
INTEROFFICE MEMORANDUM

TO: GOVERNOR OF MASSACHUSETTS

FROM: DONG KWANG AHN, ELIZABETH CARDONA

SUBJECT: MASSACHUSTTS STATE LOTTERIES REVENUE DISTRIBUTUION

DATE: MAY 10, 2010

Currently, the Massachusetts State Lottery is regressive because poor constituents spend a higher proportion of their income on lottery compared to higher-income consumers. Therefore, this implicit tax violates the principal of vertical equity because people with different incomes disproportionately pay different rates of tax. Specifically, it increases the inequity between groups from different economic backgrounds in Massachusetts. Based on our research we have identified data that highlights this regressive trend. Therefore, we recommend:

- 1) Reducing the number of lower-income consumers who buy the instant tickets. Our analysis indicated lower-income consumers bought more instant tickets and consequently increased regression. We propose reducing the expected value of the instant tickets prize pay-out and eliminating commercial instant-lottery campaigns marketing targeting the poor.
- 2) Making the lottery revenue distribution more progressive by changing the distribution formula and creating specific earmark programs for the poor is essential. We found that the distribution of lottery revenue was not enough to reduce the regressivity and there was no earmark program for the poor. Progressivity can be enhanced by reducing the influence of population size and adding per capita income to the formula. Furthermore, creating specific earmark program for low-income households such as will also be helpful.

I. BACKGROUND

1. HISTORY OF MASSACHUSETTS LOTTERIES:

The Massachusetts State Lottery was established in 1971 by the Legislature as a strategy to generate revenue. Massachusetts has a strong history with gaming including the first state to introduce the “scratch ticket” instant game in 1974. Throughout the years the Massachusetts State Lottery has increased and diversified its array of products with amounts ranging from \$1-\$10 instant tickets. Today, there are a variety of lottery tools including THE NUMBERS GAME, Megabucks, Mass Cash, CASH WinFall, KENO, and Multi-state Megabucks. In addition, new instant games are generated each year as well as on-line gaming¹.

2. LOTTERY REVENUE:

To date, Massachusetts has one of the highest prizes allotted at 72%². According to the Massachusetts Lottery, the legislature defines administrative operating expenses each year as part of the annual state budget. Operating expenses cannot exceed 15%. In 2010, they are at 8%. These operating expenses include 5.8% in commissions and bonuses paid to the vendors who sell products, 2% in administrative expenses due to Lottery operation. However, this provision can change with each legislative cycle. For example, in 2006, the lottery sold \$4.2 billion and provided \$882.5 million to the state. The state directly distributed \$761,378,162(18% of the total sales) to municipalities and the remaining funds were used to offset state budget obligations (U.S. Census of Bureau & Massachusetts State Lottery Office, 2010).

¹ Massachusetts Lottery Commission Information Packet 1972-2008, printed 2010

² New York Times, 2007

	<i>Total Sales</i>	<i>Prizes</i>	<i>Admin. Expenses</i>	<i>Revenue</i>
Percentage	100%	77%	2%	21%
Amounts (million \$)	4,200.4	3,234.5	83.3	882.5

[Table 1: 2006, Estimated]

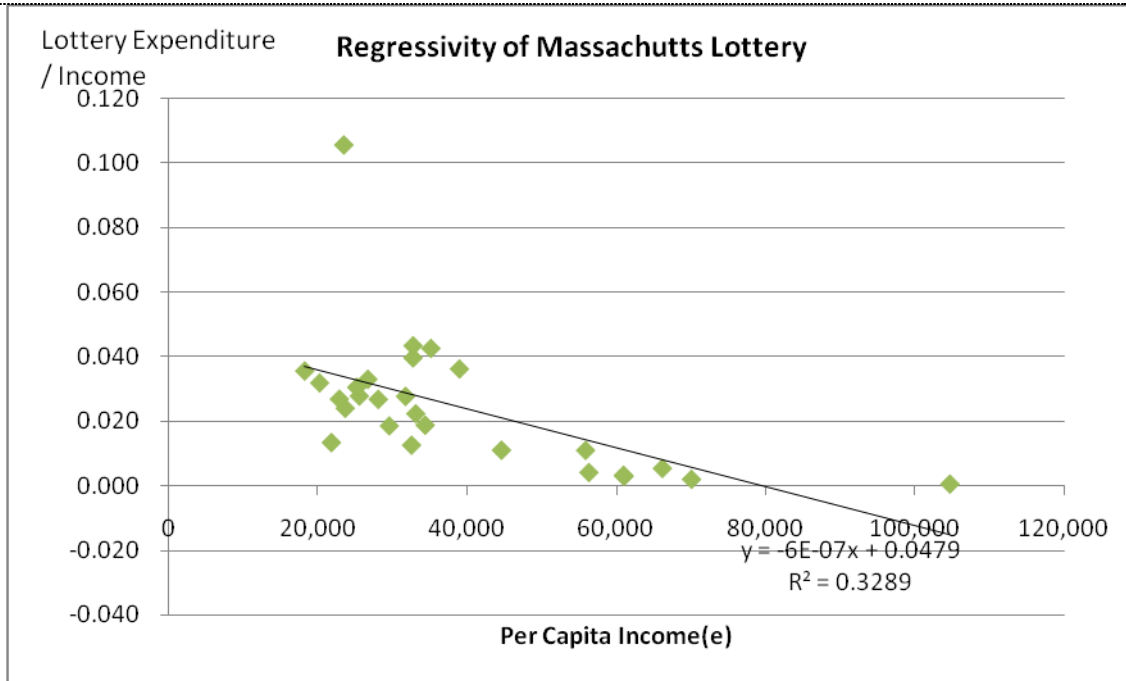
II. ANALYSIS OF MASSACHUSETTS LOTTERY

1. IMPLICIT TAX RATE

Higher implicit tax rate increases economic distortion between lotteries and other products, and reduces consumer surplus. In 2006, the estimated implicit tax rate of Massachusetts was 26.6 % (See Table 1). Therefore, when a person purchases a \$10 instant game, he/she contributed \$2.66 of to state revenue. Compared to other states lottery tax Massachusetts has a lower tax (See Appendix 1). However, considering the current sales tax in Massachusetts at 6.25%, it is still high and can cause economic distortion. As noted by Brady & Pijanowski “while some policy makers promote state-run lotteries as modern-day fiscal panaceas, opponents have long argued that lotteries are a regressive form of taxation that disproportionately places a higher fiscal burden on poorer residents.”(Brady and Pijanowski, 2007, pg.).

2. REGRESSIVITY

Through our analysis of randomly selecting 27 cities and their per capita lottery expenditure, we found that the Massachusetts Lottery was regressive because lower-income consumers spend a higher proportion of their income on lottery compared to higher-income consumers. For example, in 2009 the people living in Newton, one of the wealthiest cities in the Commonwealth with a \$56,285 per capita income spent 0.4 % of their income on lotteries, while Springfield, one of the poorest cities in Massachusetts, with an \$18,187 per capita income spent 3.6 % of its income on lotteries (See Graph 1 & Appendix 2).



[Graph 1]

Furthermore, this analysis highlights how the Massachusetts Lottery violates the principal of vertical equity, which is indicative of the disparity among the lottery tax. As a result, people with different incomes pay different rates of tax. This discrepancy in tax raises some concerns. Why should lower-income households pay more taxes to the government than higher-income households?

III. RECOMMENDATION TO CURE THE REGRESSIVITY

When lower-income households buy lotteries, these households will experience significant declines in expenditures, food, rent, mortgage, and other bills. Consequently, their choices increase the inequity in Massachusetts. Based on a Winter 2010, Boston College Magazine article, “the more education one has, the less one is likely to spend on lottery tickets, assuming one plays at all. This inverse correlation is dramatic: Whereas high school dropouts who played the lottery spent an average of \$700 a year, college graduates spent just

\$178.”³

To a Governor who has sworn to raise the quality of life in Massachusetts, we propose recommendations to address this regressivity.

1. REDUCE THE NUMBER OF LOWER-INCOME CONSUMERS WHO BUY THE INSTANT TICKETS

It is well known that instant tickets are the most regressive games among the lotteries (Price & Shawn Novak, 2000). The share of income spent on instant tickets is negatively related to per capita income (Hansen, 1995). We believe that instant tickets of Massachusetts also the most regressive. After introducing in them 1974, instant tickets became the most popular product, accounting for 70 percent of total sales, because it allowed players to find out the result immediately and easily. However, considering the fact that per capita instant game sales are negative and significantly related to income in regressions, the system of the instant tickets should be changed.

First, we recommend reducing the expected value of the instant tickets because consumer demand for lottery products responds positively to the expected value of the games, controlling for other characteristics (Kearney, 2003). Holding all else equal, the expected value is decided by the nominal prize amount and the winning probability of the prize. Therefore, you can reduce the expected value of the instant tickets by reducing the prize. For example, the top prize amount of instant ticket, Red Sox Monster Money, is 3 million dollars. If the top prize decreases to 1.5 million dollars, the expected value also decreases to half (we excluded all the smaller prizes to keep this simple). As a result, less lower- income will buy the instant ticket.

³ Retrieved from http://bcm.bc.edu/issues/winter_2010/features/bad-bets.html

Second, we recommend ceasing the aggressive commercial advertisements on instant tickets because it panders to lower-income households. As a result, it makes them spend a larger percentage of their scarce income to buy lotteries. The practice of stop posting the pictures of winners on the website or TV advertisements must also be discontinued because it paralyzes consumers' rationality and unbiased judgment.

2. MAKE THE LOTTERY REVENUE DISTRIBUTION LESS REGRESSIVE

A. Lottery Revenue Allocation (Local Aid formula):

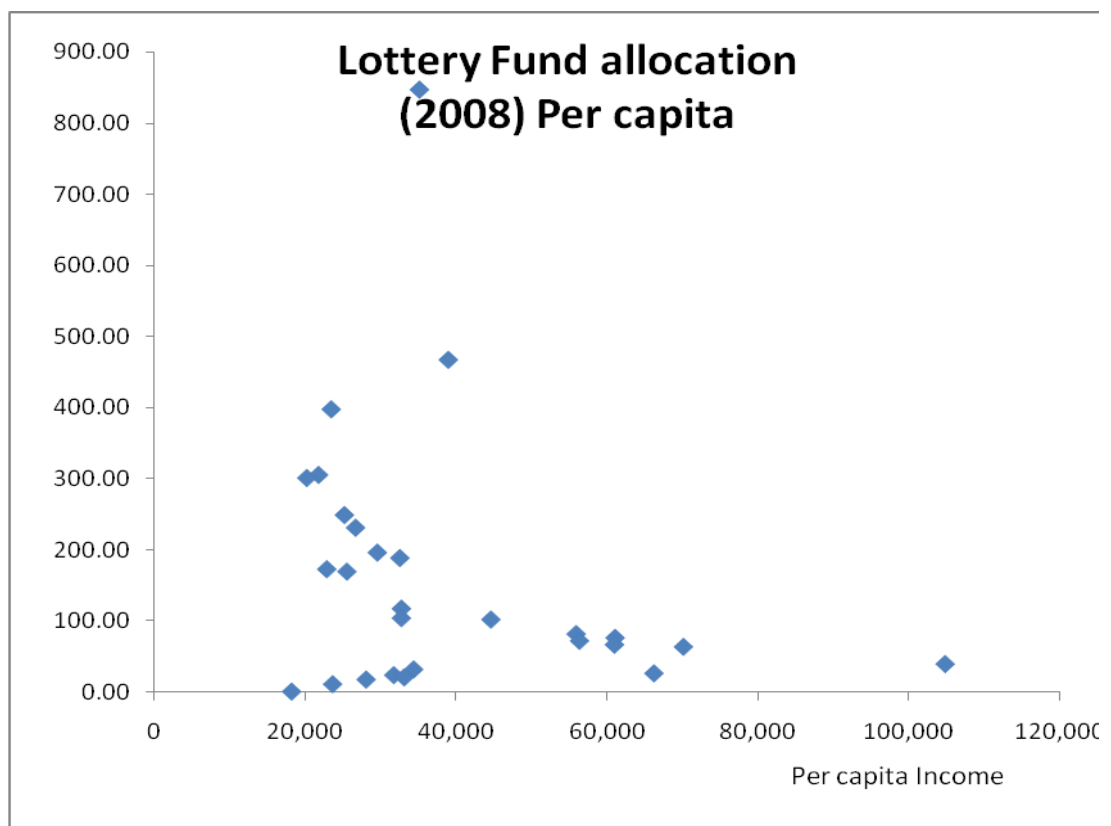
In Massachusetts, after prizes and administration and operation expenses, the remaining lottery revenues are transferred to the Local Aid Fund and returned to the cities and towns. The Local Aid Formula is based on population and property value. The Lottery administration stated that the current lottery revenue distribution supports municipalities that are have a high population and a lower property value. They calculate that, poor cities receive more funds than affluent cities and it helps to reduce regressivity of the lottery.

[Local Aid Formula]

- a. $(\text{The State's Equalized Valuation Per Capita} / \text{The Town's Equalized Valuation Per Capita}) \times \$10.00 \times \text{The Town's Population} = \text{The Town's Entitlement}$
- b. $\text{The Town's Equalized Valuation} / \text{The Town's Population} = \text{The Town's Equalized Valuation per Capita}$

We agree that poorer cities should receive more funds; because those poorer cities must spend more on basic public services such as police and road maintenance. (Bradbury and Zhao, 2007). However, based on our findings, the distribution of lottery funds are not enough to reduce regressivity. According to our analysis of the lottery fund allocation of FY 2009, some affluent cities actually receive more per capita lottery funds than poorer cities. Further analyses indicated that there are too many differences even between the poor

cities which have similar low per capita incomes. For example, Sudbury, which has \$70,040 per capita income, received \$63.97 per capita lottery fund allocation in 2009, whereas Mashpee, which has \$34,341 per capita income, received \$32.19. Another example is New Bedford and Adams. New Bedford received \$305.52 Per capita Lottery Fund allocation but the Adams received only \$11.49, although they have similar per capita income (Per Capita Income of New Bedford: \$21,760, Adams \$23,614). (See graph 2 & appendix 2)



[Graph 2]

Therefore, the formula should be changed in order to achieve your goal. We recommend reducing the weight of population in the formula because it is not fair that some cities, in which live many rich individuals, receive more funding due to the higher population. We also recommend adding “per capita income” in the formula because it indicates the level of wealth.

B. Earmarks:

It is also troublesome that the distribution of funds is allocated to a municipal “general fund” to support a variety of government services. Even if the distribution of lottery is progressive, the expenditure of it may not be progressive if the poor city uses the fund for the agendas created by and for rich people. Therefore, we recommend targeting an earmark program to address this concern. Currently, in Massachusetts lottery revenue is given to Municipalities to use at their discretion. Therefore, it is difficult to determine if lottery revenue went toward paving roads or putting a roof in a new building. Although we understand the enormous fiscal challenges endured by municipalities, in order to address the current poverty a regressivity-based approach to lottery revenue distribution to low-income cities and towns is due. Furthermore, we recommend an earmark that is not subject to a reduction by other revenues.

According to 2009-2010 statistics obtained by the Massachusetts Department of Education and our analysis there is a consistency between the percent of students who receive “free lunch” and low income communities. Consequently, the report also noted that higher income communities had lower teacher-student ratios. Therefore, providing basic public service is a significant challenge for poorer municipalities.

The research of Yinger, (as cited by Bradbury and Zhou, 2007) notes “the resulting fiscal disparities across municipalities lead to inequality and inefficiency, which are mostly outside the control of local governments”. The report further highlights how these burdens are at times causal to environmental impacts. Earmarking lottery profits specifically for education programs can alleviate the load of poverty on low-income communities thus improving the economic status of constituents who can then contribute to the local economy. Although direct based earmarks would be a better strategy to address the cost of educating poor students, we recognize the temptation by municipalities to divert other

resources currently allotted for education to pay for other municipal expenditures. However we recommend against that transfer of funding. Instead we propose that businesses support this initiative through an increase in tax to alleviate the burden on property owners. Based Zhoa, (2009) discussion paper, 30% of employers responding to a survey in Springfield reported that a lack of workforce readiness is a significant barrier to employee success and retention” therefore, we argue that the long-term investment in educating poor students can have a significant impact not only in educating students but also in reinvigorating the economic engine for businesses who are in need of skilled entry level employees. As highlighted in the report, the advantages of having an educated and competent workforce can be the lifeline for businesses in Springfield. We argue that this example can also be extended to other low-income cities and towns as well. Therefore we strongly advocate for an education earmarks aimed to provide academic support to poor school districts in order that the less advantaged students gain workforce readiness skills, knowledge and further economic opportunities.

C. Political Feasibility:

The political feasibility of changing Local Aid Formula and earmarking specific dollars to public service can be challenging. The Mayors, City Councilors, Assembly, and Town Administrators who are receiving much of the funds according to current formula may object. They may also object to having the state earmark revenue to their Municipalities because they receive the revenue and have the discretion to use funding as needed.

However, this distribution method would hold leaders accountable to communities that are spending a higher percentage of income on lottery games and may not be directly receiving the revenues in their own neighborhoods. Further, legislators who have the

opportunity to weigh in on what services are funded in their districts may be better equipped with a formula that earmarks lottery revenues accordingly to address the social problems as opposed to taking a “hands off” approach and maintaining the status quo. Further with the eminent reduction in local and state revenue supporting specific services will prevent having to raise taxes on the poor. The current system is vague and does not provide any indicators for how funding is spent.⁴

⁴ Retrieved Mar 31 from
http://www.brockton.ma.us/Docs/Brockton_FY2009_Annual_Plan_final_with_maps_and_certifications.pdf
http://www.ci.lawrence.ma.us/Pages/LawrenceMA_WebDocs/0910budget.pdf
http://www.springfieldcityhall.com/finance/fileadmin/budget/2010/Adopted_FY2010_Budget.pdf
<http://www.lowellma.gov/newsitems/FY2009ProposedBudget>

[Appendix 1]

Operation of State Lotteries (2006)

State	Lottery Revenue (FY2006)				
	Apportionment of Funds				
	Total (millions Of dollars)	Prizes(a)	Admin.(b)	Proceeds Available from Ticket Sales(C)	Estimated Implicit Tax Rate D=C/(a+b)
United States	72,675.3	53,542.5	2,208.8	16,924.0	30.36%
Delaware	7,144.2	6,778.5	48.4	317.3	4.65%
West Virginia	14,014.1	13,342.2	30.0	641.9	4.80%
South Dakota	573.2	447.6	7.7	117.9	25.90%
Rhode Island	1,539.2	1,208.3	8.4	322.5	26.50%
Massachusetts	4,200.4	3,234.5	83.3	882.5	26.60%
Vermont	98.7	66.5	9.6	22.6	29.74%
Minnesota	400.2	282.0	22.4	95.9	31.50%
Maine	213.4	144.2	16.1	53.1	33.15%
New Mexico	144.7	89.2	18.9	36.6	33.87%
Montana	37.6	20.7	7.2	9.7	34.78%
Oregon	2,213.2	1,571.6	65.2	576.3	35.21%
Washington	447.5	291.8	33.7	122.0	37.49%
Kansas	212.4	131.0	23.0	58.4	37.94%
Tennessee	930.9	620.8	51.7	258.4	38.42%
Nebraska	106.0	63.7	12.6	29.7	38.85%
Idaho	121.4	76.7	10.4	34.4	39.52%
Colorado	424.1	274.0	29.7	120.4	39.64%
Indiana	759.6	493.1	48.1	218.4	40.36%
Missouri	857.1	572.8	34.3	250.1	41.19%
Georgia	2,751.9	1,815.6	120.2	816.2	42.16%
Kentucky	695.6	444.9	43.7	207.0	42.36%
South Carolina	1,063.5	702.3	43.1	318.1	42.68%
North Carolina	213.5	133.1	16.1	64.3	43.10%
Texas	3,583.1	2,310.6	184.6	1,087.9	43.60%
Connecticut	916.3	587.4	38.4	290.5	46.43%
Wisconsin	473.9	293.9	29.1	150.9	46.71%

North Dakota	21.3	11.0	3.4	6.8	46.92%
New Hampshire	248.6	152.4	16.7	79.5	47.00%
Arizona	437.5	259.1	37.8	140.6	47.38%
Ohio	2,081.1	1,311.1	95.1	674.8	47.99%
Michigan	2,026.0	1,298.5	64.2	663.3	48.67%
Florida	3,711.8	2,340.9	146.4	1,224.5	49.23%
Illinois	1,819.3	1,158.2	55.4	605.7	49.91%
Pennsylvania	2,812.1	1,804.9	63.6	943.6	50.50%
Maryland	1,458.2	904.1	53.9	500.2	52.22%
New York	6,291.8	3,853.3	261.2	2,177.3	52.92%
Iowa	231.7	122.3	29.2	80.2	52.97%
Virginia	1,289.1	773.6	64.9	450.7	53.76%
Oklahoma	191.9	109.7	13.2	69.1	56.21%
New Jersey	2,272.3	1,345.7	88.7	837.9	58.42%
California	3,333.3	1,932.7	151.8	1,248.8	59.91%
Louisiana	313.6	168.2	27.5	117.9	60.26%

Source: U.S. Census Bureau

[Appendix 2] Analysis of Regressivity and the Distribution of Lottery Fund in Massachusetts

	City	Lottery Sales (2009)(a) Total	Lottery Expenditure Per capita(b)	b/e	Estimated Total Income (2008)(c)	Estimated Population (2008)(d)	Estimated Per Capita Income(e)	Estimated Median house or condo value (2008)(f)	Lottery Fund allocation /Total(g)	Lottery Fund Allocation /Per Capita(h)
1	WESTON	637,121.25	54.40	0.001	1,225,919,191	11,711	104,681	1,258,444	465,553	39.75
2	SUDBURY	2,397,699.50	139.34	0.002	1,205,178,280	17,207	70,040	733,674	1,100,660	63.97
3	BELMONT	14,841,451.00	613.16	0.011	1,351,704,020	24,205	55,844	727,606	1,982,683	81.91
4	BROOKLINE	10,402,195.00	181.00	0.003	3,505,670,000	57,470	61,000	609,196	4,403,998	76.63
5	OAK BLUFFS	3,284,972.00	879.51	0.028	118,410,705	3,735	31,703	495,694	90,514	24.23
6	NEW BURYPORT	8,617,013.50	491.22	0.011	781,636,436	17,542	44,558	440,056	1,794,165	102.28
7	BOSTON	865,493,678.00	1,421.12	0.043	19,923,578,422	609,023	32,714	400,100	71,585,070	117.54
8	RAYNHAM	17,603,399.75	1,297.61	0.040	443,730,294	13,566	32,709	368,498	1,415,252	104.32
9	MASHPEE	9,187,461.25	645.78	0.019	488,569,407	14,227	34,341	361,703	457,904	32.19
10	WILBRAHAM	5,042,207.00	1,410.41	0.036	139,164,025	3,575	38,927	309,736	1,670,683	467.32
11	DENNISPORT	1,470,339.50	409.45	0.013	116,750,592	3,591	32,512	305,139	677,806	188.75
12	HUDSON	10,627,157.75	738.61	0.022	475,955,040	14,388	33,080	301,999	301,999	20.99
13	AMESBURY	6,762,191.50	548.57	0.019	364,016,310	12,327	29,530	301,882	2,421,239	196.42
14	AVON	6,171,968.75	356.18	0.005	1,146,004,608	17,328	66,136	295,610	461,978	26.66
15	FAIRHAVEN	12,113,830.25	751.85	0.027	451,861,040	16,112	28,045	290,016	290,016	18.00
16	BARRE	1,787,147.25	1,495.52	0.043	41,954,060	1,195	35,108	268,125	1,012,076	846.93
17	NEW	79,548,109.00	870.66	0.040	1,988,102,400	91,365	21,760	250,200	27,914,157	305.52

	BEDFORD									
18	OXFORD	9,078,176.00	613.85	0.027	337,632,870	14,789	22,830	234,212	2,559,196	173.05
19	LUDLOW	15,909,670.00	709.94	0.028	571,544,640	22,410	25,504	229,215	3,802,034	169.66
20	LEE	4,828,096.75	2,477.22	0.106	45,668,968	1,949	23,432	219,245	775,098	397.69
21	GARDNER	15,896,481.00	768.61	0.031	520,690,032	20,682	25,176	206,448	5,153,217	249.16
22	HOLYOKE	25,727,432.50	644.04	0.032	806,410,089	39,947	20,187	188,679	12,033,363	301.23
23	PITTSFIELD	37,539,516.25	880.13	0.033	1,136,590,496	42,652	26,648	178,227	9,865,448	231.30
24	ADAMS	8,289,205.75	567.56	0.024	344,882,470	14,605	23,614	167,882	167,882	11.49
25	SPRINGFIELD	97,521,962.00	647.38	0.036	2,739,689,680	150,640	18,187	161,300	161,300	1.07
26	NEWTON	18,982,253.00	231.10	0.004	4,623,193,615	82,139	56,285	104,493	5,937,030	72.28
27	MARBLEHEAD	4,088,017.25	198.64	0.003	1,253,671,860	20,580	60,917	94,026	1,377,858	66.95

Source : Sales of Lottery(2009) from the MA
state lottery officer & City-data .com

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