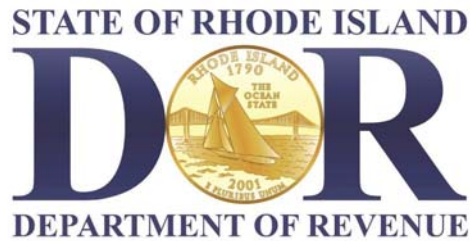


STATE OF RHODE ISLAND
GOVERNOR DANIEL J. MCKEE



Office of Revenue Analysis

State of Rhode Island Revenue Assessment Report
FY 2024 Methodology and Law Changes

Methodology Used to Estimate Expected Monthly and Year-to-Date FY 2024 Revenues

To determine the expected monthly and fiscal year-to-date revenues for the fiscal year, the Office of Revenue Analysis (ORA) first calculated, for each revenue item and fiscal year, the percentage of total fiscal year revenues that each month in the fiscal year comprised. ORA then took the historical revenue data and used different weighting methods to calculate moving averages to find the method that preformed the “best” in predicting the monthly distribution of the historical data. The best method was determined by calculating the standard error for each weighting method.¹ The weighting method that minimized the standard error for the revenue stream was selected. By undertaking this analysis, ORA was able to choose the weighting methodology that most accurately distributes total revenue over the months using history as a guide.

The methods tested included, but were not limited to:²

- A three-year moving average of the monthly share of total revenue, in which each year is weighted equally (i.e., 33⅓% per year).
- A five-year moving average of the monthly share of total revenue, in which each year is weighted equally (i.e., 20% per year).
- A five-year moving average of the monthly share of total revenue, in which each year is weighted using an exponentially decreasing order, with the most recent year (α) weighted at 50%, followed by 25% for the second most recent year, 12.5% for the third most recent year, and 6.25% each for the fourth and fifth most recent years.
- Lastly, a five-year moving average of the monthly share of total revenue, in which the Microsoft Excel Solver add-in program was used to determine alpha (α), which is the weight for the most recent year. The calculation of alpha by Excel Solver was subject to

¹ The standard error was measured as the root mean squared error (RMSE) of the weighting method divided by the average revenue value across all months of history. This statistic measures the average “miss” for each monthly prediction.

² A ten-year moving average, in which each year is weighted equally, was also tested for the estate and transfer tax.

the following constraints: Minimize the sum of squared errors; the value of α must be greater than zero and less than one; and the weight of each year must be lower than the previous year's weight. The weights of the subsequent years were calculated according to the following equations:

- The weight of the second year = $\alpha(1-\alpha)$;
- The weight of the third year = $\alpha(1-\alpha)^2$;
- The weight of the fourth year = $\alpha(1-\alpha)^3$; and
- The weight of the fifth year = $1-(\alpha + \alpha(1-\alpha) + \alpha(1-\alpha)^2 + \alpha(1-\alpha)^3)$.

A table depicting the weights used in each method tested is below:

Fiscal Year	3-year Moving Average, Equal Weights	5-year Moving Average, Equal Weights	10-year Moving Average, Equal Weights	5-year Moving Average, Exponentially Declining Weights Starting with $\alpha=50\%$	Solver Determined α, Exponentially Declining Weights
2022	33 $\frac{1}{3}$ %	20%	10%	50%	α
2021	33 $\frac{1}{3}$ %	20%	10%	25%	$\alpha(1-\alpha)$
2020	33 $\frac{1}{3}$ %	20%	10%	12.5%	$\alpha(1-\alpha)^2$
2019	n/a	20%	10%	6.25%	$\alpha(1-\alpha)^3$
2018	n/a	20%	10%	6.25%	1-sum of others
2017	n/a	n/a	10%	n/a	n/a
2016	n/a	n/a	10%	n/a	n/a
2015	n/a	n/a	10%	n/a	n/a
2014	n/a	n/a	10%	n/a	n/a
2013	n/a	n/a	10%	n/a	n/a

After testing, the best fit models for each revenue item were determined as follows:

Best Fit Model	Revenue Items
3-year moving average equal weight	Lottery transfer: on-site sports betting and remote sports betting
5-year moving average equal weight	Personal income tax: estimated payments, final payments, and withholding payments Health care provider assessment Sales and use tax Cigarette excise tax Alcohol excise tax Racing and athletics tax Lottery transfer: combined games, video lottery terminals ³

³ ORA used FY 2017 – FY 2019 and FY 2022 – FY 2023 for video lottery terminals due to closures related to the COVID-19 pandemic.

Best Fit Model	Revenue Items
5-year moving average exponentially declining weights ($\alpha = 50\%$)	Personal income tax: refunds and adjustments Other tobacco products excise tax Realty transfer tax Departmental receipts
5-year moving average exponentially declining weights (α determined by Excel Solver)	Business corporation tax Public utilities gross earnings tax Financial institutions tax Insurance company gross premiums taxes Bank deposits tax Lottery transfer: table games ⁴
10-year moving average equal weight	Estate and transfer tax

ORA then applied the weights associated with the best fit model for each revenue item to the percentage of adjusted revenues that occurred in a given month over the previous three, five, or ten fiscal years.⁵ The results were added to obtain a single monthly percentage of expected revenue. These percentages were then applied to the enacted FY 2024 revenue estimate for each revenue item. For the fiscal year-to-date estimates, the monthly percentages were summed and then applied to the enacted FY 2024 revenue estimate for each revenue item.

For FY 2024 monthly and fiscal year-to-date expected personal income tax final payment revenues, the expected revenues were determined using the above methodology for all revenues except for the pass-through entity payments. ORA then added the estimated pass-through entity payments to realized personal income tax final payments to yield adjusted personal income tax final payments revenues. The adjusted personal income tax final payments are then compared to the enacted FY 2024 personal income tax final payments expected revenues, which include estimated pass-through entity payments. The monthly distribution of estimated pass-through entity payments was determined through a 3-year moving average equally weighted.

⁴ ORA used FY 2017 – FY 2019 and FY 2022 – FY 2023 for table games due to closures related to the COVID-19 pandemic.

⁵ The previous three fiscal years were FY 2021 – FY 2023, the previous five fiscal years were FY 2019 – FY 2023, and the previous ten fiscal years were FY 2014 – FY 2023.

Law Changes Enacted in the 2023 Session That Impact General Revenues

In the 2023 session, the General Assembly enacted several changes to the state's general laws that impact general revenues. These changes can be categorized as follows: (1) changes that impact FY 2024 general revenues that will be realized through the accrual and (2) changes that impact FY 2024 general revenues that will be realized through monthly revenue flows. The changes in state law that impact monthly revenue flows will generally exhibit seasonality in the receipt of the revenue. ORA attempts to model the seasonality in such revenue flows in order to better align the expected receipt of revenues with the actual receipt of revenues. A more specific discussion of these items is provided below.

Revenue Changes That Will Be Realized Through Accruals

Personal Income Tax Final Payments and Refunds and Adjustments

The 2023 General Assembly enacted legislation for increasing the cap for the tax credit for contributions to scholarship organizations. For FY 2024, the impact of this change is estimated to be \$(100,000). Also enacted was legislation to increase the state earned income tax credit from 15% of the federal earned income tax credit amount to 16%. For FY 2024, the impact of this change is estimated to be \$(1,137,557). Both these revenue items are effective for tax years beginning on or after January 1, 2024. As TY 2024 returns are not filed until FY 2025, these enacted changes will impact revenues through the accrual only.

Revenue Changes That Will Be Realized Through Monthly Revenue Flows

Public Utilities Gross Earnings Tax

Enacted in the 2023 session is temporary relief from the public utilities gross earning tax for electric and gas utility customers during the months of December 2023 through March 2024. The utility companies will pay the gross earnings tax that the customers otherwise would have had to pay. These companies will then be able to apply for a rebate based on the applicable tax before May 31, 2024. This policy is expected to reduce revenue by \$35,639,477. ORA assumes these rebates will be paid in May 2023, although the exact timing is unclear.

Insurance Company Gross Premiums Tax

The 2023 General Assembly enacted initiatives that will impact the monthly revenue flows for insurance company gross premiums tax for health insurers. Included in the Governor's Recommended Budget were initiatives to add a person-centered, conflict-free case management system for individuals receiving home and community-based services, which has a general revenue impact of \$25,834, and a revised rate structure for services through CEDAR family services, which has an anticipated general revenue impact of \$2,465. Both initiatives are expected to impact revenues in July 2023 – June 2024 in accordance with the monthly flow of revenues of all other insurance company gross premiums taxes paid by health insurers during this period. Also included in the Governor's Recommended Budget was a new certified community behavioral health clinics rate model, which has an expected revenue impact of \$371,831. This initiative has an effective date of February 1, 2024, and the revenue changes are expected to impact the monthly revenue

flows flow for insurance company gross premiums taxes paid by health insurers in March 2024 through June 2024.

Departmental Receipts

Included in the FY 2024 enacted budget are two revenue items that impact revenues for departmental receipts: a repeal of the litter control permit fee, which has an expected revenue impact of \$(815,564); and the elimination of trooper trainee meal reimbursement requirement, which has an expected revenue impact of \$(88,800). In addition, legislation passed outside the budget process (P.L. 2023 chs. 216 and 217) includes restructure of the pharmacy license fee, which has an expected revenue impact of \$278,715. All three items are effective July 1, 2023 and are expected to impact monthly revenue flows in the general accordance with the revenue flows for departmental receipts.

Additionally, the 2022 General Assembly passed legislation enacting several law changes that will impact the FY 2024 revenue flows for departmental receipts due to a delayed implementation date of October 1, 2023. These changes are new or increased regulatory fees under the Department of Environmental Management and are expected to impact revenue flows from October 2023 through June 2024. The fee increases and their expected revenue impacts are as follows:

- Air minor source permit fee from \$1,271 to \$2,500, \$39,328;
- Air general permit fee from \$1,271 to \$2,500, \$70,053;
- Fresh wetlands preliminary determination fee from \$1,000 to \$1,070, \$15,470;
- Water quality certification fee from \$400 to \$428, \$672;
- Onsite wastewater treatment system new building fee from \$1,000 to \$1,070, \$42,770;
- Onsite wastewater treatment system variance fee from \$300 to \$321, \$1,008;
- Onsite wastewater treatment system repairs fee from \$500 to \$535, \$48,615;
- Underground injection control fee from \$400 to \$428, \$2,296;
- Site remediation fee of \$500, \$27,000;
- Leaking underground storage tank fee of \$500, \$20,000;
- Resubmission fee of \$1,000, \$50,000, and
- Annual compliance fee of \$500, \$250,000.

Lottery Transfer

Legislation (P.L. 2023 chs. 135 and 158) was enacted in the 2023 session legalize iGaming in Rhode Island, effective March 1, 2024. This legislation would allow eligible players located in the State to play online slot and table games. This additional lottery component is expected to add \$6,966,233 to general revenues from March 2024 through June 2024. Given that iGaming is a new type of gaming, ORA assumes that revenue will be spread equally over those four months.