State of Indiana

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DECEMBER 2024 REVENUE FORECAST

Methodology and Technical Documentation

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Introduction

This document provides an overview of the December 2024 state revenue forecast. The calculation instructions, model specifications, summary statistics, and forecasts are included.

For further information and assistance in the calculation of models, please contact the State Budget Agency's Office of the Chief Economist and Tax Analysis at 317-232-5610.

Revenue Forecast Committee

The revenue forecast technical committee is comprised of members from both the executive and legislative branches. Staff from both the State Budget Agency and Legislative Services Agency have a vital role in the process by assisting with data analysis and modeling. Each forecast model and revenue estimate are agreed to by the technical committee on a consensus basis.

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Economic Forecast

The forecast committee uses economic forecasts from S&P Global Market Intelligence (formerly IHS Markit). Forecasts cited in this document are provided by S&P Global Market Intelligence, a leading economic consulting firm. S&P Global Market Intelligence is routinely ranked among the leading economic forecasters in studies by The Wall Street Journal and Bloomberg Markets.

Section I: Commentary on the Economic Forecast

S&P Global Market Intelligence (formerly IHS Markit) projects U.S. real gross domestic product growth of 2.3% in FY 2025, 1.7% in FY 2026, and 1.8% in FY 2027. During the same period, Indiana's real gross state product is projected to grow by 2.9% in FY 2025, 1.6% in FY 2026, and 1.8% in FY 2027. Additionally, Indiana nominal wages and salaries are projected to grow by 6.5% in FY 2025, 6.5% in FY 2026, and 4.2% in FY 2027.

Economic and State General Fund revenue trends should be interpreted within historical perspective and in the context of macroeconomic dynamics and evolving policy actions at the federal and state level. Following temporary federal stimulus and other idiosyncratic dynamics (pandemic related etc.) that pushed economic indicators above historical trends and General Fund revenues from $18.5B in FY 2021 (excl. deferred payments from FY 2020 to FY 2021 due to deferral of the tax year 2020 federal tax deadline) to $21.2B in FY 2022 (14.4% growth), the FY 2024-2025 period is on track to reach $22.46B in FY 2025 despite continued rebalancing in the economy from the deceleration that started in FY 2023.

While FY 2024 was particularly impacted by higher interest rates and a notable slowdown in employment and activity within durable goods – related sectors of the economy, FY 2025 is projected to see an inflection point back within a higher (but below-trend) growth trend on the back of higher average annual wages, financial markets, household net worth and overall economic growth. However, the financial market gains in CY 2024, influenced by the Federal Reserve's shift towards lower interest rates, are projected to make way for valuation risks going forward and particularly in starting in CY 2026. Additionally, continued growth in average annual wages and lower cost of debt will be mitigated by higher unemployment and subdued employment dynamics, in the context of the evolving Federal policy actions. Altogether, these various dynamics will combine with lower interest revenues and individual income rate cuts to slow down General Fund revenues in FY 2026-2027.

When looking at a longer-term perspective of General Fund revenue growth, FY 2024-25 biennium is projected to grow by 4.0% compared to FY 2022-23, and FY 2026-27 biennium is projected to grow by 5.7% compared to FY 2024-25. In the context of the changing macroeconomic landscape, which includes the impact of the fastest rate hike in recent history amid elevated inflation, and normalization of behavior post-pandemic, different State General Fund revenue streams are impacted by various factors.

The timing and shift of economic activity highlight the importance of the long-term perspective and the net effects across different sectors of the economy and different revenue streams
- Following the FY 2021-22 period that saw above-trend growth in employment, inflation, consumer spending, and income within an expansionary fiscal and monetary Federal policy environment, these same trends have reversed within the context of a normalization back within the long-term trend.
- For instance, while a period of higher inflation and interest rates may have impacted growth among core taxes (but higher General Fund interest revenues) since FY 2022, the expectation of lower inflation interest rates is projected to drive an inflection point in the trend of revenues in FY 2025.
- The normalization of the economy from its pandemic-related dynamics can be seen in the shift of economic activity from goods to services. This has impacted multiple sectors including motor vehicles, housing, trade and more.
- While the second half of FY 2025 set to benefit from rising financial markets in CY 2024 and recovering economic activity in goods- related sectors of the economy (particularly durable goods), higher income and wealth effects will be met with continued challenges in employment growth and labor force participation in the context of the Fed's continued efforts to slow inflation back within its target levels.
- Particular indicators that continue to rebalance include employment, consumer prices, excess savings, household financial obligations, financial markets, spending on goods relative to services, and more.

Overall, (1) FY 2025 State General Fund revenues are projected to be 4.5% above FY 2024; FY 2026 State General Fund revenues are projected to grow at an annual rate of approximately 3.3%, and FY 2027 State General Fund revenues are projected to grow at a rate of 0.3%.

Below are some notes on the December 2024 economic forecast from S&P Global Market Intelligence.

US economy has been moving from above-potential GDP growth to modestly below

- US economy is transitioning from above-potential to below-potential growth
  - Over the four quarters of 2023, US GDP growth averaged 3.2% per quarter; growth picked up to 3.8% over the second half of 2023.
  - For 2024, quarterly GDP growth is forecast to slow to 2.3% per quarter.
  - Our baseline forecast reflects a "soft landing" as growth slows in order to ease inflation but doesn't drop into a recession.
- Factors that contribute to slowdown include
  - Ongoing effects of past Fed tightening.
  - Tightening bank lending standard on loans to businesses and consumers.
  - Diminished tailwinds that had been boosting growth in 2023.
    - Much of this was investment in infrastructure and manufacturing facilities spurred by Federal spending.
  - Strong dollar, which is weighing on net exports
- The December 2024 forecast includes our initial assessment of expected policies to be enacted by the incoming Trump administration and GOP-led Congress.
  - Supply-tightening effects of higher tariffs, reduced immigration, and resulting increase in inflation partly offset by stimulative effects of tax cuts and deregulation.
  - Potential for reduced Federal spending a major unknown.

Key policy assumptions in the December 2024 US forecast

- This forecast assumes the implementation of a 10% universal tariff, and a tariff on imports from mainland China of 30%.
  - Tariff hikes commence in second quarter of 2025 and ramp up over four quarters. Corporate taxes governed by current law, including the Inflation Reduction Act and scheduled phase-outs of provisions of the 2017 Tax Act.
  - We expect many trading partners to respond with tariffs of their own on US exports.
- A sharply reduced inflow of immigrants, along with some degree of deportations, reduces net immigration by around a half-million per year over the next four years.
  - This will reduce aggregate supply via reduced labor availability; also, will reduce domestic consumption due to lower population.
- Interest rate cuts by the Federal Reserve will still occur, but at a slower rate.
  - The expected average Federal Funds rate for 2026, for example, is now 3.72% compared with 2.62% in our previous forecast.
  - Long-term interest rates will be higher due to elevated inflation expectations.
- The so-called Department of Government Efficiency (DOGE) raises the possibility of significant cuts to Federal government spending. For now, our expectations for spending cuts are modest, mainly due to lack of available detail.
  - Reduced government spending would reduce budget deficits, which could help to boost economic growth in the longer term.
  - in the short term it would be a net negative for GDP growth.
  - We assume a reduction in Federal government payrolls of 500,000.
- Some provisions of Biden-era initiatives such as the Inflation Reduction Act and the CHIPS Act are likely in jeopardy.
  - We currently do not have specific assumptions about major changes. The uncertainty may at least put a hold on certain projects, especially those related to the energy transition.

Indiana outlook features slowing growth in output and payrolls, with continued gains in wages and income

- Indiana's economic growth outlook follows a similar path to the US.
  - Indiana employment growth remained solid in 2024, boosted by labor force expansion and sustained demand.
  - Net payroll gains will slow over the next couple of years, but job mix will change as some industries grow, others pull back, and productivity improves.
  - Impact on Indiana from decreased immigration, potential deportations will be relatively low but likely to impact certain industries and occupations.
- Higher tariffs on imports, exports would affect key industries, such as pharma and agriculture.
  - Might open new opportunities in the longer term, but short-term growth lower due to higher costs, disruptions.
- Auto industry continues to enjoy solid demand, but policy uncertainty looms.
  - Indiana has a large presence in "traditional" vehicles, while investing in new technologies.
  - Transition to electric vehicles in flux, with shifting demand and uncertain policy environment.
- Homebuilding pulled back in response to higher mortgage rates but has leveled off.
  - Record-low inventory and high home prices encouraging building despite higher costs.
  - Volume of home sales remains historically low as homeowners hang on to their existing homes (and mortgage rates).
- The state is slated to add big industry projects over the next few years, including electric vehicle batteries and drivetrain components, semiconductors, and pharmaceuticals.

Bottom line for Indiana

- The state economy remains favorable, keeping pace with the national average by most measures.
  - Labor force gains have helped meet demand for more workers.
  - The state's research and development resources, along with its manufacturing experience, are generating and attracting new industry opportunities.
- Possible higher tariffs would impact major goods-producing industries, including pharmaceuticals, automotive, machinery, and agriculture.
- Limits on immigration, potential deportations would impact certain industries in the state, including manufacturing (including food), construction, and agriculture.
- Risks to the state's economy mirror issues at the national level.
  - On the downside, disruption to capital and energy markets due to global turmoil could pull down growth.
  - On the upside, higher consumer spending and productivity gains would boost growth.
- Longer-term issues remain the same – labor force must continue to grow, in size, and skill level to allow existing business to expand and to attract new business.

Section II: Economic Indicators for Indiana

Fiscal Year Amounts

Indiana Economic Indicators	FY 2024 Actual	*FY 2025 Forecast*	*FY 2026 Forecast*	*FY 2027 Forecast*
Personal Income (Millions $)	433,183.59	456,757.12	482,827.47	506,977.05
Adjusted Personal Income (Less transfer payments) per Household (Thousands $)	123.04	128.35	135.07	141.03
Household net worth per household (Thousands $)	1,021.25	1,094.02	1093.01	1,096.50
Prior FY Home Sales	97.37	90.17	87.52	96.81
Personal Savings (Millions $)	18,794.60	18,350.66	26,342.91	30,477.39
Nominal Wages and Salaries (Millions $)	209,591.86	223,130.46	237,511.25	247,365.01
Real GSP, Retail Trade (Millions 2012 $)	24,354.48	25,093.98	25,423.53	25,982.09
Gross State Product (Millions $)	513,948.98	541,004.40	570,412.37	594,452.12

US Economy				
Household Financial obligations ratio	14.57	14.58	14.25	14.11
Retail Price on All Grades of Gasoline (cents $)	375.20	336.92	330.15	333.64
GSP / GDP, Two-Year Moving Average	0.0181	0.0181	0.0181	0.0181
Dividend Payments to individuals and Personal Interest Income (Billions $)	3,911.12	3,996.05	4,197.90	4,432.39
S&P 500 Index	4,794.91	5,830.69	5,542.79	5,226.88
Change in Prior CY S&P 500 Index	183.55	1,143.06	367.12	(427.88)

Year-Over-Year Percentage Change

Indiana Economic Indicators	FY 2024 Actual	*FY 2025 Forecast*	*FY 2026 Forecast*	*FY 2027 Forecast*
Personal Income (Millions $)	5.12%	5.44%	5.71%	5.00%
Adjusted Personal Income (Less transfer payments) per Household (Thousands $)	4.72%	4.32%	5.24%	4.41%
Household net worth per household (Thousands $)	6.18%	7.13%	-0.09%	0.32%
Prior FY Home Sales	-20.90%	-7.39%	-2.94%	10.62%
Personal Savings (Millions $)	26.53%	-2.36%	43.55%	15.69%
Nominal Wages and Salaries (Millions $)	6.16%	6.46%	6.45%	4.15%
Real GSP, Retail Trade (Millions 2012 $)	11.15%	3.04%	1.31%	2.20%
Gross State Product (Millions $)	5.44%	5.26%	5.44%	4.21%

US Economy				
Household Financial obligations ratio	2.25%	0.06%	-2.25%	-0.98%
Retail Price on All Grades of Gasoline (cents $)	-3.80%	-10.20%	-2.01%	1.06%
GSP / GDP, Two-Year Moving Average	-0.19%	0.00%	0.17%	-0.02%
Dividend Payments to individuals and Personal Interest Income (Billions $)	6.61%	2.17%	5.05%	5.59%
S&P 500 Index	19.63%	21.60%	-4.94%	-5.70%
Change in Prior CY S&P 500 Index	210.51%	522.76%	-67.88%	-216.55%

Section III: Models Used in the Forecast

Sales & Use Taxes

The implied tax base for sales tax does not include gasoline use tax ("GUT" is also no longer distributed to General Fund since FY 2024). It is calculated by (1) subtracting gasoline use tax revenues from sales and use tax revenues; (2) subtracting remote sales revenues attributable to recent Wayfair decisions and marketplace facilitator legislative changes ("remote sales"); and (3) dividing the result by the prevailing sales tax rate for that fiscal year. This methodology allows for specific methodologies that capture distinctive dynamics impacting overall sales and use tax collections. Sales tax collections attributable to remote sales are forecasted separately. Data used for sales net of GUT model is also adjusted to account for legislative changes, payment timing and other specific aspects that have altered tax collections trends over time.

Notably, the sales net of GUT model uses (1) Indiana adjusted personal income (less transfers payments) per household to potentially capture a measure of income that would better reflect the ability to spend, (2) U.S household obligations ratio as a percent of disposable income to potentially capture the impact of credit on the ability and willingness to spend, (3) MA (2) Prior FY Personal Savings to capture the potential impact on current year spending from recent changes in savings (4) Prior FY Home Sales to capture the taxable share of consumer spending in Indiana (5) Household Net Worth per Household to capture the impact of wealth effects and household balance sheets on the willingness and ability to spend on taxable purchases.

Sales & Use Taxes: Sales Net of Gasoline Use Tax

$\text{Log (Sales Net of GUT Tax Base)} = \beta_0 + (\beta_1 * \text{Log (Indiana Adjusted Personal Income (Less Transfer Payments) Per Household)}) + (\beta_2 * \text{U.S. Household financial obligations ratio}) + (\beta_3 * \text{Log (MA (2) Prior FY Personal Savings)}) + (\beta_4 * \text{Log (Prior FY Home Sales)}) + (\beta_5 * \text{Log (Household Net Worth per Household)})$

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	5.953***
β_1	0.823***
β_2	0.029***
β_3	0.048***
B_4	0.065**
B_5	0.102

Model Statistics:

Adjusted R^2	0.998
Predicted R^2	0.997
DW Statistic	2.730
Sample Size (n)	28

*Significance: *p < 0.1, **p < 0.05, ***p < 0.01*

Historical Revenue Data				
Fiscal Year	Adjusted General Fund Revenue (Millions $)	Growth Rate	Commuter Rail Service Fund	Industrial Rail Service Fund
2020	7,835.81	2.7%	10.28	2.43
2021	8,925.60	13.9%	11.69	2.77
2022	9,809.99	9.9%	12.89	3.05
2023	10,322.16	5.2%	13.57	3.21
2024	10,369.92	0.5%	13.61	3.22

Forecast Revenue Data				
Fiscal Year	Adjusted General Fund Revenue (Millions $)	Growth Rate	Commuter Rail Service Fund	Industrial Rail Service Fund
2025	10,737.20	3.5%	14.09	3.33
2026	11,092.59	3.3%	14.55	3.44
2027	11,586.43	4.5%	15.20	3.60

Forecasted revenue shown above also includes adjustments related to legislative acts and remote sales as a result of the Wayfair ruling in 2018 and other changes related to marketplace facilitators.

Individual Income Tax

The individual income tax forecast is based on (1) a model of state and local withholding payment activity, (2) a model of state and local estimated payments and other non-withholding payment activity combined with a separate estimate of individual income tax refunds, and (3) a separate estimate of local income tax revenues. The selected equations use fiscal year data rather than quarterly data. A fiscal year methodology reduces the risk of factors involving atypical timing delays affecting the model output.

The withholding payments model seeks to capture payments received for both state and local withholding on income tax, excluding non-resident partnership withholdings. The non-resident partnership withholdings attributable to individual income taxpayers are estimated separately, based on historical data.

The estimated payments & other non-withholding model seeks to capture non-withholding individual income tax payment activity. Refunds are estimated separately to arrive to the net forecast.

Lastly, an estimate for local income tax revenues is generated and subtracted from the sum of state and local individual income tax collections to arrive at the net state individual income tax revenue forecast. The local income tax forecast is based on a calculation of the statewide weighted average local income tax rate relative to the state rate. In essence, it seeks to capture the share of payments that is attributable to local income taxes.

The most recent tax cut, enacted in 2022 and accelerated in 2023, will bring the income tax rate from 3.23 percent to 2.9 percent over the next four years.

> Total State Income Tax Forecast = Total State and Local Withholding Payments + Total State and Local Estimated Payments & Other Non-Withholding Payments Net of Refunds – Local Income Tax Payments

Individual Income Tax: Withholdings

The withholding forecast is based on a methodology that seeks to capture the overall state and local withholding tax payment liability. This methodology reflects the actual cash flow process as both state and local withholding income tax payments initially come in together at the Department of Revenue level as withholding tax collections. The model is therefore able to use actual data of withholding tax payments for its forecast.

While Indiana's salary and wage disbursements is the major driver of withholding, adjustments relative to personal contribution to social insurance and residence adjustment add value by accounting for factors that impact the taxable income based on which the Indiana withholding tax is applied. On the same note, a variable for Indiana prior year births is added to address significant events (newborn children etc.) that would affect a taxpayer's withholding. The 'prior year' nature of the Indiana births variable also seeks to address the timing of when taxpayers would change their withholding details.

The forecast generated by the model is adjusted to account for (1) the combined state income tax rate and statewide average local income tax rate applicable to tax payments due during that period; (2) payment delays; and (3) corporate tax payments transferred to individual income taxes (nonresident shareholders' withholdings).

Log (Withholdings Payment Liability) = β_0 + (β_1 * Log (Indiana Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment)) + (β_2 * AR (1)) + (β_3 * Log (Indiana Prior Year Births))

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	0.125
β_1	0.870***
β_2	0.159***
β_3	-0.120**

Model Statistics:

Adjusted R^2	0.999
Predicted R^2	0.999
DW Statistic	1.925
Sample Size (n)	27

*Significance: *p < 0.1, **p < 0.05, ***p < 0.01*

Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	7,827.57	0.53%
2021	8,555.06	9.29%
2022	9,468.10	10.67%
2023	10,167.06	7.38%
2024	11,109.00	9.26%

Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	11,181.16	0.65%
2026	11,750.02	5.09%
2027	12,131.79	3.25%

Individual Income Tax: Estimated Payments and Other Non-Withholding

Similarly, to the withholding forecast, the estimated payments & other non-withholding payment forecast is based on a methodology that seeks to capture the overall state and local non-withholding tax payment liability.

In terms of variables, the model uses (1) the combination of U.S personal interest income, U.S dividend payments to individuals; (2) the change in Prior CY S&P 500 index of common stocks, and (3) the prior year level of estimated payments & other non-withholding payments. These variables seek to capture income from investments, businesses, reconciliations, and other sources that are not captured in withholdings but affect the estimated payment and final payment liability.

The forecast generated by the model is adjusted to account for (1) payment delays; (2) impacts of legislative changes; and (3) refunds (based on average proportion of refunds relative to total individual income tax payments).

> Log (Estimated Payments & Other Non-Withholding Payment Liability) = β_0 + (β_1 * Dividend payments to Individuals + Personal Interest Income) + (β_2 *Change in Prior CY S&P 500 index of common stocks) + (β_3 * AR (1))

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	4.637***
β_1	0.000**
β_2	0.000***
B_3	0.535***

Model Statistics:

Adjusted R^2	0.975
Predicted R^2	0.958
DW Statistic	2.046
Sample Size (n)	27

*Significance: *p < 0.1, **p < 0.05, ***p < 0.01*

Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	475.71	-57.30%
2021	2,023.87	325.44%
2022	2,280.93	12.70%
2023	1,534.51	-32.72%
2024	1,266.87	-17.44%

Forecast Data		
Fiscal Year	Adjusted Revenue	Growth
2025	1,915.75	51.22%
2026	1,750.47	-8.63%
2027	963.58	-44.95%

Individual Income Tax: Local Income Tax

The estimate for local income tax revenues is based on a calculation of the statewide weighted average local income tax rate relative to the state rate. In essence, it seeks to capture the share of payments that is attributable to local income taxes.

Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	3,031.46	6.62%
2021	3,047.40	0.53%
2022	3,567.88	17.08%
2023	4,125.85	15.64%
2024	4,279.72	3.73%

Forecast Data		
Fiscal Year	Adjusted Revenue	Growth
2025	4,434.55	3.62%
2026	4,639.00	4.61%
2027	4,554.48	-1.82%

Corporate Taxes: Corporate AGI

The corporate adjusted gross income ("AGI") model is based on a methodology that seeks to capture the corporate AGI tax payment liability. Notably, the model looks to address (1) overall trend in corporate profitability and size of the corporate sector but also (2) the specific dynamics that Indiana's corporate tax base is exposed to relative to its industry composition, (3) recognition of income attributable to Indiana.

The model uses variables such as the Indiana GSP, Trade, Transp.& Utilities, Indiana GSP/US GDP, and the two-year moving average of the S&P 500 index of common stocks.

The forecast generated by the model is combined with specific adjustments to account for (1) the blended corporate tax rate potentially applicable to tax payments due during that period; (2) payment delays; (3) material changes in corporate tax credits and impacts of legislative changes; (4) refunds; (5) corporate payments transferred to individual income taxes (nonresident shareholders' withholdings).

Log (Corporate Payments Liability) = β0 + (β1 * Log (GSP, Trade, Transp.& Utilities)) + (β2 * (Indiana GSP/US GDP) + (β3 * Two-Year Moving Average S&P 500 Index of Common Stocks)

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	-8.515*
β_1	.988***
β_2	356.410***
β_3	0.000***

Model Statistics:

Adjusted R^2	0.989
Predicted R^2	0.983
DW Statistic	2.487
Sample Size (n)	19

Significance: $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	437.55	-27.44%
2021	994.94	127.39%
2022	1,235.65	24.19%
2023	1,127.94	-8.72%
2024	933.29	-17.26%

Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	1,028.85	10.24%
2026	1,247.67	21.27%
2027	1,169.63	-6.25%

Corporate Taxes: Other Corporate Taxes

In addition to the corporate AGI forecast, revenues from the financial institution tax are estimated separately using historical compounded annual growth rates.

HEA-1002 (2022) repealed the Utility Receipts Tax (URT) and Utility Services Use Tax (USUT) starting July 1, 2022. These forecasts are then added together to get the total corporate tax forecast.

Financial Institutions Tax

Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	40.46	-65.52%
2026	56.51	39.66%
2027	59.14	4.66%

Cigarette & Other Tobacco Products Tax

The committee estimates cigarette tax and tobacco products tax separately. Cigarette sales, measured in packs of 20, depend upon prior year cigarette pack sales, an estimate of the sum of the four surrounding states' nominal prices, the nominal Indiana price, and a dummy for the smoking age population. Other tobacco product sales are estimated based on an annual fiscal year trend.

$$\text{Log (Packets Sold)} = \beta_0 + (\beta_1 * \text{Log (Prior Year Cigarette Pack Sales)}) + (\beta_2 * \text{Log (Nominal Indiana Cigarette Price)}) + (\beta_3 * \text{Log (All Neighbors' Nominal Price)}) + (\beta_4 * \text{Dummy for Smoking Age Population})$$

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	1.615***
β_1	0.828***
β_2	-0.725***
β_3	0.617***
β_4	-0.088***

Model Statistics:

Adjusted R^2	0.982
Sample Size (n)	39

Significance: $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	373.65	1.4%
2021	368.70	-1.3%
2022	346.55	-6.0%
2023	317.07	-8.5%
2024	282.36	-11.0%

Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	$268.71	-4.8%
2026	$255.50	-4.9%
2027	$243.59	-4.7%

Note: The state General Fund receives 56.24% of the cigarette and tobacco products taxes. The historical and forecasted revenues reflect cigarette tax (net of collection allowance) to state funds.

Alcoholic Beverage Taxes

The alcoholic beverage tax model includes three equations: one for beer, one for liquor, and one for wine. The beer and liquor include fiscal year real Indiana personal income and the real beverage price. In the beer equation, the price and income variables are expressed in terms of natural logarithms, and in the liquor equation the income variable is expressed in terms of a natural logarithm. The beer equation also includes the natural logarithm of prior year beer sales.

Alcoholic Beverage Taxes: Beer

$$\text{Log (Thousands of Gallons of Beer Sold in Indiana)} = \beta_0 + (\beta_1 * \text{Log (Prior Year Beer Sales)}) + (\beta_2 * \text{Log (Real Indiana Personal Income)}) + (\beta_3 * \text{Log (Real Price of Beer)})$$

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	2.347***
β_1	0.821***
β_2	0.026
β_3	-0.255***

Model Statistics:

Adjusted R^2	0.980
Sample Size (n)	59

Significance: $*p < 0.1, **p < 0.05, ***p < 0.01$

BEER	Actual* FY 2024	Forecast FY 2025	Forecast FY 2026	Forecast FY 2027
GENERAL FUND	2.2	2.2	2.2	2.3
ABC GALLONAGE FUND	2.2	2.2	2.2	2.3
STATE CONSTRUCTION FUND	4.2	4.1	4.2	4.2
ENFORCEMENT & ADMIN	2.0	1.9	2.0	2.0
ADDICTION SERVICES	2.2	2.2	2.2	2.3
TOTAL	**12.8**	**12.7**	**12.8**	**13.0**

*Actuals are calculated based on reported gallons sold, not actual revenue.

Alcoholic Beverage Taxes: Liquor

Log (Thousands of Gallons of Liquor Sold in Indiana) = β_0 + (β_1 * Log (Real Indiana Personal Income)) + (β_2 * Real Price of Liquor)

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	-4.393
β_1	1.158***
β_2	-0.079**

Model Statistics:

Adjusted R^2	0.980
Sample Size (n)	26

Significance: *p < 0.1, **p < 0.05, ***p < 0.01

LIQUOR	Actual* FY 2024	Forecast FY 2025	Forecast FY 2026	Forecast FY 2027
GENERAL FUND	7.6	7.7	7.9	8.2
ABC GALLONAGE FUND	7.6	7.7	7.9	8.2
STATE CONSTRUCTION FUND	17.7	18.1	18.6	19.2
ENFORCEMENT & ADMIN	1.7	1.7	1.7	1.8
ADDICTION SERVICES	0.9	0.9	1.0	1.0
PENSION RELIEF FUND	5.1	5.3	5.4	5.6
TOTAL	40.6	41.5	42.6	44.0

*Actuals are calculated based on reported gallons sold, not actual revenue.

Alcoholic Beverage Taxes: Wine

Compound Annual Growth Rate from 2013-2022 to trend wine consumption.

WINE	Actual* FY 2024	Forecast FY 2025	Forecast FY 2026	Forecast FY 2027
GENERAL FUND	2.2	1.8	1.9	1.9
ABC GALLONAGE FUND	2.2	1.8	1.9	1.9
STATE CONSTRUCTION FUND	2.9	2.3	2.4	2.4
ENFORCEMENT & ADMIN	0.7	0.6	0.6	0.6
ADDICTION SERVICES	0.4	0.3	0.3	0.3
TOTAL	8.4	6.9	7.0	7.2

*Actuals are calculated based on reported gallons sold, not actual revenue.

Riverboat and Racino Wagering

The committee uses an equation to estimate the total adjusted gross wagering receipts of the state's eleven riverboat casinos and two racinos. Adjusted gross wagering receipts serve as the tax base for both wagering taxes. These estimates are then adjusted to compute the estimated fiscal year riverboat wagering tax collections and racino slot machine wagering tax collections. The equation estimates the quarterly total adjusted gross wagering receipts with nominal Indiana personal income, a set of dummy variables for market and seasonal changes, and an interaction variable that accounts for other economic and market circumstances.

The baseline adjusted gross wagering receipts forecast is then adjusted to account for: (1) potential competitive impacts from new casino operations in neighboring states, (2) changes in Indiana laws, (3) court decisions impacting taxation of gaming revenues, and (4) the competitive effects of a new casino in South Bend, Indiana.

Total Adjusted Gross Wagering Receipts = β_0 + (β_1 * Indiana Personal Income) + (β_2 * CY Q4 Dummy) + (β_3 * Four Winds Dummy) + (β_4 * Racinos Dummy) + (β_5 * Ohio Dummy) + (β_6 * Indiana Personal Income * Four Winds Dummy)

Coefficient Statistics:

Coefficient	Estimated Coefficient
β_0	-58,969,863
β_1	3,417***
β_2	-30,399,102***
β_3	631,130,024***
β_4	58,151,248***
β_5	-0.58***
β_6	-3,108***

Model Statistics:

Adjusted R^2	0.942
Sample Size (n)	70

*Significance: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$*

Riverboat and Racino Wagering

Riverboat Wagering Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	200.28	-35.7%
2021	282.55	41.1%
2022	311.25	10.2%
2023	348.85	12.1%
2024	315.34	-9.60%

Riverboat Wagering Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	316.05	0.2%
2026	338.72	7.2%
2027	338.59	-0.04%

Racino Wagering Historical Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2020	90.42	-24.3%
2021	126.22	39.6%
2022	141.12	11.8%
2023	139.77	-1.0%
2024	134.48	-3.78%

Racino Wagering Forecast Data		
Fiscal Year	Adjusted Revenue (Millions $)	Growth
2025	134.36	-0.1%
2026	136.55	1.6%
2027	138.23	1.2%

Section IV: Technical Explanations

General Note on the Statistical Forecast Methodology

Models from this forecast are estimated using ordinary least squares regression ("OLS"). The OLS equation estimates the relationship between the explanatory variables (x) and the response variable (y). The multiple regression function is described by the equation below:

$$y = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \dots + \hat{\beta}_n x_n$$

In this equation $\hat{\beta}_1$ represents the relationship between the explanatory variable x_1 and the response variable y, while $\hat{\beta}_0$ equals the point at which the regression line intercepts with the y axis. The models used to estimate the state revenue forecast use this functional form. Certain models use the natural logarithmic form of the explanatory and response variables.

In order to calculate the forecast values of state revenue (y in the equation above) the committee uses forecast values of the explanatory variables (x) from S&P Global Market Intelligence (formerly IHS Markit). By substituting the forecast values of x in the equation, a future value of y can be estimated.

Explanations of summary statistics

Standard summary statistics for each model are included with the model specifications.

The Adjusted R^2 listed in the model summaries describes the total variation in the response variable (y) explained by the explanatory variables (x). An Adjusted R^2 equal to 0.90 means that 90% of the change in the dependent variable was explained by the change in the explanatory variables.

Predicted R^2 is calculated by systematically removing each observation from the data set, estimating the regression equation, and determining how well the model predicts the removed observation. It describes the total variation found in this way and determines how well the model explains new data.

The number of observations, or sample size, used to estimate the model is also listed as "n". Most of the forecast models are based on annual data, meaning that a model with an "n" equal to thirty is using thirty years of data. Certain models are based on quarterly data and in this case the statistic refers to the number of quarters used to estimate the model.

The Durbin Watson Statistic (DW Statistic) is a statistic that tests for first order autocorrelation in the residuals of a model. The presence of first order autocorrelation violates assumptions in regression theory thus harming model integrity.

The p-value measures the significance of the relationship between a particular explanatory variable and the response variable in the model. These p-values examine each explanatory variable's relationship with the response variable independently.