

Adverse Impact of New In-state Casinos on Prevalence of Pathological and Problem Gamblers in New York State

Stephen Q. Shafer, M.D., M.A., M.P.H.

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Summary: Up to seven new commercial casinos would be allowed by a proposed amendment to the State Constitution, risking the creation of eighty thousand new gambling addicts and two hundred thousand new problem gamblers in New York State. The quantifiable socio-economic costs related just to these new out-of-control gamblers would far outweigh the tax revenues New York State would see from “recapturing” gamblers who had been crossing state lines and also taxing new in-state casinos on their take from new gamblers. The number of pathological (addicted) gamblers and problem gamblers created would exceed the number of new hires at the casinos by a factor of ten or more.

Introduction: Early in 2012 Governor Cuomo gave a charge to the Legislature to do all it can to have Article I, Section 9 of the State Constitution amended to permit up to seven new commercial casinos, now prohibited. The rationale was to increase tax revenues through “recapturing” casino users who had been going out of state and to “create” jobs.

Since other states realize yearly as taxes or as payments-by-compact several hundred million dollars lost in those states by casino gamblers from New York, policy-makers here want to stop the leakage of tax revenue by enabling casinos that the state can “regulate” and tax. “Recapturing” the state line crossers by licensing new in-state commercial casinos, however,

would have a side effect not acknowledged by any public official. It is sure to create tens of thousands of new pathological gamblers (addicts) and new problem gamblers among New Yorkers who might not have become such without convenient casinos.

This report predicts an adverse impact of the recapture strategy. Part 1 projects how many new pathological gamblers and new problem gamblers can be expected as a direct effect of “up to seven” new commercial casinos. Part 2 compares the hidden *quantifiable socioeconomic costs* connected to these new pathological and problem gamblers to the author’s estimate of the revenues the state could anticipate by “recapturing” all New York residents who now go out of state to casinos and by taxing the revenue to new in-state casinos from the new gamblers attracted to them. Sensitivity analyses are appended.

Quantifiable social costs means only those to which a current monetary value can be assigned.¹ Not entered into the econometrics of this report are un-quantifiable social costs such as suicide, family disruption, divorce, rupture of friendships, dissolution of businesses, human misery and debasement. These cannot be forgotten in considering the overall impact of “legalized” gambling, but are not part of the calculations here. This report counts as “benefit” only revenue to state government.

Methods: Using empirical data, I estimate changes in prevalence of all types of gamblers (especially pathological and of problem gamblers) in New York State that would come with making casinos more convenient to New York State residents. I estimate the amount of money lost by New York residents gambling at casinos in other states. It is assumed that all gamblers

who are now crossing state lines to casinos would stop doing so if they could casino-gamble here more conveniently than out of state.

Predicting how many new addicted gamblers and problem gamblers would result from the “up to seven” new casinos depends on many factors. Important variables include their locations, capacities, and numbers. Another critical variable is the association between distance from a casino and the likelihood that a someone residing at that remove is a pathological gambler or problem gambler. The two most relevant studies on this distance relationship are those of Gerstein *et al.* (1998)² and Welte *et al.* (2004).³

Gerstein *et al.* reported that in Iowa in the mid-1990s the prevalence of pathological gamblers was 0.4% (.004) of adults in places more than 250 miles from a casino but 1.3% (.013) in places less than 50 miles from one. Adding .009 to .004 more than triples the baseline proportion. For problem gamblers the prevalence was .3% (.003) in places more than 250 miles from a casino, rising to 1.1% (.011) in areas less than 50 miles from one. This difference of + .008 almost quadruples the baseline prevalence. Grinols⁴ takes the prevalence figures at the >250 mile distance as baseline for a casino-free regional society.

Welte *et al.*,³ using a national telephone survey rigorously conducted with good response rates, found that for persons living within ten miles of one or more casinos (as compared to outside ten miles) there was a 90% increase in the odds of being a pathological or problem gambler. Details of this study are in footnote 5. I have assumed that the 1.9 multiple applied equally to both types of gambler. The original study did not make a distinction.

Our hypothetical bad-case scenario assumes that the amendment to the State Constitution is approved in 2013 and that seven commercial casinos are built in New York State starting

2014. One constraint on location: none in the part of western New York State in which no casino can be built without consent of the Seneca Nation.

The Governor and the would-be developers of commercial casinos in New York share some objectives but do not have identical priorities. The chief objective of the developers is to maximize their post-tax profits. Assurances that their new facilities will recapture line-crossing New Yorkers and “create jobs” are their *quid pro quo* for having state leaders break trail for them by amending the constitution. The chief objectives of government leaders who promote the amendment appear to be more tax revenue and “job creation.” The “up to seven” casinos would thus be placed to maximize gross pre-tax revenues to private ownership, with the tax rates to be negotiated.

For maximum gross revenues, casinos would have to be in well-populated areas that are now without casinos. To maximize recapture of New Yorkers crossing borders (and maybe entice some out-of-staters) all or most of the seven casinos should be near a border with New Jersey, Pennsylvania, Connecticut, Massachusetts, or Canada. If western New York is excluded, most or all of the new casinos would surely be in the southeastern part of the state. This region has the largest, most dense population. In mid-2012, it has no full-fledged casinos, but three racinos (at Yonkers, Aqueduct and Monticello). There are no full-fledged casinos less than 100 miles away from Manhattan.

We think nearly all the New Yorkers who now frequent Foxwoods, Mohegan Sun, Atlantic City and eastern Pennsylvania are from what we call the greater New York metropolitan area -- the five boroughs of New York City, along with Nassau County, Westchester County, and Rockland County. Suffolk County, not densely populated, might be included also. These

counties (not including Suffolk) in 2010 had roughly 8 million persons aged 18 and over. It is mostly out of those New York adults that the line-crossers would have to be recaptured. It is likely that the new casinos would not be evenly spaced along the state borders most traversed by gamblers. They would be situated, with at least one cluster likely, mostly within 50 miles of the greater New York metropolitan area as defined above.

Collateral damage of the recapture process would be the creation of new pathological gamblers and problem gamblers induced by the arrival of casinos where there were none.

Findings Part 1: This first part looks at creation of gambling addicts by placement of five new casinos in southeastern New York State with construction beginning 2014.

Assume prevalence of pathological gamblers in the target area in July 2012 is .0114 (1.14% of the adult population), a figure from nationwide studies.⁶ Assume that within three years from opening the five casinos (i.e. by late 2018) the prevalence of pathological gamblers within ten miles of one or more of the new casinos goes up 90% (by a factor of 1.9). This multiple is taken from the findings of Welte et al.³ How many new pathological gamblers would there be among the 8 million adults? In two or three years, the count would rise from 91,200 (8 million x .0114) to 173,280, an increment of eighty-two thousand new addicts attributable to the five new casinos. *Even an increase of this great size would be very hard to detect unless more than a thousand persons were sampled; the cost of such a study would break any research budget that can be reasonably expected.* For every one-tenth multiplicative increase in the baseline prevalence proportion there would be about another 9,000 pathological (addicted) gamblers. See Table 1 below.

An increase of 90% in the prevalence of problem gamblers would push it from 2.8% to 5.3%. Applying that rise to a population of eight million adults gives 201,600 new problem gamblers. Table 1 presents expectations for a series of hypothetical rises in prevalence. Because of the huge population at risk, the expected totals are very high even for small (e.g. x 1.35) increases in the prevalence. No matter how many employees are hired for the new commercial casinos, the number will be a small fraction of the number just of new pathological gamblers.

Table 1. Number of new gamblers of each type to be expected for a specified proportional rise in prevalence above baseline. Baseline prevalence for pathological gamblers is 0.0114 of adults; for problem gamblers, .028 of adults. Population base is eight million persons aged 18 and over. Numbers are rounded off to nearest thousand.

Multiple of baseline prevalence	New pathological gamblers	New problem gamblers	New gamblers both types combined
1.175	16,000	39,000	55,000
1.35	32,000	78,000	110,000
1.53	48,000	118,000	166,000
1.7	64,000	157,000	221,000
1.88	80,000	197,000	277,000
1.9	82,000	202,000	284,000
2	91,000	224,000	315,000

Conclusion of part 1: Five new casinos tactically deployed in southeastern New York state could lead to 82,000 new gambling addicts and 202,000 new problem gamblers over a few years. We will next look at tax revenue potential in a 5-casino near-saturation scenario.

Part 2: Tax revenues expected from different components of the recapture strategy

Revenues from gamblers who leave the state to use casinos. I estimate here how much money is being left in other states now by gamblers from New York, thus what the state could recoup if it kept these people at home and taxed their losses via New York casinos. For a schedule of annual losses by type of casino gambler, we turn to a seminal paper of 1997 by Grinols and Omorov.⁷ These authors employed slightly different prevalence figures than the baseline ones we used earlier, which are from the Shaffer *et al.* meta-analysis.⁶ Grinols and Omorov applied data from the early 1990s to estimate that the average adult (including non-bettors) who lived within 35 miles of Las Vegas or Atlantic City lost \$142/year to casinos. Table 2 below is reconstructed from their article. They used figures from a study done by Deloitte and Touche for the Chicago Gaming Commission.

Table 2: Representative Distribution of Gambling Revenues by Type of Gambler (ref. 7)

Pop pre- valence	Type of gambler	Annual Loss per gambler 1992\$	Annual Loss per 100 adults 1992\$	Cumul Percent of Casino Gross
1.38%	Pathological Gamblers	\$4,013	\$5,538	39%
2.73%	Problem Gamblers	\$669	\$1,826	52%
5.89%	Heavy Bettors	\$317	\$1,866	65%
50%	Light Bettors	\$99	\$4,970	100%
40%	Non-bettors	\$0	\$0	100%
			\$14,200	

Assuming that the population distribution of the greater New York metropolitan area in 2012 by type of gambler is the same as the above and converting to 2012 dollars, the annual loss per 100 adults (= annual revenue to casino per 100 adults) is about \$23,400. We will use that figure from now on in this part 2. Projecting these figures, revenue to casinos per year from residents of the greater New York metropolitan area is then \$23,400/person-year x 8,000,000

adults, = 1.87 billion dollars. If all casino gambling by adult residents of the greater New York metropolitan area is out of state and if New York State could directly tax this leaked-away \$1.87 billion at 20%, the state would realize \$374 million.

Revenues from new gamblers created by new casinos. A related question, never addressed by the Governor or his staff, is how much new revenue might New York State collect by taxing casinos on their take from all casino-using state residents *if the new in-state casinos not only stopped all leakage but also handled all new casino gamblers of all types created by new casinos.* To look at this question, we will use the Grinols and Omorov figures for losses by type of gambler (ref. 7) but change the relative frequencies of the types in the population to fit the changes in prevalence we projected for pathological and for problem gamblers. Table 3 below is formatted like the one in Grinols and Omorov which we reformatted into our Table 2. The population prevalences are higher in each of the first four lines and the proportion of non-bettors lower. The increments in the first two lines (1.1% → 2.17% and 2.8% → 5.3%), are those posited in part 1 for the five casino scenario.

Table 3. Hypothetical structure of casino revenues in 1992 dollars by type of gambler, reflecting changes in relative frequencies of types of gambler in population due to hypothetical new casinos.

Population prevalence	Type of gambler	Annual loss per gambler	Annual loss per 100 adults 1992\$	Cumulative % of casino gross
2.17%	Pathological Gamblers	\$4,013	\$8,708	43%
5.3%	Problem Gamblers	\$669	\$3,546	61%
6.3%	Heavy Bettors	\$317	\$2,219	72%
56.5%	Light Bettors	\$99	\$5,594	100%
29%	Non-bettors	\$0	\$0	100%
100%	All types		\$20,067	

The value \$20067/100 adults converted to 2012 dollars is \$33,100/100 adults. The annual loss by gamblers in the population of 8,000,000 in this scenario of increased casino density is then \$ 2.65 billion; taxed at 20%, this would return \$530 million to the state treasury. The difference (\$156 million) between \$530 million and the \$374 million figure given just after Table 2 is one estimate of the marginal increase in tax revenue to New York State due to creating new gamblers of all types by placing casinos in dense large in-state populations, then taxing those casinos on their take from this new group.

Another way to estimate potential marginal increase in tax revenues from newly-created casino gamblers kept in state is to partition losses by casino gamblers into (a) preexisting casino gamblers, who had all been crossing state lines until recaptured, and (b) new gamblers of each type (e.g. “problem”) generated in the adult population of the greater New York metropolitan area by new in-state commercial casinos between 2014 and 2018. See table 4 below.

Table 4. Annual loss to casinos, by type of gambler, for new gamblers at new in-state casinos. Figures for annual loss per gambler in 1992 dollars are from Deloitte and Touche data used in reference 7.

Type of gambler	Increment in 1000s before and after	Annual loss/gambler (1992 \$)	Annual loss/gambler (2012\$)	Annual loss by gamblers of type (in millions of 2012\$)
Pathological	82,000	4013	6621	543
Problem	201,000	667	1100	221.2
Heavy	33,000	317	523	17.3
Light	520,000	99	163	84.9
All types	836,000			866.4

For example, an increase of 82,000 in the number of pathological gamblers, each losing an average of \$6621, means an increased transfer to casinos by gamblers in that category alone of \$543 million per year compared to the amount lost out of state when there were “only” 91,000 pathological gamblers. The table says that 866 million dollars of the total annual losses to outside casinos by New Yorkers (estimated above at \$1.87 billion) would be from the “new” group. Revenue on this at 20% would be \$ 173 million. This figure is higher than the \$156 million shown after Table 3, because the relative frequencies of types of gambler in the population are not the same in the two estimates. We will use the \$173 million value, as it makes the case for creating and taxing new gamblers look \$17 million better on the tax revenue side.

Quantifiable Social Costs of future new gamblers. The increase in hidden quantifiable social costs of pathological gambling related to the predicted increase in its prevalence (by a factor of 1.9) is, in dollars of 2011, \$13,787 per pathological gambler x 82000 = \$1.13 billion. The proportionate increase in quantifiable social costs of problem gambling is \$ 792 million. These total \$1.9 billion. (See footnote 8 for calculations.)

\$173 million in state tax revenues potentially derived from new gamblers is very much less than the hidden quantifiable social costs (QSC) attached just to the *new* pathological and problem gamblers created by the new casinos, estimated in the above paragraph at 1.9 billion dollars per year. The ratio of QSC to anticipated tax revenue is a horrifying 11:1. (See Table 5 col. K)

Conclusion of part 2: Revenue from taxing new in-state casinos on the losses of *new* pathological gamblers and problem gamblers plus taxing casinos on the losses of previously line-

crossing gamblers we estimate might total \$547 million (\$374M from “recapture” + \$173M from new gamblers) . Compare this to the hidden quantifiable costs to society attached to the creation of the new subgroups (\$1.9 billion). The ratio is a very unfavorable 3.5 to 1. (Table 5 col. J)

The quantifiable social costs, as we have said, are only a piece of the ultimate social costs. Even if a financial analyst can shave the ratio of QSC to tax revenue down towards unity, it still does not make the “recapture by casino” strategy into the thoughtful, compassionate governance New Yorkers want and deserve.

Conclusion: Keeping the constitutional ban on casinos will prevent a government-sanctioned private-sector investment in new casinos that would create thousands of new gambling addicts (point estimate 82,000) and problem gamblers. The proposed recapture strategy has a ruinous ratio of marginal social costs to marginal increases in tax revenues to New York State.

Appendix: sensitivity analyses.

Tables 5 and 6 below show three different ratios of quantifiable socioeconomic costs (QSC) to anticipated tax revenues under assumptions different from those in the body of the report. The three ratios are in columns H, J and K of each table.

The hidden quantifiable social costs associated with NYS casino-goers who leave the state are borne mostly by NYS even if it gets no tax revenues on their gambling losses out of state. These large important costs can be omitted (as they usually are by gambling proponents) to present the fiscally most attractive analysis of the recapture strategy. Thus column J, which neglects these costs, has in all three tables the cost-benefit ratios most favorable to the balance sheet of the state’s recapture strategy. Even so, the ratios in col. J are in all scenarios that do not assume zero growth in the prevalence of gambling addiction and problem gambling well above the desired value of less than 1.

If -- and this is a most unlikely outcome -- no new pathological or problem gamblers resulted from the new in-state casinos, the tax revenues from recapture alone would look like a no-new-cost windfall in all three tables, though one not large compared to what lottery is already yielding. This phantasm may be what motivated the recapture strategy. Nevertheless, as soon as there is even a small (e.g. factor of 1.35) increase in the prevalence of pathological and problem gamblers, the strategy's downside is apparent. Tables 1 and 5 read together show that creation of thirty-two thousand pathological (addicted) gamblers and seventy-eight thousand new problem gamblers might add a paltry 68 million dollars to the revenues (\$374M) the state would expect from recapture alone.

Table 5. Cost-benefit ratios for different increments in prevalence of pathological and problem gambling. Cols B-G in millions of \$. QSC stands for Quantifiable Socioeconomic Costs (see ref 1). Baseline prevalences are from ref 6. "Addit⁹" uses additive model, not multiplicative; see footnote 9.

A	B	C	D	E	F	G	H	J	K
Increase in Prevalence	Tax revenue by recapture	Tax revenue from new gamblers	Total tax revenue	QSC related to recaptured gamblers	QSC related to new gamblers	QSC total	ratio G:D	ratio F:D	ratio F:C
nil	374	0	374	2100	0	2100	5.6	0	0
x 1.35	374	68	442	2100	749	2849	6.4	1.7	11
addit ⁹	374	138	512	2100	1220	3320	6.5	2.4	8.8
x 1.9	374	173	547	2100	1900	4000	7.3	3.5	11

Table 5 shows these cost-benefit ratios in a scenario where the prevalence of pathological and of problem gambling increases by a factor of only 1.35 (line 2) as compared to a factor of 1.9. Line 3 is the additive model scenario detailed in footnote 9. Here the prevalence of pathological gamblers rises sharply, that of problem gamblers not nearly as much. As the prevalences increase from baseline, the cost-benefit ratios in columns H and J get worse.

What if the tax revenues the state might capture have so far been underestimated? Table 6 recasts Table 5 to assume that New Yorkers have been leaving, not 1.87 billion dollars a year

at out of state casinos, but 50% more than that. While the ratios in column H and column J look better on this assumption, they still move further from the desired value of less than unity, the higher are the new prevalences. The ratios in column K are still between 6 and 7.

Table 6. Cost-benefit ratios for different multiplicative increases in prevalence of pathological and of problem gambling Values in columns B and C now changed from those in Table 5 to assume ~ 50% greater tax revenue from recaptured and from new gamblers. Cols B-G in millions of \$. QSC stands for Quantifiable Socioeconomic Costs (see ref 1). Baseline prevalences used are from ref 6.

A	B	C	D	E	F	G	H	J	K
Increase in Pre-valence	Tax revenue by recapture	Tax revenue from new gamblers	Total tax revenue	QSC related to recaptured gamblers	QSC related to new gamblers	QSC total	ratio G:D	ratio F:D	ratio F:C
nil	561	0	561	2100	0	2100	3.7	0	0
x 1.35	561	102	663	2100	749	2849	4.3	1.1	7.3
addit ⁹	561	207	768	2100	1220	3321	4.3	1.6	5.9
x 1.9	561	260	821	2100	1900	4000	4.9	2.3	7.3

In tables 5 and 6, the more thousands of new addicted and problem gamblers are brought into being as collateral damage of the recapture strategy, the worse is the ratio of hidden quantifiable social costs to tax revenues.

References

1. Grinols, Earl L. (2004) *Gambling in America: Costs and Benefits*. Cambridge University Press. pp. 177-179
2. Gerstein Dean et al. (1999) *Gambling Impact and Behavior Study; Report to National Gambling Impact Study Commission*. <http://govinfo.library.unt.edu/ngisc/reports/gibstdy.pdf>
3. Welte J.W., W.F. Wieczorek, G.M. Barnes, M.-C. O. Tidwell and J.H. Hoffman. (2004) “The Relationship of Ecological and Geographic Factors to Gambling Behavior.” *J. Gambling Studies*, 20, 405-423.
4. Grinols, Earl L. *Gambling in America: Costs and Benefits*. Cambridge University Press, 2004, p. 180
5. Our comments on the findings by Welte et al. (ref 3). 2630 adult interviewees formed the sample. The overall proportion (prevalence) who were pathological or problem gamblers was 3.5% . Two hundred eighty-seven respondents lived within ten miles of one or more casinos. In this group the prevalence of pathological or problem gamblers was 7.2%. For persons who lived further than ten miles from the nearest casino, the prevalence of pathological or problem gamblers was 3.1%. The odds ratio in a logistic regression was 1.90 with 95% confidence interval from 1.11 to 3.24 . Odds ratio is an estimator of relative risk. This odds ratio estimate was controlled for urban residence and other sociological confounders. When we wrote of “a 90% increase in the odds of being a pathological or problem gambler” we refer to the point estimate of 1.9 for the odds ratio.
An ecological correlation (such as a spatial relationship in cross-sectional observations) is not itself proof of causation, but points to it when the relationship is strong and socio-biologically plausible, as this one is.
6. Shaffer, Howard J., Matthew N. Hall, and Joni Vander Bilt (1997). *Estimated Disordered Gambling Behavior in the United States*. Report to National Gambling Impact Study Commission Final Report
<http://www.divisiononaddiction.org/html/publications/meta.pdf>
7. Grinols Earl L., and J.D. Omorov. (1996-97) “Development or Dreamfield Delusions: Assessing Casino Gambling’s Costs and Benefits.” *J. Law and Commerce* , 16, 49-87.
8. To calculate marginal quantifiable social cost per 100 adults for pathological and for problem gamblers refer to Grinols, *Gambling in America* footnotes 246 and 249.
\$10,330 is cost in 2003 \$ for pathological gambling. Adjusted to 2012 \$ by consumer price index it becomes \$ 12,600. 1.09424 is adjustment for tax deadweight loss applicable to 37.5% of expenditures that are tax-supported ($0.375 \times 1.251 + 0.625 = 1.09424$) $\$12,600 \times 1.09424 = \$13,787$
\$2945 is cost in 2003 \$ for problem gambling. Adjusted to 2012 \$ by consumer price index it becomes \$ 3600. 1.09424 is adjustment for tax deadweight loss applicable to 37.5% of expenditures that are tax-supported ($0.375 \times 1.251 + 0.625 = 1.09424$) $\$3600 \times 1.09424 = \3939
9. The “*addit*⁹” *scenario*. For the sensitivity analysis I introduce an additive model for change in prevalence based on the findings of Gerstein et al ², in additions to the a multiplicative one that uses the 1.9 estimate for relative risk reported by Welte and colleagues ³. In the additive framework, the prevalence of pathological gamblers (as % population) increases by + .009 (0.9%) between distant populations and those near a casino; the

prevalence of problem gambling rises by .008 (eight-tenths of one per cent) over the same range. Applying these simple differences to the estimates of prevalence for each of the two types of problem gambler predicts an increment (in the population of 8 million adults) of 72,000 pathological gamblers and 64,000 problem gamblers after five new casinos have opened. These estimates are not necessarily more valid. The merits of the two models for measuring change over time and the applicability of the two studies to New York State can be discussed for longer than there is space for.

1.1% to 2% and 2.8% to 3.6% are the changes in prevalence of the two categories of problem gambler posited using the additive (simple difference) rather than the multiplicative model. In this schema, there are not as many pathological or problem gamblers created by the new casinos as in the multiplicative model. The at-casino losses (and hence revenue to NYS government) are thus less; so are the quantitative social costs (QSC) associated with the new problem gamblers. Tables 3a and 4a use the additive model for changes in prevalence. Compare them to tables 3 and 4 in the text. The results have been worked into the sensitivity analyses in Tables 5 and 6 on the line called “addit⁹” [for additive model footnote 9].

Table 3a. Hypothetical structure of casino revenues in 1992 dollars by type of gambler, reflecting changes in relative frequencies of types of gambler in population due to hypothetical new casinos (additive model).

Population prevalence	Type of gambler	Annual loss per gambler	Annual loss per 100 adults 1992\$	Cumulative % of casino gross
2%	Pathological Gamblers	\$4,013	\$8,026	44%
3.6%	Problem Gamblers	\$669	\$2,408	57%
7 %	Heavy Bettors	\$317	\$2,219	69%
57.4%	Light Bettors	\$99	\$5,682	100%
30%	Non-bettors	\$0	\$0	100%
100%	All types		\$18,335	

The value \$18335/100 adults converted to 2012 dollars is \$30250/100 adults. The annual loss by gamblers in the population of 8,000,000 in this scenario of increased casino density is then \$2.42 billion; taxed at 20%, this would return \$484 million to the state treasury. The difference (\$110 million) between \$484 million and the \$374 million figure given just after Table 2 is one estimate of the marginal increase in tax revenue to New York State due to creating new gamblers of all types by placing casinos in dense large in-state populations, then taxing those casinos on their take from this new group.

Next consider annual losses, separating new from established gamblers and again using the estimates for prevalence post new casinos derived from the additive model, not the multiplicative one.

Table 4a. Annual loss to casinos, by type of gambler, for new gamblers at new in-state casinos (additive model). Figures for annual loss per gambler in 1992 dollars are from Deloitte and Touche data used in reference 7.

Type of gambler	Increment in 1000s before and after	Annual loss/gambler (1992 \$)	Annual loss/gambler (2012\$)	Annual loss by gamblers of type (in 2012\$)
Pathological	72,000	4013	6621	476M
Problem	64,000	667	1100	70M
Heavy	88,000	317	523	46M
Light	592,000	99	163	96M
All types	816,000			688M

The table says that 688 million dollars of the total annual losses to outside casinos by New Yorkers (estimated from table 3a at \$2.42 billion) would be from the “new” group. Revenue on this at 20% = \$ 138 million. This figure is higher than the \$110 million shown from Table 3a as the proceeds of taxing new gamblers; the relative frequencies of types of gambler in the population are not the same in the two estimates. We will use the \$138 million value; it makes the case for creating and taxing new gamblers look \$28 million better on the revenue side.

Quantifiable Social Costs of future new gamblers (additive model) The increase in hidden quantifiable social costs of pathological gambling related to the predicted increase in its prevalence (+ 0.9%) is, in dollars of 2011, \$13,787 per pathological gambler x 72,000 = \$993 million. The analogous increase in QSC of problem gambling is \$ 230 million (64,000 x \$3600) . These sum to \$1.22 billion. (See footnote 8 for calculations.)

\$138 million in state tax revenues potentially derived from new gamblers is very much less than the hidden quantifiable social costs (QSC) attached just to the *new* pathological and problem gamblers created by the new casinos, estimated in the above paragraph at 1.22 billion dollars per year. The ratio of QSC to anticipated tax revenue is a horrifying 8.8 to 1. (See Table 5 col. K)

In this additive model, revenue from taxing new in-state casinos on the losses of *new* pathological gamblers and problem gamblers *plus* taxing casinos on the losses of previously line-crossing gamblers we estimate might total \$512 million (\$374M from “recapture” + \$138M from new gamblers) . Compare this to the hidden quantifiable costs to society (QSC) attached to the creation of the new subgroups (\$1.22 billion). The ratio is a very unfavorable 2.4 to 1. (Table 5 col. J)

The author lives in Saugerties, NY. He retired in 2010 after thirty-two years on the Faculty of Medicine, Columbia University. At retirement, Dr. Shafer held the rank of Clinical Professor of Neurology at Harlem Hospital Center. A graduate of Harvard College, he earned three degrees from Columbia University: M.D. ; Master of Public Health (Epidemiology); M.A. (Political Science). Dr. Shafer is Vice-Chairperson of the Coalition Against Gambling in New York, a statewide organization based in Buffalo. He has never received compensation of any kind from any organization opposed to legalized gambling.

Afterword to version of Dec 2, 2012 This version differs in two ways from that submitted to the Governor's office (not at his request) on November 30 with copies to the Capitol Building Press Room. The revisions do not change the conclusions of the report.

The Nov 30 version treated the figures for amounts lost to casinos by different classes of gamblers (Tables 2 and 3) as 1997 dollars. The original figures I learned the next day were in 1992 dollars. Converting 1992 dollars to current dollars raises the value of losses to casinos above that derived from adjusting 1997 dollars. This increases the potential revenue to state government by taxation of casinos, making ratios of quantitative socioeconomic costs to state government tax revenues look a little lower than they were in the Nov 30 analysis.

The sensitivity analysis has been expanded by introducing in tables 5 and 6 an additive model for change in prevalence over time alongside the multiplicative model in the Nov 30 version. This complements the earlier analysis, but does not alter its conclusions. The calculations for the additive model are detailed in a new footnote, 9. Table 7 in the sensitivity analysis of Nov 30, which added little to Tables 5 and 6, has been removed.

Page 19 has an unsigned copy of the cover letter that went with the report to the Governor's office on Nov 30.

Stephen Q. Shafer, MD, MPH
8 Mynderse Street, Saugerties NY 12477
845 246 4947

The Hon Andrew Cuomo
Governor, State of New York
Executive Chambers
State Capitol, Albany NY 12224

Nov 30, 2012

Dear Governor Cuomo,

From your remarks about the proposed constitutional amendment that would allow up to seven new commercial casinos into our state, it's hard to discern the back story. I want to think you have never talked in depth to people who oppose "predatory gambling" such as that amendment would enable, but only to advocates of that industry.

Praying that a careful look at the high risks and overestimated benefits of expanding casino gambling in our state could change your course, I submit to you the enclosed report. Read it. Discuss it with your staff. Then ask yourself if the risk of creating tens of thousands of new gambling addicts in the state where you and I were born is worth the recovery of a couple of hundred million dollars a year in tax revenues. If you decide it is, you might at least understand privately better than you have publicly acknowledged that the major motivation of the struggle against predatory gambling is primary prevention of disordered gambling behaviors.

If you or your staff would like to discuss the report with me, I'm ready to do so.

With best regards,

Sincerely,

Stephen Q. Shafer, MD, MA, MPH
enc/ Report entitled "Adverse Impacts ...
cc/ this letter and report to Prof. Bennett Liebman

Born in Barrytown, New York, Stephen Quentin Shafer lives now in Saugerties. He retired in 2010 after forty years at Columbia University, having been since 2003 Clinical Professor of Neurology at Harlem Hospital Center. A graduate of Harvard College, he holds three degrees from Columbia: M.D. ; Master of Public Health (Epidemiology); M.A. (Political Science). Dr. Shafer is Vice-Chairperson of the Coalition Against Gambling in New York, a statewide organization based in Buffalo. He has never received compensation of any kind from any organization opposed to legalized gambling.