

## **Chapter 6**

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### **Gambling on the Border: Casinos, Tourism Development and the Prisoners' Dilemma**

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The emergence of casino gambling on the economic development landscape has forced elected officials and practitioners to confront a host of public policy issues that were hitherto ignored. The first relates to gambling as a sustainable economic development strategy. For which kinds of community is it suited, if at all? The second relates to gambling as a tourism and leisure activity. Can it be categorized as such and under which circumstances? These are not simply questions of classification and definition. They depend heavily on the circumstances of the community in question, the sources of demand for gambling and the supply of casino facilities. Almost overnight, the fortunes of casinos can change and with them, the economic futures of those communities that gambled heavily on the casino; from being export-based

economic development activities serving external demand in a regulated or monopolistic environment, they can turn into local service-based activities in a ruthlessly competitive market.

Casino operators will, of course, try to ensure the former scenario. One way of ensuring such a development trajectory is by establishing casinos at border locations. This chapter uses the case of gambling at border locations in order to illustrate this point. The border is a favorite site for the development of casinos, particularly if a large market exists on the other side. For the casino operator, this means a large source of demand stemming from more than one national or state jurisdiction. For the local community, a border casino represents the ultimate in export-based activity; appropriating local taxes from casino operators and the direct, indirect and induced impacts of local casino based expenditures. For national or state government, the border casino means the import of tax income and the re-exportation of all the negative externalities that accompany the gamblers as they return to their homes on the other side of the border: gambling-induced addiction, bankruptcy, reduced productivity and social pathologies.

However, the border location is also a gamble. Its attraction is generally contingent on special (regulated) circumstances. In their absence, the border can turn into a relentlessly competitive battleground for reasons similar to those that made it popular. Casinos on opposite sides of the border compete over proximity to markets, attempt to capture external sources of demand and to “roll-over” negative externalities to neighboring jurisdictions. In such circumstances, the stage is set for the classic “prisoners’ dilemma”: competitors on both side of the border would be better-off if there was voluntary cooperation between casinos. But, in practice, the outcome is likely to be far from the collective optimum solution, as no casino operator is likely to trust another and no community wants to opt-out voluntarily and leave the market in the hands of the neighboring jurisdiction.

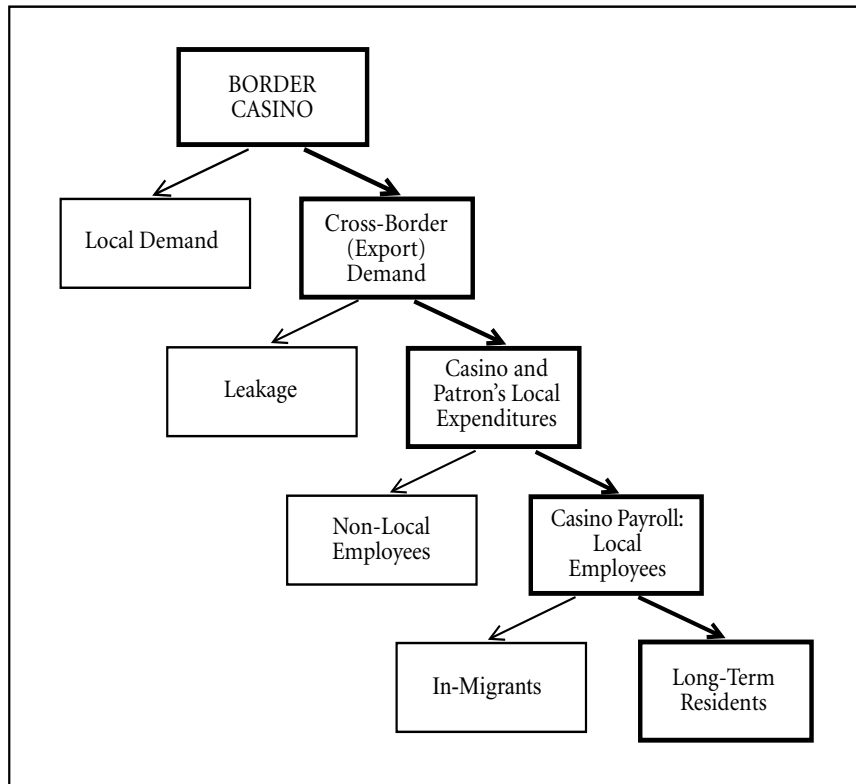
This paper examines the issue of casino development at border locations, highlighting the above mentioned “prisoners’ dilemma” that this situation encourages. After examining how this dilemma impacts on the regional dynamics of casino and tourism development, we present a (hypothetical) empirical analysis of the outcome of such competition between two tourist locations on the Israeli-Egyptian border: Eilat (Israel) and Taba (Egypt). The latter has a land-based casino that feeds almost totally off the Israeli market on the other side of the border. Recently, Eilat has started seriously to consider the option of promoting casinos. This will, of course, detrimentally affect the captive market that Taba now enjoys. Based on some simplifying assumptions, we present some numerical estimations of the impacts likely to arise

from the different combinations of competition and no-competition over casino development at this border location. First, we consider the case of a casino in Taba but not in Eilat (the existing situation). Then we proceed to consider the reverse case of a casino in Eilat but not in Taba. Finally, we present estimations for the most likely future scenario of casinos in both Taba and Eilat. Using simulation-generated data for Eilat and estimations for Taba, we show that the most probable outcome falls short of also being the welfare-maximizing outcome.

### **Economic Development and Border Areas**

State or national boundaries are often locations of economic opportunity (Krakover, 1997). This is especially the case if the existence of the border is itself the source of monopoly or non-competitive conditions that favor one side over the other. Unequal tax regimes, business incentives and restrictions on the movement of goods or people may serve to divert economic activity from one side to the other. More frequently however, it is the combination of state or national regulation and a large captive market on one side of the border that is enough to create economic opportunity for agents operating in an unregulated environment on the other side.

However, while the existence of unequal economic conditions is a necessary condition for favoring one side of the border over the other, it alone is insufficient. In order to generate economic development on one side of the border, it is not enough simply to have a large source of (export) demand on the other side. The revenues generated by this cross-border demand must be spent within the area, in order to have a local economic development effect. If they leak out to other areas, very little will have been achieved. Furthermore, even if these revenues are spent locally, for example as payroll, it is important that those doing the spending are local residents. If they are non-local employees, then this is likely to be another source of leakage from the local economy. Finally, even if revenues find their way to local employees who reside locally, their effect can still be diminished if these local residents are new in-migrants, rather than long-term residents. In the context of casino development at the border, these conditions are portrayed graphically in Figure 6.1. The border casino that feeds off external demand is only likely to have a local economic development impact, if casino revenues are spent locally, find their way into the pockets of local residents and generate income for locals who were resident prior to the introduction of the casino (Grinols and Omorov, 1996).



**Figure 6.1. The Border Casino and Local Economic Impacts (highlighted)**

In practice, state and national borders often serve as favorite locations for casino activity. Invariably, this is the result of the existence of a large, untapped market on one side of the border in a relatively gambling-regulated environment and an unregulated environment on the other side. This combination of conditions repeats itself time and time again. For example, the casino at Windsor, Canada is directed at the casino-free Detroit market (Deloitte-Touche, 1995). The riverboats of Northeast Indiana feed off the Chicago market, where no casino exists (Przybylski and Littlepage, 1997) while those of Southern Indiana are aimed at the metropolitan market of Louisville which has resisted casinos in order to protect its horse-racing industry (Przybylski, Felsenstein, Freeman and Littlepage, 1998). Illinois riverboats are aimed at the urban market of St. Louis (Grinols and Omorov, 1996), the Macau casinos service the Hong Kong market (Hobson, 1995), while the Nevada casinos (outside of Las Vegas) target the large population

concentrations of Northern California (Eadington, 1995). Similarly in Israel, the Jericho casino within the autonomous territory of the Palestinian Authority, is dependent on the urban populations of some of Israel's largest cities, such as Tel Aviv, Jerusalem and Beer Sheva, where casinos are illegal.

In all of these situations, the success of the border casino is assured as long as regulated conditions continue to operate over the border. However, once these regulations are eased, the monopoly situation turns to a highly competitive one. If casinos begin to develop on both sides of the border, it is obvious that one casino's gain is at the expense of the other. This is the classic zero-sum condition in local economic development that results in pure redistribution rather than economic expansion (Blair and Kumar, 1997). In the case of casino development however, there is a further twist. Not only is the economic development cake simply redistributed, but each side of the border now has to deal with the negative externalities generated by casino gambling on the other side. In this situation, not only are the slices of the cake cut to different sizes, the cake, itself, might actually shrink.

Faced with such a situation, the obvious solution might seem to be a mutually-agreed moratorium on casino development on both sides of the border in an effort to preserve market shares at current levels. In practice, however, such a cooperative solution is unlikely to be attained. This is because in the cross-border gambling situation, authorities (cities, regional or national governments) are locked into a form of prisoners' dilemma.<sup>1</sup> The essence of this dilemma is that while locations on both sides of the border would prefer some form of collaboration and cooperation, in practice the competition between them is likely to intensify. This is due to the lack of trust and information between them and the prospect of "cheating" or "defection" even in the presence of some collective solution.

The prisoners' dilemma metaphor has been used as a framework for understanding the "bidding wars" between states and countries and the prevalence of public subsidies for economic activity. Once cities and states are caught-up in this competitive spiral it becomes increasingly difficult to opt out unilaterally (Ellis and Rogers, 1997). Despite the fact that the welfare-maximizing strategy for all players is to disengage from the bidding wars and to promote some kind of non-competitive collaboration, the incentives of the situation, in practice, force the players into higher and higher bids. The inter-state diffusion of gambling in the United States has similarly been examined in this framework. Thompson and Gazel (1997) have shown how the hypothetical case of casinos in both Chicago and Northern Indiana leads to a situation in which locations on both sides of the state border, lose out. It would seem that the only situation in which casinos generate positive

economic impacts is the (unrealistic and temporary) monopoly situation in which one side has a casino and the other side does not.

### The Setting

We now proceed to present an empirical estimation of the impacts of cross-border competition around casino development. An analysis is presented of the likely regional economic impacts arising from two casinos in frontier tourist locations (Taba, Egypt and Eilat, Israel) on opposite sides of an international border (Figure 6.2). Taba is an Egyptian tourist resort in the Northern Sinai desert adjacent to the Israeli border. At present, there is one hotel operating, with six more under construction within a 10 km radius, totaling over 4,000 additional rooms. Foreign visitors are comprised of Israelis and European winter charter vacationers (mostly from Switzerland and Germany). In this respect, the Taba resort competes in the market with Eilat, although its main market is still Israeli vacationers and, especially, family weekend vacationers.

The differences in magnitude and function between Taba and Eilat should be noted. Taba is primarily a hotel resort location. It has none of the features of an urbanized area with all that this implies: flows of population and visitors, transportation and tourism infrastructure—all of which exist in Eilat. While it has its own airport with twice weekly flights to Cairo, it is to a large extent dependent on Eilat for markets and access. Were it not for the international border, it would be considered a suburb of Eilat.

The Taba Hilton Casino operates from a building adjacent to the Taba Hilton hotel and is owned by London Clubs International, a publicly-traded company with casinos in London, Las Vegas, Belgium, South Africa, the Bahamas, Lebanon and Egypt. The present casino was established in 1994, and has 30 tables and 80 slot machines. This represents roughly 300 gaming positions, although the gaming areas can accommodate 2000 people at full capacity. It employs 230 people, the vast majority of whom are Egyptians from Cairo and Alexandria.

Patrons at the Taba Hilton Casino are almost exclusively Israeli tourists. The Taba border crossing serves as the main gateway for entry from Israel to the Sinai desert. Border control registered 301 and 372 thousand Israeli exit crossings to Egypt in 1997 and 1998, respectively. Of these, roughly 77 percent were visitors crossing the border, whose destination was Taba. The identification of these visitors is possibly due to the fact that they are exempt from paying border tax. The Egyptian authorities, recognizing the revenue potential of these visitors, have reduced border-crossing formalities for those

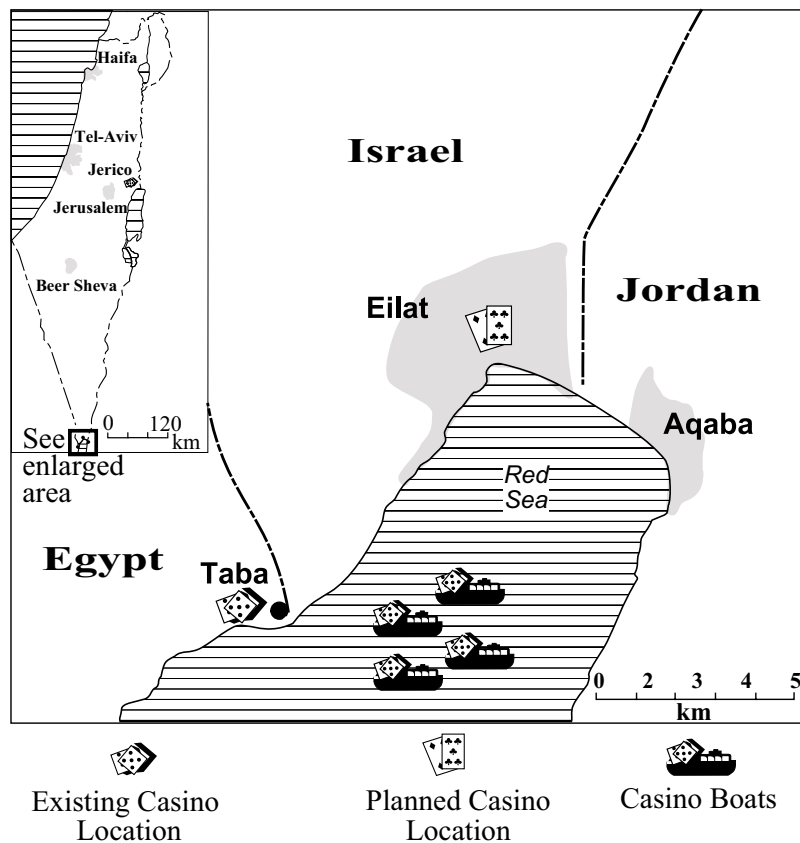


Figure 6.2. Taba and Eilat Casino Research Area

entrants who are going no further than Taba. We estimate that 90 percent of these visited Taba for the purpose of gambling. It should also be noted that Taba is only 10–15 minutes away from Eilat by car and that the casino also provides a bussing service to and from the border.

Eilat is immediately adjacent to Taba. It is Israel’s premier tourist resort with over 1.27 million visitors in 1996, of whom 33 percent were foreign tourists and 66 percent were Israelis. The former stay an average of four nights in Eilat and the latter, an average of two nights. The city has a well-developed tourist infrastructure with a wealth of water and sun-related attractions, 7,500 hotel rooms and a further 2,000 at present under construction. It has a rapidly growing population and many of the characteristics of a tourist resort in terms of a high crime rate, a rather transient population and a large rental housing stock (see Felsenstein and Freeman, 1998).

While land-based casinos are illegal in Israel, between five and eight casino boats operate out of Eilat port and engage in gambling activity outside the territorial waters of Israel. The patrons of these boats are exclusively vacationers in Eilat and Israeli gamblers who come to Eilat for this purpose. This, along with the fact that the vast majority of the patrons at the Taba casino are Eilat vacationers, means that the city of Eilat provides the infrastructure for local gambling activity without seeing any visible returns. In some respects, gambling activity in the Taba casino and on the boats has all the features of a classic export-base activity whereby the casinos appropriate all revenues and the city of Eilat bears all the externality costs. After some years of ambivalence towards the issue of promoting a casino in Eilat, city hall, the local chamber of commerce and the Eilat hotel association have all firmly supported the idea. A further impetus would seem to be the recent establishment of a Palestinian Authority controlled casino in Jericho, whose presence has cut in to the revenues of both the Taba casino and the Eilat casino boats.

The development of the tourism and gambling sectors in this part of the Red Sea over the last decade illustrates a fascinating chronology of competition and trade diversion. Initially, the Eilat monopoly position in the region was challenged by the development of the Taba tourism resort, which eroded some of the Israeli hegemony over the European winter tourist market and deflected some of the Israeli tourism market through the opening of a casino. The Eilat gambling ships were a partial response to this challenge, at least in terms of the Israeli gambling market. Recently, both gambling locations have been challenged by the Jericho casino. The response has been a concerted effort by the city of Eilat to lobby for a permit to establish Israel's first land-based casino. The cycle has thus turned full circle.

## Method and Data

### The Accounting Approach

In order to illustrate the prisoners' dilemma facing casino development in border areas, we set up a simple four-scenario case, outlining the various combinations of competition and cooperation between Taba and Eilat over the establishment of casino gambling. Using a transparent accounting system, we attempt to estimate, for each case, the direct economic impact of the casino (comprised of positive and negative economic outcomes). We then expand this outcome by a suitable regional multiplier which yields the total economic impact. Finally, we adjust this economic impact to account for



the social cost of gambling. This result gives us the overall impact in monetary terms. Note that no attempt is made to assess the non-pecuniary issues that accompany casino development, such as the quality of the working environment and job satisfaction (Blair, Schwer and Waddoups, 1998). These are important issues that deserve serious consideration, but are beyond the scope of the present study.

The four cases considered here, are as follows:

1. *Both locations agree to a moratorium on gambling.* In this instance, no casinos develop in either location. No estimation is needed here as overall impacts are zero in both Taba and Eilat. This is the welfare-maximizing, but highly improbable, solution to the prisoners' dilemma for both locations.
2. *Taba has a casino while Eilat does not.* This represents the existing situation and provides one short-term and unstable solution to the dilemma. We estimate the economic impacts as outlined above for this situation.
3. *Eilat has a casino while Taba has none.* This is the mirror-image of the previous situation and represents the desired outcome on the part of Eilat. As above, this solution is unlikely to occur.
4. *Both Taba and Eilat have casinos.* This represents the most likely outcome and the longer term solution. In the absence of mutual trust between the two locations, it is likely that each will promote gambling, despite the fact that in this situation, both may stand to lose.

The four potential solutions to the prisoners' dilemma are represented graphically in Table 6.1. As can be seen, the impacts of gambling are obviously zero when neither location has a casino. When a casino is located in Taba and not in Eilat, we expect the net gain to Taba (positive minus negative eco-

**Table 6.1. Four Potential Solutions to the Prisoners' Dilemma: Gambling in Taba and Eilat**

		EILAT	
		No Casino	Casino
TABA	No Casino	0	T - E +
	Casino	T + E -	T - E -

T = Taba; E = Eilat  
 0 = no impact  
 + = positive impact; - = negative impact

conomic impacts) to outweigh the economic impacts in Eilat which are nearly all negative spillovers from Taba. When the situation is reversed, (Eilat has the casino and Taba does not), we expect a reversal of outcomes. The net economic impacts in Eilat (positive minus negative outcomes) will exceed the economic impacts in Taba. These latter effects are likely to be all negative due to demand diversion and opportunities forfeited in Taba, when Eilat opens a casino. Finally, in the instance that both locations open casinos, we expect negative economic outcomes in both. Because of the limited volume of visitor flows to Taba and its dependence on Israeli patrons, we expect these negative outcomes to be higher than in Eilat.

The first stage of the analysis is to estimate the *volume of visitors* to the Taba casino and to the hypothetical Eilat casino. In the latter case, our estimations are based on the existence of a stand-alone casino with 75 tables, 300 games (i.e., 750 gambling positions) and employing 350 people. Visitors to the Taba casino are estimated using data on Israelis crossing the border. Visitors to the Eilat casino are based on actual data on foreign tourists and Israeli tourists, the propensities to gamble for these two groups and for local Eilat residents and estimates of the extra demand generated by the presence of a casino in Eilat.

The second stage relates to estimating the *within-casino expenditure* by patrons and the *casino cost structure*. Within-casino expenditure is comprised of the casino “drop” (revenues from gambling), plus ancillary revenues from the sale of food and beverages and the collection of entrance fees. Casino costs relate to wages and salaries paid, national gambling tax, corporate tax, property tax, sales or value added tax and the costs of inputs (goods and services).

The *direct economic impacts (positive and negative)* are distilled from the casino revenue and cost structure in the third stage. The positive impacts include all those casino-related expenditures that remain locally. Amongst them we can include, wages and salaries, the proportion of gaming tax that gets transferred to the city, the proportion of the entrance fee that is transferred to the city, local property tax paid by the casino and visitors additional expenditure induced by the presence of the casino. The negative impacts are deadweight spending, (i.e., non-gambling spending by locals or visitors that would have occurred in the absence of the casino) and demand that is displaced by the casino (displacement of other local gambling revenues such as lottery, displacement of local residents demand and displacement of visitors demand). Subtracting negative from positive impacts yields total direct economic impacts arising from the casino.

This direct impact is then *expanded by a suitable regional income multiplier* in the fourth stage in order to account for the indirect and induced impacts triggered-off by the presence of the casino. This gives an estimate of the *total economic impact*. This figure is further adjusted (downwards) in order to represent the monetary cost of the local social effects generated by the casino (cost of treating local gambling addicts, local productivity loss and negative spillovers generated locally). Once this sum is subtracted from the total economic impact we arrive at the *overall impact* which is a statement of the various outcomes arising from the “prisoners’ dilemma” situation of adjacent and competing casinos.

### Data Sources and Assumptions

Our accounting approach is based on a series of simplifying assumptions and estimation parameters. As far as possible, these have been based on real data gathered from tourism, hotel, municipal and gambling representatives in Taba and Eilat, simulation-generated data from previous work (Felsenstein and Freeman, 1998) and informed estimations when none of the former are available. These assumptions are broadly outlined in the notes to Table 6.2. The guiding principle is to generate parameter values on the basis of local data and only failing that, to use literature-generated parameters. Thus, for example, numbers of visitors to Eilat and their expenditure patterns comes from the Central Bureau of Statistics data (CBS, 1999) and from surveys commissioned by the Bureau (Taskir, 1993). Israeli visitors to Taba are calculated from data made available by the Taba border terminal. Expenditure within the casino is based on an industry-confirmed figure of \$125 per visitor which is distributed across casino drop (\$100), entrance fee (\$10) and food and beverage (\$15). Tax rates for the Taba casino, are those presently prevailing. In the case of Eilat, hypothetical tax rates are taken from the recommendations of the government commission into gambling (Gavish Commission, 1995). Property tax rates are based on Eilat city existing rates for hotel and assume both gambling floorspace and other unbuilt space (e.g., parking). For Eilat, we based our estimations on gambling floorspace of 3,500 m<sup>2</sup> and open space of a further 2,500 m<sup>2</sup>.

The employment structure for the purpose of estimating wages and salaries was based on 230 employees for Taba and 350 for Eilat. In both cases, top level management comprise the top five percent earning \$48,000 per annum, a middle level strata of 15 percent of all employees earning \$30,000 (in Eilat only) and the remaining 80 percent (or 95 percent for the Taba casino) earning

\$18,000 yearly, net of tips. All wages and salaries are assumed to be spent locally. For Eilat, inputs purchased locally are estimated as five percent of net revenues after netting out wages and taxes. In the case of Taba, all local purchases are done in Eilat. These are estimated as one percent of net revenues and are counted as a leakage (negative impact) for Taba. These small shares of local inputs reflect the limited nature of the local economy. Visitors' additional expenditure over and above what they would have spent in the absence of the casino, is calculated in the Taba case as 40 percent of the occupancy of the Taba Hilton on an annual basis at a rate of \$166 per day (Felsenstein and Freeman, 1998). In the Eilat case, this expenditure is estimated as the within-casino expenditure of the visitors diverted to Eilat as a result of the casino (i.e., their food and beverage spending alone).

The negative local economic impacts are deadweight expenditure and local demand displacement. For both Eilat and Taba, we assume that all hotel expenditure would have happened in the absence of a casino in either place. Eilat's visitors would continue to come to the city: they would just gamble elsewhere, either at Taba or on the gambling boats. Similarly, Taba's patrons would continue to stay (in the main) in Eilat. Displacement is calculated on the basis of the presence of truly additional visitors. Those that are assumed to gamble elsewhere in the absence of the casino do not displace existing demand. Rather, it is the expenditure of those that cannot be expected to go elsewhere, that will displace existing demand. In the case of the casino in Taba, displacement rate is calculated as 10 percent while in the Eilat casino case it is estimated as 24 percent. Local positive and negative economic impacts are both expanded by a regional output multiplier of 1.3 (Felsenstein and Freeman, 1998)

On the social costs account, we quantify three separate costs. The first is the cost of treating local gambling addicts. We assume (conservatively) that three percent of the local gambling population have compulsive tendencies and that one year's treatment (not including hospitalization) costs \$5,000. These estimates are based on figures provided by professionals working in the area of gambling addiction in Israel. We assume a local negative spillover effect comprising local crime, disturbances and the costs that accompany this. This is calculated on the same basis of local compulsive gamblers, assuming that only half of them are involved in criminal activity and that of these, only half will commit crimes locally. The cost per crime is estimated as \$2,000, which is less than half the accepted figure (BGA, 1992). Finally we estimate a local productivity loss parameter based on the local population of compulsive gamblers, assuming this time that half the regional GDP per employee is lost within this subset of the population (i.e., \$17,500 per addict). This figure is again a very conservative estimate, at 65 percent of the accepted

productivity loss figure at the beginning of the 1990s. As above, this is expanded by a multiplier and combined with the two other social costs to yield the overall local social cost of gambling.

### **Gambling in Taba and Eilat: Estimates of the Impacts**

The above accounting system yields results for three of the four outcomes, described above. These are presented in Table 6.2. The first case deals with the present situation: a casino in Taba and none in Eilat. In this instance, visits to the casino sum to over 200,000 comprising local Eilat residents and Israelis crossing the border for the purpose of gambling. These visitors generate revenues of over \$26m and casino costs sum to over \$18m. Direct positive impacts generated locally, greatly outweigh the negative economic impacts as we only assume 10 percent demand displacement. In addition, all social costs are passed on to Eilat, the point of origin for all Taba gamblers. As a result total economic impacts in the Taba area sum to over \$7m.

In this situation, Eilat loses even more than Taba gains. Lost economic opportunities in diverted demand sum to over \$5m and to \$6.6m when indirect impacts are considered. Hotel revenues are not considered forfeited as nearly all casino visitors stay in the Eilat hotels. Social costs arising from Israeli visitors addicted to gambling and the attendant crime and productivity loss generate an estimated local cost of over \$12m. Obviously, this is not a situation that Eilat wants to encourage.

Case 2 describes the hypothetical situation of a Casino in Eilat but none in Taba (Table 6.2). Under this scenario over 1.6 million visits are expected at the casino comprising visits by local residents, Israeli tourists, foreign tourists and demand diverted to the casino from other gambling locations (gambling boats, Jericho casino, illegal casinos etc.). The volume of tourist traffic in Eilat combined with the larger casino that we are positing, make for a much greater revenue flow than in the previous case. The casino visitors are expected to generate within-casino expenditures (casino drop, admission fees and food and beverages) of \$198m. Casino costs on the other hand (wages and taxes) sum to \$63.7m.

The amount of casino generated revenues that stays in the local economy is the sum of all the positive and direct impacts such as local revenues from the casino, property tax paid by the casino, casino spending on local inputs and additional visitor expenditure promoted by the casino. This sums to over 17 percent of all casino-generated revenues (\$35.1m). From this figure the negative direct impacts need to be subtracted in order not to count spending that would have occurred anyway and casino-induced spending

**Table 6.2. Economic Impacts in Three Hypothetical Situations**

	<u>CASE 1:</u> Casino in Taba: None in Eilat	<u>CASE 2:</u> Casino in Eilat: None in Taba	<u>CASE 3:</u> Casino in Taba: Casino in Eilat	
	Taba <u>Impacts</u>	Eilat <u>Impacts</u>	<u>Taba Impacts</u>	
1. Visits to Casino (Th) <sup>1</sup>	209	1639		70.0
2. Casino Revenues + Costs (\$m)				
2.1 Within-Casino Expenditure <sup>2</sup>	26.2	198.0		8.7
2.2 Casino Cost Structure <sup>3</sup>	18.3	63.7		8.2
3. Direct Economic Impacts (\$m)				
3.1 Positive Impacts <sup>4</sup>	8.4	35.1		5.5
3.2 Negative Impacts <sup>5</sup>	0.9	9.9		0.5
Balance	7.5	25.2		5.0
4. Total (Direct + Indirect) Impacts <sup>6</sup>	9.7	32.8		6.5
5. Social Costs <sup>7</sup>	0	(30.6)		0
	<u>Eilat Impacts</u>	<u>Taba Impacts</u>	<u>Eilat Impacts</u>	
1. Direct Economic Impacts (\$m)			1. Visits to Casino (Th) <sup>1</sup>	1,569
Diverted Demand <sup>8</sup>	(5.1)	(21.8)	2. Casino Revenues + Costs (\$m)	
Hotel Revenues Forfeited <sup>9</sup>	(0)	(5.8)	2.1 Within-Casino Expenditure <sup>2</sup>	196.2
2. Total (Direct + Indirect) Impacts <sup>6</sup>	(6.6)	(36.0)	2.2 Casino Cost Structure <sup>3</sup>	63.3
5. Social Costs <sup>7</sup>	(12.1)	(0)	3. Direct Economic Impacts (\$m)	
			3.1 Positive Impacts <sup>4</sup>	33.9
			3.2 Negative Impacts <sup>5</sup>	13.1
			Balance	20.8
			4. Total (Direct + Indirect) Impacts <sup>6</sup>	27.0
			5. Social Costs <sup>7</sup>	(30.6)

## Notes to Table 6.2

- Volume of visits to the Taba casino is calculated on the basis of: 80 percent of the Israelis using the Taba border crossing, whose destination is Taba. For the Eilat casino, visitor volume is comprised of foreign tourists, Israeli tourists, local Eilat residents, and demand diverted to Eilat from Taba and from the gambling boats. In the case where both locations have casinos, we assume 20 percent

of the Taba visitors will continue to frequent the location. Hotel visitors (10 percent of border crossings) are assumed to visit twice per visit.

2. Within-casino expenditures are estimated on the basis of a gambling 'drop' of \$100 per visit, \$10 entrance fee and \$15 food and beverages, per visit.
3. The casino cost structure is comprised of employees wages and salaries, gambling tax, admissions tax, value-added tax (on food and beverage sales) and property tax based on the size of the casino (floorspace and unbuilt areas).
4. Direct positive impacts are the sum of the following factors: wages and salaries (all employees are assumed to be local); 33 percent of revenues from the gaming tax; 33 percent of revenues from the admissions tax; all the property tax, inputs purchased locally which in the case of Eilat are assumed to be five percent of net revenues after deducting wages and taxes and in the case of Taba are assumed to be one percent of net revenues, all of which is spent in Eilat; visitors additional expenditure (i.e., non-deadweight spending) which is assumed to be only the expenditure on food and beverage arising from the new demand diverted to the casino. All other expenditure is assumed to have occurred even in the absence of the casino (visitor expenditures in Taba and Eilat). In the case of casinos in both locations, the volume of Taba visitors extra spending is subtracted from the Eilat total.
5. Negative economic impacts represent the demand local demand displaced by the casino. In the Taba casino case we assume that 90 percent of visitors would gamble elsewhere in the absence of the casino (i.e., 10 percent displacement). In the case of the casino in Eilat we estimate a displacement rate of 24 percent assuming that half of the additional demand diverted from the gambling boats would gamble elsewhere, 20 percent of the demand diverted from Taba and 33 percent of the demand from local Eilat residents. All the rest is assumed to be displacement. In the case of a casino in both Eilat and Taba, the non-additional spending figure in Eilat is adjusted upwards to reflect the volume of visitors going to Taba.
6. Total impacts are calculated as direct impacts expanded by a regional income multiplier of 1.3 (see Felsenstein and Freeman, 1998).
7. Local social costs represent the monetary cost of treating compulsive gamblers, their productivity loss locally and the local spillover cost (crime etc.) generated by all casino visitors. Social costs are assumed to relate to 3 percent of all local visitors (not visits) to the casino at a cost of \$5,000 per gambler (for one year, without hospitalization costs). Local spillover costs generated by all gamblers (crime, etc.) are estimated as the number of addicted visitors (3 percent) multiplied by \$2,000 per addict. We assume that only half of those addicted will commit crimes and of these, only half will be committed in Eilat. The local productivity loss is estimated as half of gross regional product per employee (\$17,500) for each of the local addicted gamblers. This latter figure is expanded by a regional multiplier.
8. Diverted demand represents income lost to Taba or Eilat through not having a casino when the other location has one. In the case of no casino in Taba it is calculated as number of cross-border visits for the purpose of gambling multiplied by \$125 per visit (drop, entrance fee and food and beverages). In the case of no casino in Eilat, it is assumed that with 90 percent of Taba visitors gambling elsewhere in the absence of the casino (see note 5 above), 50 percent of this proportion would go to the Eilat boats, 15 percent to other locations (Jericho, illegal casinos) and the remaining 25 percent represents the demand diverted from Eilat. In addition, food and beverage expenditure for all Taba visitors are taken as demand diverted from Eilat.
9. Hotel revenues forfeited are calculated for Taba on the basis of 10 percent of the Israelis crossing the border for the purpose of gambling, spending 2 nights in Taba at a cost of \$166 per night (hotel and ancillary expenditures). This would be lost if there was no casino in Taba. In the case of no casino in Eilat, we assume no hotel revenues are forfeited (no reduction in Taba casino patrons staying in Eilat).

that displaces other spending in the local economy. Subtracting these effects, still leaves a positive direct balance of \$25.2m. Once this is expanded to account for indirect and induced local spending that it triggers, we are left with a total impact of nearly \$33m.

Local social costs however have to be taken into consideration. Conservative estimations of the propensity to gamble (and become addicted) amongst visitors to Eilat, the cost of treatment for this addiction, the productivity loss that this addiction implies and the spillover costs of the casino, result in total social costs summing to over \$30m. Thus over 90 percent of the positive local effect is eroded by the local social costs arising from hosting the casino in Eilat. It should be noted that this narrow margin of local profitability is achieved under the most favorable scenario from Eilat's perspective. The absence of a casino in Taba results in lost direct economic opportunities (gambling demand diverted to Eilat and hotel revenues forfeited) of \$27.6m. This figure expands to \$36m once the indirect impacts are counted.

The most likely outcome is Case 3: casinos on both sides of the border. Under this scenario we assume the same size casinos as in Cases 1 and 2. With the presence of a large casino in Eilat, visits to the Taba casino are reduced drastically. As a result, casino revenues fall and barely cover costs (Table 6.2). In terms of local economic impacts (comprised of salaries and additional expenditures), the Taba casino generates a positive balance \$5.0m of which expands to \$6.5m when indirect effects are accounted for.

The impacts in Eilat, derive from slightly reduced demand (1.569m visitors) due to the presence of the casino in Taba. As in Case 2, casino revenues far outweigh costs. The slight diversion of demand to the Taba casino means that local positive economic impacts are marginally reduced (less local expenditure) and the negative impacts are slightly increased (more dead-weight or non-additional expenditure). This means that the overall positive balance is reduced to \$27m (including multiplier effects). This sum however is not sufficient to cover the local social costs of gambling (\$30.6m), which remain constant. Even when demand is slightly diverted from Eilat, the city still has to deal with the social cost of gambling that is taking place over the border. This slight deflection is enough to cancel-out the positive local impacts of the casino and leave Eilat with a negative balance of \$3.6m.

## Conclusions

While our empirical results support the outcomes hypothesized in Table 6.1 (above) in the case where one location has a casino and the other does not,



the peculiarities of the Taba-Eilat situation are such that even when Eilat has no casino, it still has to shoulder heavy social costs. This explains why, contrary to the simple prisoners' dilemma hypothesis, Taba reports positive impacts in the instance when both locations promote casino gambling (Case 3). All social costs simply flow back over the border to Eilat along with the returning gamblers.

The results have significant implications for the use of gambling as a tourist development strategy, in three respects. First, in the absence of cross-border cooperation, the kind of competitive situation described above is likely to lead to both locations losing, as hypothesized by the prisoners' dilemma. The situation described above with competition between two remote locations is, however, a highly simplistic representation. In reality, prisoners' dilemma-type situations can emerge in more complex settings, such as metropolitan areas where multiple locations are involved. For example, metropolitan Chicago is within the orbit of both the Iowa and Indiana borders and thus a tri-state competitive situation, involving Illinois, Iowa and Indiana emerges. Locating a border casino in any one of these states immediately has ramifications in the other. A similar situation could potentially develop, if a casino were to open in Akaba (Jordan). This port city adjoins Eilat to the east and any gambling activity there would promote a more complex dilemma with nine possible outcomes involving Egypt, Israel and Jordan.

The second implication relates to the limited size of the market for gambling, in a small country like Israel. While the monopoly-type situation of a casino in one location and not in the other yields large revenues and local impacts, once a competitive situation merges, using casinos as a tool for tourist development quickly become a zero-sum game. Our findings illustrate just how susceptible positive local casino impacts really are. A slight diversion in demand across the border is enough to negate any positive local effects. In a more competitive situation, the likelihood of each new entrant to the casino market benefiting, only at the expense of all the others, only increases.

Finally, our findings point to the heavy monetary weight of social impacts. These effects are often glossed-over (either deliberately or unintentionally) in many impact analyses. The results above have shown that even when employing particularly conservative assumptions, these impacts can turn a local positive effect into a negative one. In the heat of the economic development debate, it is often assumed that the very large revenues that casinos generate automatically create positive local impacts that are large enough to cover the negative externalities generated. Our particular case

study has illustrated that this margin might be smaller than anticipated. Furthermore, faced with moderate social costs, it may evaporate altogether. Even a modest deflection of demand may be all that is needed to effect this turn-around. In a competitive border situation, the likelihood of this demand-diversion is increased. In this uncertain environment, locating casinos on the border, may indeed be a gamble.

### Notes

1. The prisoners' dilemma story, as used in game theory (Gibbons, 1992), tells of two suspects accused of a crime by the police. Each one is held separately and is faced with the dilemma of whether to cooperate with the police (in return for a reduced sentence) while not knowing the behavior of their partner. In the absence of sufficient evidence for an indictment, each prisoner is confronted with the following dilemma. He can incriminate his accomplice and hope that the accomplice does not incriminate him. This is the best possible outcome for the prisoner. Failing that, he can remain silent and hope that the other prisoner will do the same. This is the welfare-maximizing strategy for both prisoners. However, there is no guarantee that the accomplice will act in the same way. The third choice is to implicate his fellow prisoner and be incriminated himself. This strategy is a great deal worse for both prisoners as they will both be subjected to some form of punishment. Nevertheless, it is likely to be the dominant strategy, in that it minimizes the risk of "cheating" or "defection" on the part of his accomplice. Finally, the prisoner can remain silent and be indicted by his fellow prisoner. Few prisoners are likely to opt for this strategy.

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