

5

Time Value of Money

Lottery Winnings – Looks Can Be Deceptive!

State-sponsored lotteries are extremely popular and highly successful methods by which state governments in many countries raise much needed funds for financing public expenses, especially education. In Michigan alone, during the year 2000, Michigan Lottery reported annual sales of \$1.69 billion in fiscal 2000, and generated \$618.5 million in net revenue for the state School Aid Fund, supporting public education (K-12) programs throughout the state. Retailers received annual commissions of \$120.3 million, while Michigan Lottery players collected prizes worth \$920.8 million. Table I presents sales and funding figures accounted for by the Michigan Lottery since its inception in 1972. The numbers are quite impressive.

Table 1**Totals: 1972 Start-up through FY 2000***

Total Lottery Ticket Sales	\$25.12 billion
Net Revenue to Aid Education	\$9.83 billion
Retailer Commissions	\$1.68 billion
Prizes to Players	\$12.86 billion

*<http://www.Michigan.gov/lottery>

The Big Game is a multi-state lottery game with BIG Jackpots. Seven states participate in The Big Game: Georgia, Illinois, Maryland, Massachusetts, Michigan, New Jersey and Virginia. By teaming up together, the member lotteries are able to offer players jackpots that start at \$5 million. The jackpots grow until someone wins. Jackpots can grow as high as \$200 million or more. In fact, The Big Game holds the record for the largest lottery jackpot ever in the United States: \$363 million! This jackpot rolled 18 times since last being hit! Two winning tickets -- one sold in Michigan, and one sold in Illinois -- matched all six numbers in this Big Game drawing, each worth an annuitized value of \$181.5 million. The winners were Larry and Nancy Ross of Shelby Township, Michigan, and Joe and Sue Kainz of Lake County, Illinois.

The Michigan Lottery can pay Big Game jackpot winnings in one of two ways: as an annuity or in one lump-sum/cash-option payment for the present cash value of the jackpot share. When a winner selects annuity payments, the jackpot is paid out in equal installments over 26 years. When a winner selects the cash option, the Lottery pays the winner the present cash value of the announced jackpot in one lump-sum payment, which is typically about 50% of the published value. In effect, the Lottery takes all of the money that would have been invested to fund the 26-year annuity and turns it all over to the winner, retaining absolutely none of the prize. Regardless of which option the winner selects, the Michigan Lottery is required by law to withhold estimated income taxes for federal (28 percent) and state (4.2 percent), on any prize over \$5,000. These amounts are estimates only, and the winner is required to satisfy any further tax liability for the year in which the prize award is claimed.

Questions:

1. If you were one of the winners, which option would you select? Why?
2. If you decide to select the annuity option, how much money would you receive each year after taxes?
3. Is the State of Michigan justified in advertising the prize amount as \$363 million? Explain.
4. If the only option available were an annuity payment plan, what could Larry do to maximize the value of his winnings assuming that the risk-free rate of interest is 5%.
5. Why do most winners select the cash option plan when given a choice?
6. If Michigan Lottery would like to give the annuity option an equal chance of being selected, how would it have to structure its payments?