inde-
 430 pendent of the regulator's intervention. The imprints of regulatory pressure can best
 431 be seen in the trajectory of operational costs, from annual increases of 8% in the
 432 pre-regulatory era to 4% in the early 90s, and to an annual decline of 3% towards the
 433 end of the period.

434 Wages and salaries were over 60% of operational costs throughout the period. Prior
 435 to the new regulatory regime, Bezeq's real wage bill increased 10% annually. Man-
 436 agement succeeded in slowing the annual increase to 3% in 1990–1996, and reduced
 437 the total by 1% per year in 1997–2002 by cutting the company's oversized workforce,
 438 and replacing "expensive" employees with less expensive ones.

439 Figure 9 describes changes in Bezeq's labor force, wage bill, and wage per em-
 440 ployee. The initial fast growth of its labor force (18% in 5 years) was reversed in 1992
 441 by the shift from analogue to digital switching technology, and increased regulatory
 442 pressure. In its first years cuts affected mainly temporary workers, but over time cuts
 443 reached tenured employees also. As a result, Bezeq's labor force in 2001 was 28%
 444 lower than its 1985 level and 40% lower than its 1992 peak. Shedding 4800 employees
 445 clearly helped Bezeq achieve increased productivity.

446 These employment cuts came at a price. The union's consent required generous
 447 retirement arrangements for those who left the company. Those who stayed also

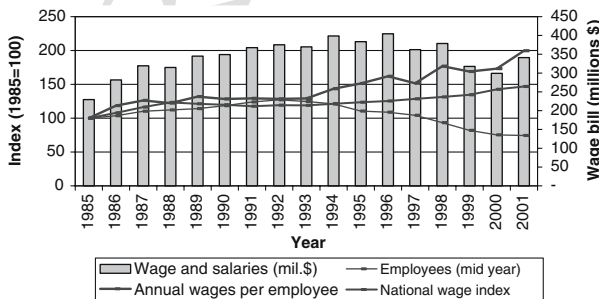


Fig. 9 Wage and employment indices—Bezeq 1985–2001

448 profited: from 1995 to 2001 the average real employee wage doubled, compared
449 with a 70% increases for public employees, and 50% for the economy as a whole.
450 Given the change in Bezeq's labor force composition—i.e. the replacement of many
451 older “expensive” employees by young “cheaper” employees—the 100% average gain
452 understates the true increase in real wage levels, which offset a large part of the labor
453 force decline. From 1992 to 2001, the company's workforce was cut by 40%, but its
454 wage expenses fell only 9%.

455 If Bezeq salaries had grown at the national average, the company's cumulative
456 savings would have increased by almost 0.8 billion dollars (in 2002 dollars). There
457 was also an initial wage increase in 1982 granted to gain union approval for the
458 change from government employees to employees of an independent company. Our
459 estimate of 0.8 billion understates, therefore, the wage rent the employees received.
460 Adding the \$0.6 billion received as increased retirement benefits reveals workers as
461 the main beneficiaries of the company's dominant market position. In the end, Bezeq
462 had to pay a significant price for permission to obtain its workforce reductions and
463 associated productivity gains.

464 **7 Theory and reality—some lessons based on the Israeli experience**

465 Neoclassical economic theory emphasized the disruptive effect of monopolies on the
466 allocation of resources and the distribution of welfare between consumers and the
467 owners of the monopolistic firm. The new regulation literature added to the monopoly
468 evils the sin of inefficiency, but the emphasis was shifted from the problems of monopol-
469 ies to the problems of regulating these monopolies. If the early literature focused
470 on the monopoly's reaction to the regulatory rules (for example, the Averbch-Johnson
471 effect) the new literature analyzes the regulator's behavior, given his objective function
472 and the constraints he faces. Though economists agree that the regulator attempts to
473 maximize his own welfare, there is disagreement on how the regulator's welfare is
474 related to the welfare of the agents affected by his decisions (consumers and firms),
475 and how he attains his aims. At one extreme, the regulator is depicted as captured
476 by the firms, and at the other extreme the regulator is assumed to identify fully with
477 the consumers, adopting an opportunistic policy that sacrifices profits for lower prices
478 (Newbery 1999). A major constraint affecting the regulator, according to this liter-
479 ature, is the scarcity of information, and specifically the asymmetry in information
480 between the firm and its regulator. Not less important, but perhaps even less tangible,
481 are institutional constraints (Levy and Spiller 1994), and specifically, the regulator's
482 independence (Edwards and Waverman 2006).

483 The Israeli story seems to differ from the above. In Israel throughout these two
484 decades a publicly owned monopolist faced a government controlled regulator, a sit-
485 uation seemingly not contemplated by much of this literature and different from the
486 experience of many countries. There are, however, useful lessons to be found in the
487 Israeli experience relating to the behavior of the regulated firm. These lessons definitely
488 apply to regulated firms in the pre-privatization period, but may apply also to the post-
489 privatization era.

490 Regulatory objectives are crucially dependent on the balance of power between
 491 the players in the market: owners (in the Israeli case—the government), consumers
 492 and employees. Employment and other macro considerations (such as inflation) have
 493 always preceded profit in the Israeli government’s list of priorities. This attitude did
 494 not change much when Bezeq became an independent entity. Bureaucratically, the
 495 low importance of profits in the owner’s list of priorities was shown by the minor role
 496 played by the Government Companies Authority in both the liberalization and the reg-
 497 ulation of public utility industries.²⁸ The vacancy left by the owners was filled by the
 498 workers’ union, which saw profitability as essential to preserving its generous wage
 499 arrangements; thus, the union fought any attempt to curtail the companies’ earnings
 500 through liberalization or regulation.²⁹ This “workers’ capture” of the monopoly had
 501 far reaching implications for Israeli regulatory goals and limits.

502 By contrast to classical “regulatory capture” (a la Stigler 1971; Peltzman 1976),
 503 rewards for regulators were not pecuniary (e.g. employment prospects for former offi-
 504 cials) but measured in terms of political power. Though union pressure was unable to
 505 affect the rate cuts at the beginning of the review periods, it seems to explain the reduc-
 506 tion of the adjustment rates (X) by the Ministers and the Parliamentary Committee.³⁰
 507 Newbery (1999), worried about exploitative behavior by regulators, drew a picture of
 508 “a mass of local voting consumers” facing a politically defenseless owner. Nothing
 509 can be further away from the reality of the Israeli political arena, where an unorganized
 510 consumer public faced a well organized workers’ union forcefully defending the rents
 511 they derived through Bezeq’s franchise. Newbery observes that “under public own-
 512 ership, interest groups will compete in the political market place for benefits, while
 513 under private ownership the regulator will represent the interests of the non-owning
 514 groups”. The Israeli experience clearly supports the first observation, while suggesting
 515 regulators can also represent the consuming public where the monopoly is publicly
 516 owned.

517 The low priority given to profitability and “workers’ capture” were the apparent
 518 sources of Bezeq’s gross inefficiency, making it the prime target for regulatory inter-
 519 vention. The increased emphasis on productive efficiency would have called for per-
 520 formance-based ratemaking. Laffont and Tirole (1993, 2000, p. 39) phrased the term
 521 “the power of the incentive scheme”. In their formulation, $p = \bar{p} + (1 - \rho)c$, where ρ
 522 denotes the power of the incentive scheme ($0 \leq \rho \leq 1$), and c denotes cost. In a high
 523 powered incentive scheme the price is insensitive to changes in costs $p = \bar{p}$, while in
 524 a low powered incentive scheme (i.e., perfect passthrough price setting) $p = c$, and a
 525 change in cost hardly affects the firm’s profit. A major constraint in the choice of ρ is,
 526 as Laffont and Tirole emphasize, the regulator’s stock of information.

²⁸ The Government Companies Authority is part of the Ministry of Finance. However, the unit responsible for the liberalization and regulation of the public utility industries in the Ministry was the Bureau of the Budget. The Government Companies Authority turned into a major player in the public utility industries only in the late 90s when the government embarked on its privatization drive.

²⁹ The pattern characteristic of Bezeq’s workers’ union applies also to those in the Israeli Electric Company, the ports, the Israeli Refineries, fuel pipelines and storage companies, and the water company.

³⁰ In the Israeli political arena workers’ unions carry much greater weight with the two largest parties. It is noteworthy that communications liberalization was led by two ministers representing small parties that were not as subject to union pressure.

527 The Israeli example seemed suited to Laffont and Tirole's argument. A high reg-
 528 ulatory priority on productive efficiency would have called for an approach where
 529 $\rho = 1$. Yet the first review committee effectively adopted a pass through policy by
 530 using Bezeq's current costs as the starting point. The rationale for this choice was an
 531 attempt to dispel the company's fear of regulatory exploitation, and a lack of infor-
 532 mation about genuine cost-cutting opportunities. The same reasons explain the low
 533 adjustment rates (X) applied in the first review period. Information subsequently accu-
 534 mulated allowed the second review committee greater confidence to devise a recipe
 535 where "controllable" costs were assigned a fixed price but "uncontrollable" costs were
 536 adopted as is. Finally, the third and fourth review committees set a fixed price formula
 537 based on their own projections of reasonable costs. The more ambitious adjustment
 538 rates (X) adopted by the second review committee and its successors can also be traced
 539 to the increased accumulation of knowledge by the regulator.

540 However, the Israeli experience demonstrates also a point that is sometimes forgot-
 541 ten. Firms invest in developing information when there is a return for doing so, and
 542 the availability of that information can in turn assist the regulator. A company used to
 543 'cost-plus' rate-setting had little use for an elaborate cost information or accounting
 544 system. The increased regulatory emphasis on productive efficiency combined with
 545 increased competition from mobile companies helped Bezeq realize the importance
 546 of more sophisticated methods.³¹ At the same time, Bezeq's interest in maintaining
 547 the confidentiality of such data heightened once its market opened to competition and
 548 the information was regarded a commercial secret.³²

549 The evolution of the rate structure reflected a similar process of the regulator grad-
 550 ually gaining more information and confidence. Despite calling its recommended rate
 551 setting method a "price-cap," the first review committee never gave Bezeq discre-
 552 tion to vary individual prices for its various services—because it felt Bezeq lacked
 553 the information required for this exercise. Subsequent committees feared that Bezeq
 554 might use flexibility to price anti-competitively as markets were opened to competition
 555 (the international and later the domestic).³³ Only a decade into this process did the
 556 regulator acquire sufficient information (and self confidence) to propose a radical and
 557 needed overhaul of the tariff structure.

558 Simple politics also intruded. As in many other jurisdictions, Ramsey pricing
 559 was considered and rejected in favor of an amended proportional markup formula
 560 intended to avoid a sharp increase in the monthly access tariff. It was feared that
 561 the "single till" approach would attract public opposition (Laffont and Tirole 2000,
 562 pp. 73–80). As an advisory body, the committee also feared undermining its credibility
 563 with the parliamentary Finance Committee, and jeopardizing the whole
 564 recommendation package. It settled, therefore, for modest increases in the monthly

³¹ Indeed, the regulator initiated Bezeq's first costing system.

³² Bezeq stopped publishing its statistical abstract in 1997. A similar phenomena is reported by Taylor (1994, ch. 11) for the US long distance market.

³³ In support of these fears, some have pointed to Bezeq's cuts of international rates prior to the liberalization of the international market, and the plans it proposed to bulk customers in the late 90s that offered a discount that increased over time (resulting in an increased cost to the customer of switching providers).

565 user fee, though that left phone traffic with an inflated markup (of over 200%) to cover
566 common costs.

567 The committee's dilemma is best explained by Table 3. In 1998, common costs
568 allocated to telephony constituted over one-half of the direct costs (almost 300 million
569 dollars). Whereas user access generated only one-third of revenue, access constituted
570 almost 70% of direct costs. According to the committee's estimates, the 1998 annual
571 user fees of \$126 fell short of the average direct access costs (\$136), never mind any
572 markup. Assuming that the demand elasticities for access and traffic are -0.1 and
573 -0.5 , respectively, and ignoring (for simplicity) the cross-elasticity, a proportionate
574 markup of 45% to cover common costs would have raised user fees by 57%, and
575 allowed a cut of 66% in traffic tariffs (a cut from 2.3 cents per minute to 0.8 cents).³⁴
576 Ramsey pricing would have required a user-fee hike of almost 90% and the lowering
577 of calling prices by three-quarters.

578 Because Bezeq's 1998 revenue exceeded normative costs (direct plus common
579 costs) by more than a quarter, either approach would have cut the "average" rate sub-
580 stantially, creating a significant increase in consumer surplus. The difference between
581 the two methods in estimated consumer surplus was, however, surprisingly small—
582 only 2%.³⁵

583 The committee, worried that such sharp increases in user-fees would be unaccept-
584 able to the Finance Committee, shied away from both recommendations. The user fee
585 was set equal to the average direct cost of access (\$136) and the common costs were
586 fully assigned to traffic. The calculation shows, however, that this imperfect formula
587 yielded an increase in consumer surplus that was almost seven-eighths that of the
588 Ramsey method.³⁶

589 The committee also felt that Ramsey pricing was too dependent on information
590 supplied by Bezeq. Demand elasticity information was not available in Israel, and
591 there were fears that Bezeq might manipulate such data to fit its competitive interests
592 by seeking low markups on services most threatened by competition. Related calcu-
593 lations seemed certain to become controversial and lengthy. Instead, the committees
594 tried to keep their pricing recommendations as simple and transparent as possible,
595 which they felt ruled out the Ramsey approach. A similar concern led the committees
596 to calculate rate cuts assuming zero demand elasticities and basing the calculation
597 on current output, though they were aware that in a growing market this calculation
598 method may permit increasing profits.³⁷

³⁴ Hausman et al. (1993) show that allowing for the cross-elasticities between access and intercity tariffs can mitigate considerably (or completely) the welfare loss associated with an increase in the access charges. Allowing for these elasticities, given their low estimates, does not change the results of our exercise.

³⁵ When elasticities are constant the change in consumer surplus equals $\Delta R/(1 + \eta)$, where ΔR denotes the change in expenditures (i.e., revenue) and η is the demand elasticity of the specific service.

³⁶ Our calculations yield very similar results of the change in consumer surplus when we assume that the price elasticities of access and traffic are 0.05 and 0.75, respectively, or when we use the 2002 data. For a general formulation see Gronau (2006b).

³⁷ For a discussion of the proper weighting scheme of output see Armstrong et al. (1994) and Sappington (2002).

Table 3 The welfare effect of a proportionate markup versus Ramsey pricing—a simulation (the price elasticity of access=0.1, price elasticity of traffic=0.5)

	Proportionate markup			Ramsey pricing			Committee proposal		
	Access	Traffic	Total	Access	Traffic	Total	Access	Traffic	Total
<i>1998 Actual</i>									
Output	2,800	31,400		2,800	31,400		2,800	31,400	
Revenue (millions of \$)	353	720	1,072	353	720	1,072	353	720	1,072
Direct cost (millions of \$)	380	169	549	380	169	549	380	169	549
Common costs (millions of \$)			296			296			296
Average rate	126	2.29		126	2.29		126	2.29	
Average direct cost	136	0.54		136	0.54		136	0.54	
Markup (%)	-7.80	76.50		-7.80	76.50		-7.80	76.50	
<i>Proposal</i>									
Markup (%)	31.20	31.20	31.20	42.60	8.50	0.00	0.00	56.10	
Average rate	197	0.78		236	0.59		136	1.23	
Output	2,677	53,783		2,629	62,007		2,779	42,935	
Revenue (millions of \$)	528	420	948	621	365	986	377	526	904
Direct cost (millions of \$)	363	289	653	357	333	690	377	231	608
Common costs (millions of \$)	165	131	296	265	31	296	0	296	296
<i>Change</i>									
Average rate(%)	56.60	-65.90		87.70	-74.40		7.80	-46.50	
Revenue (millions of \$)	175	-300	-124	269	-355	-87	25	-193	-169
Consumer surplus (millions of \$)	-195	599	404	-299	711	412	-27	387	359

Access is measured in thousands of subscribers and traffic is measured in millions of minutes. The access average rate is the annual fixed fee measured in dollars (and so are the average direct costs of access). Traffic is measured in million of minutes and the average rate of traffic is the rate per minute measured in cents. The markup is measured relative to the average price [$m = 1 - (c/p)$]

599 The issue of a proper markup became particularly bothersome when the third review
600 committee set, for the first time, interconnect rates between companies. The committee
601 faced a mixture of rates set mostly by the Minister of Communication and reflecting
602 the relative negotiating power of Bezeq and the interconnecting company (cellular
603 phone or international calls). There was no difficulty calculating the cost of an inter-
604 connect call, but the committee had a difficult time deciding how to assign common
605 cost. It rejected ECPR, which would have meant the same 200% markup assigned to
606 regular calls. It also felt uneasy with the single-till assumption underlying Ramsey
607 pricing. The solution adopted was a compromise: since a regular call involved two
608 Bezeq switches, and an interconnect call only one, the markup was set at half that of
609 a regular call—a result somewhat in line with Ramsey principles given the greater
610 price elasticity of mobile and international calls.³⁸ This outcome contrasted with the
611 [Edwards and Waverman \(2006\)](#) hypothesis that less independent regulators favor a
612 publicly owned incumbent when setting interconnect rates. The Israeli committee set
613 interconnection rates among the lowest in Europe.³⁹

614 Neither did the Israeli experience support Newbery's concerns about exploitative
615 regulators ready to sacrifice profits for lower prices and undermined investment incen-
616 tives. The committees recognized the low normative rates of return (8.5% for the first
617 8 years of the regulatory regime and 10.5% and 13% later on) as just a "floor" for
618 the company's profitability, and assumed that the government would intervene if a
619 major unexpected threat to profitability arose, as had occurred when the international
620 market had been opened to competition. Rather, it appears that fears for their own
621 professional credibility may have led the committees to recommend smaller rate cuts
622 than may otherwise have seemed justified.

623 Finally, concerns about service quality are another oft-voiced fear regarding price
624 caps ([Laffont and Tirole 2000](#), ch. 2; [Sappington 2002](#)). However, in Israel both the
625 scope and quality of service improved—presumably due to the switch from analogue
626 to digital technology in the early 90s, competition with wireless service, and the threat
627 of entry generally.

628 8 Summary and conclusions

629 The standard story in the regulatory literature relates to an independent regulator over-
630 seeing the performance of a privately owned monopolist. The Israeli communication
631 market does not fit this model—throughout the last two decades wireline service have
632 been provided by a government enterprise regulated by government officials. Indus-
633 try performance seems, however, to have been unaffected by this unique institutional
634 setup. The Israeli consumer enjoyed a steady decline of tariffs; rebalancing of rates
635 almost eliminated cross subsidization and assured the financial stability of the pro-
636 vider; profitability of the company was resurrected (in spite of the liberalization of its

³⁸ A lower markup on interconnect than regular calls would have also been recommended by proponents of Armstrong's "replacement ratio" approach ([Armstrong 2002](#), p. 311).

³⁹ Under the price-cap rules, setting lower interconnect rates would not have affected the monopoly's profitability, since it would have called for higher local call rates.

637 major profit center—the international calls market); and productivity (including labor
638 costs) increased. These achievements are in particular noteworthy given the workers
639 unions' political influence, the distributive concerns of parliament and the advisory
640 status of the ad-hoc review committees that initiated the rate changes. Whether these
641 results are best attributed to improvements in technology, the effective and timely
642 introduction of competition by wireless telephony, or regulatory skill, related lessons
643 from the Israeli experience provide interesting data that appears to challenge some
644 standard presumptions in the regulatory literature.

645 The Israeli experience demonstrates the dynamic aspect of the asymmetry in infor-
646 mation. The power of the incentive scheme and the regulator's efficacy depend crucially
647 on his stock of knowledge. This stock is positively related to the stock possessed by the
648 regulated company. The company's investment in information, in turn, is stimulated
649 by regulatory and competitive pressures, thus increasing the regulator's effectiveness,
650 though paradoxically increasing at the same time the asymmetry between the company
651 and its regulators.

652 The asymmetry is not confined to information and relates also to other resources
653 (legal and financial). This asymmetry often leads the regulator to prefer a simple and
654 transparent scheme to a more sophisticated one (e.g., Ramsey pricing) even at the cost
655 of sacrificing some consumer welfare.

656 The liberalization of the Israeli wireline market was postponed several times, and
657 the market opened to competition only in 2004 on a very limited scale. How costly
658 was this delay?⁴⁰ An answer to this question is naturally speculative. To judge from
659 the European experience where markets had been liberalized a decade earlier, the
660 cost is not too large—Israel consumers enjoy phone rates that are among the lowest
661 in Europe.⁴¹ A comparison with the liberalized section of the Israeli communication
662 market is also illuminating.

663 The mobile phone and international calls markets have been opened to competition
664 since the second half of the 90s. Prior to liberalization the price levels in both mar-
665 kets were set artificially high by the monopoly, and in both markets the new entrants
666 were chosen in an open bid on the base of the lowest price. The new entrants slashed
667 prices by tens of percents, and the incumbents were forced to adjust to their pricing
668 immediately. However, once the market stabilized, prices started a steady crawl
669 upwards. The wireline market we did not witness the sharp rate cuts accompanying
670 liberalization, and it is hard to believe that a regulator would have been courageous
671 enough to recommend such extreme measures. Instead, abrupt changes were replaced
672 by a steady erosion of prices lasting for 15 years. It may still be too early to tell, but
673 hardly anyone expects the incoming competition in the wireline market to be associ-
674 ated with dramatic changes in average phone rates. The European experience shows
675 that liberalization often meant gains in welfare to the business sector at the expense of

⁴⁰ This question gains special weight given Hausman's (2002) calculation showing that the regulatory delay in the introduction of wireless service in the US cost American consumers close to 50 billions of dollars (in 1994 prices).

⁴¹ Recall also that in Europe the decline cannot be attributed solely to the forces of competition, and the regulators played an important role in accelerating the process (Newbery 1999, pp. 322–328).

676 the residential sector. The incumbent's increased productivity and rebalancing reduce
677 this risk.

678 Newbery (1999, p. 127) summarizing his lessons from the first decade of priv-
679 atization, considers the quality of regulation as the key determinant of performance,
680 with institutional factors (e.g., whether the utility is public or private) playing only a
681 secondary role. The Israeli experience seems to support this view.

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Revised proof