

Beacon Hill Institute

The Massachusetts Scratch Ticket Lottery: Truth-In-Advertising Travesty

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If you are lucky enough to win a million dollars or more in a scratch ticket through any of the 7,500 retail outlets of the Massachusetts Lottery, your prize is worth far less than you might imagine. In fact, it is worth less than half of the face value of the advertised amount.*

It all comes down to timing and to taxes. The state is up front when it informs lottery ticket buyers that million-dollar prizes will be paid in 20 installments of \$50,000 each for 20 years. But that's where truthful advertising ends. The state gives no indication what the present value of the future stream of annual after-tax payouts is worth in terms of today's dollars. And, it does not tell the purchaser, except by remote reference, that 30% will be withheld each year for federal and state income taxes.¹

The present value of a stream of future payments is always less than the sum of those payments. Suppose Josephine tells Joe she'll pay him \$5,000 to paint her house but that she won't pay him until a year from today. If Josephine paid him now and he put the same \$5,000 in the bank today at 5% interest, the \$5,000 would accumulate to \$5,250 a year from now (ignoring income taxes). By the same token, \$5,000 received a year from now is worth only \$4,761.90 (= \$5,000/1.05) today: At 5% interest, Joe would have to deposit only \$4,761.90 in the bank today in order to have \$5,000 a year from now. Joe should discount Josephine's offer in this manner in order to decide whether to take on the job.

Likewise, Joe has to consider the fact that he must pay taxes on his income. If the tax rate on \$5,000 of income is 30%, he gets to keep only \$3,500. If he is paid next year, the same \$3,500 is worth only \$3,333.33 in present-value terms.

While the average person will ordinarily take these details into account when making a business decision, he or she will be far less inclined to do so when tempted by a million-dollar lottery prize. Because gambling winnings seem like "free money," there is a temptation to leave logic behind in plunking down money for a major prize. There is a temptation to ignore the principles of discounting and the inevitability of taxes in deciding whether to gamble and how much to gamble.

*Various scratch tickets offer different payment schedules and lump sum options. See <http://www.masslottery.com/games/instantwin.html>.

BHI On the Issue

February 2010



Yet, the decision to gamble is — or should at least be treated as — a business decision. Given similar odds, a gambler should skip a million-dollar lottery and risk his or her money, instead, on gambles that pay out immediately, for example, the slots or horse races. Yet, the marketing behind million-dollar prizes does everything possible to discourage this kind of rational thinking.

Table 1 shows how compound interest and taxes shrink the prize actually received by a million-dollar scratch-ticket winner. We apply a discount rate of 4.22%, based on assumptions about the winner’s investment strategy, detailed below in the Appendix. We also reduce the annual payout by \$15,142.51 to account for an estimated combined federal and state tax rate of 30.29% on the winnings. The third column of Table 1 shows the Net Present Value (NPV) of the resulting annual after-tax payout of \$34,857.49 over the 20-year payout period. The present value of the combined 20 payments is \$484,310.01, less than half the advertised million-dollar prize.²

Table 1

Year	Payment (\$)	After Tax (\$)	NPV (\$)
Present	50,000.00	34,857.49	34,857.49
1	50,000.00	34,857.49	33,446.70
2	50,000.00	34,857.49	32,093.00
3	50,000.00	34,857.49	30,794.10
4	50,000.00	34,857.49	29,547.76
5	50,000.00	34,857.49	28,351.87
6	50,000.00	34,857.49	27,204.38
7	50,000.00	34,857.49	26,103.33
8	50,000.00	34,857.49	25,046.85
9	50,000.00	34,857.49	24,033.12
10	50,000.00	34,857.49	23,060.42
11	50,000.00	34,857.49	22,127.09
12	50,000.00	34,857.49	21,231.54
13	50,000.00	34,857.49	20,372.23
14	50,000.00	34,857.49	19,547.70
15	50,000.00	34,857.49	18,756.54
16	50,000.00	34,857.49	17,997.41
17	50,000.00	34,857.49	17,268.99
18	50,000.00	34,857.49	16,570.06
19	50,000.00	34,857.49	15,899.42
SUM	1,000,000.00	697,149.80	484,310.01

There can be only one motive for spreading the winnings out over 20 years: The cost to the state of paying out later is less than the cost of paying out now. If the state pays out now, the cost (taking into account the taxes it collects on the winnings) is \$947,000. If it pays out over 20 years, the cost is \$657,881 in present-value terms.³

In the corporate world, chief financial officers are never deceived by the high cost of factoring their accounts receivable. They understand the time value of money and the high cost of waiting for customers to pay. Consumers on the other hand are largely unaware of the compound interest factor and the devastating effect of the time value of money.

Consider the rent-or-buy decision as it affects housing. It seems unlikely that home buyers seriously consider the fact that they will end up paying two times the purchase price of a house by the time they finish paying principal and interest. Rather, they commit themselves to 30 years of mortgage payments in the (perhaps illusory) hope that their house will appreciate in value.

Lottery prize winners display the same indifference to discounting scratch tickets; they do not seem to know, or even care, that million-dollar scratch tickets are subject to compound-interest shrinkage. The dominant attraction of these scratch tickets is that they offer “instant winnings” to players. The tickets emphasize this feature. Players don’t have to wait to find out whether or not they have won. And the possibility of striking it rich for a “million dollar prize” is part of the package and becomes a powerful psychological motivator.

There is a further anomaly that characterizes the decision to bet on a million-dollar prize. Prizes below a million dollars are paid out in-

stantly. Because there is no waiting to collect those prizes, there is no compound interest shrinkage. Further, prizes below \$5,000 are subject to less withholding or no withholding.⁴

There is a fundamental mistruth in a ticket that promises instant winnings but pays off instantly only for less-than-one million dollar prizes. The million dollar prizes are illusionary. They merely heighten the get-rich-quick aura of the scratch tickets without delivering on the psychologically-induced perception of an immediate million-dollar prize.

Where are all the consumer advocates to protest these subtle features that betray truth-in-advertising? Why aren't they accusing the state of false advertising? To begin with, gaming is already on shaky moral grounds, despite its acceptance in — of all places — church basements where bingo and \$1,000 clubs provide an often meager revenue stream. The social costs of gambling addiction are large and poorly documented. What is known is that gambling losses impose a larger burden on low income recipients than on more affluent players. Little wonder that casino gambling stirs passions on both sides of the issue.

There are three defenses of the lottery and other forms of legalized gambling. First, criminal enterprise is removed by granting the state power to control and regulate gaming. Second, lottery revenues in Massachusetts go to support schools, and gambling revenues in general lessen the burden of government on taxpayers. Third, there is a principled, libertarian argument that people should be permitted to gamble or not, as they choose.

People have the right to gamble with their own money and are, by the same token, responsible for informing themselves about the true worth of the advertised prizes. It is a long-settled principle of government, however, that private sector businesses must adhere to certain standards for truth in advertising. It is particularly troubling, therefore, for the very government that is charged with administering the truth-in-adver-

tising laws to engage in its own brand of deceptive advertising. Indeed, we view the practice as a travesty.

A reported 42 states now have state lotteries. Most, if not all, also sell scratch tickets at retail establishments. It is a strange policy to rely on misinformed and gullible gamblers for revenue that smart gamblers avoid in the first place. This kind of asymmetrical information would not be allowed in most commercial transactions.

Despite the need for revenue, government is supposed to represent the people's interests not exploit the gullibility of a few. This exposes a grand irony. Elected officials often demonize the denizens of Wall Street who by sleight of hand mislead and defraud investors. In Massachusetts, it makes for great theater to go after Wall Street. But when it comes to the lottery, many politicians are no different from unsavory investment bankers. The theft takes place off stage. Massachusetts scratch ticket patrons deserve better.

To make its advertising more truthful, the Massachusetts Lottery Commission should speed up the payouts on its million-dollar prizes. One easy reform would be, for example, to pay out winnings over five to seven years, rather than 20. That would send out the signal to scratch-ticket patrons that the value of their winnings would be worth more. And, in a state plagued with one widely-perceived political scandal after another, our elected officials could upgrade their moral standing with the voters.

Appendix: Methodology

Because of time preference — the preference for a dollar now over a dollar later — and inflation, the calculation of the discount rate is necessary.⁵ Consider the example of Josephine, the homeowner, and Joe, the painter, in the example above. When Josephine offered Joe \$5,000 a year from now to paint her house, Joe had to discount her offer by



5%, which was the rate of interest paid by his bank. That discount rate reflected time preference and expected inflation. Suppose that expected inflation was zero and that bank depositors expected to be paid 5% interest in order to be willing to keep their money in the bank for a year (i.e. their rate of time preference was 5%). The bank would have to pay them 5% to get them to deposit their money. Now suppose that expected inflation was 3%. Then the bank would have to pay 8% in interest in order to get depositors to deposit their money. That 8% is the sum of the depositors' time preference and the expected inflation rate. With a 5% rate of time preference and 3% inflation, it is the appropriate discount rate.

For the lottery payments, we determined a discount rate by determining the expected rate of return to a hypothetical, typical investment portfolio. We assumed that 50% of the amount to be invested would go into stocks, 25% into bonds and 25% into a money market fund. Taking an average of the annual return of the NASDAQ Stock Market, the S&P 500 and the DJIA over the last 20 years, we calculated an expected return on stocks. Using the average rate of 10-year and the 30-year U.S. Treasuries, we determined the expected, tax free, return on bonds. Finally, we took the average annual return of a TIAA Money Market fund since inception to determine the expected return on a money market fund. Using the weighted average of the three, we calculated a discount rate of 4.22%.

We calculated the tax liability on lottery winnings for an average Massachusetts taxpayer, who would pay income taxes on his or her income, inclusive of the lottery payments, for the next 20 years. We first determined the incremental state tax liability on each year's payout of \$50,000. This comes to \$2,650, given that Massachusetts imposes an income tax at a flat rate of 5.3%. We then determined the incremental federal tax liability on the prize winner by estimating the federal tax liability on the mean annual income of a Massachusetts taxpayer before and after the \$50,000 payout. The mean annual income in Massachusetts is \$50,990.⁶ Therefore, we calculated the incremental federal

tax liability by subtracting the federal taxes on \$50,990 from the federal taxes on \$100,990. That came to \$12,492.51.⁷ Adding this to the state tax liability of \$2,650, we got a total tax take of \$15,142.51, which comes to 30.39% of the annual payout. Thus, the annual after-tax payout became \$34,857.49.

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(Endnotes)

¹ It merely points out that "all holders, tickets and transactions subject to Lottery Commission rules as published in the Massachusetts Register and the administrative Bulletin issued thereunder."

² There is one advantage to the winner of having his prize winnings stretched out over 20 years, and that is the progressive nature of the federal income tax (though not the Massachusetts state income tax). If the winner gets all the money now, he ends up in a much higher federal tax bracket than if he gets it over 20 years. Even so, the prize is less than advertised. If a Massachusetts taxpayer, in an example developed in the Appendix, received the entire million dollars now, he would end up paying \$390,524 in additional federal and state taxes, leaving him with \$609,476 in net winnings. This is still 39% less than the face value of the ticket.

³ We assume that the winner is a Massachusetts resident. The state tax rate is 5.3%. If the state pays out now, the cost is the \$1,000,000 payout minus the \$53,000 (= .053 X \$1,000,000) it receives in taxes on the payout. If it pays out over 20 years, the cost is the present value of the stream of \$50,000 payouts minus the stream of taxes (= .053 X \$50,000) it receives back on each payout. See the Appendix for additional details.

⁴ For prizes of \$601 to \$4,999, the state withholds 5% in state taxes. For larger prizes it withholds 5% in state taxes and 20% in federal taxes.

⁵ Anthony E. Boardman, et al., *Cost-Benefit Analysis: Concepts and Practices*, 3rd ed. (Upper Saddle River, NJ: Pearson-Prentice Hall, 2006), 14.

⁶ U.S. Bureau of Labor Statistics, "May 2008 State Occupational Employment and Wage Estimates," http://www.bls.gov/oes/2008/may/oes_ma.htm#b00-0000 (accessed December 1, 2009).

⁷ Internal Revenue Service, "2009 Tax Table," <http://www.irs.gov/pub/irs-pdf/i1040tt.pdf> (accessed December 8, 2009).