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REVENUE FORECASTING METHODOLOGY

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Discussion of the Forecast

At that time of the April 17, 2009 forecast update, Indiana personal income was forecasted to increase by 1.3% in FY 2009, 0.0% in FY 2010, and 2.0% in FY 2011. The current economic forecast is for Indiana personal income to increase by 1.1% in FY 2009, decline by 0.6% in FY 2010, and increase by 2.3% in FY 2011. The employment situation has worsened resulting in a forecasted decline in wage and salary disbursements to Indiana workers of 0.9% in FY 2009 and 1.9% in FY 2010. Wage and salary disbursements are projected to increase by 1.8% in FY 2011.

At the time of the April 17, 2009, revenue forecast, real Gross Domestic Product (GDP) was forecast to decline by 1.8% and 1.6% in FY 2009 and FY 2010, respectively, before increasing by 2.8% in FY 2011. The current economic forecast is for real GDP to decrease by 1.7% and 1.2% in FY 2009 and FY 2010, respectively, before increasing by 2.8% in FY 2011. Personal consumption expenditures are forecasted to increase by 0.5% in FY 2009, 1.0% in FY 2010, and 3.8% in FY 2011. Corporate profits were forecast in April to decline by 16.4% in FY 2009 and 3.5% in FY 2010 before increasing by 15.7% in FY 2011. Corporate profits are now forecast to decrease by 18.9% and 3.3% in FY 2009 and FY 2010, respectively, before increasing by 14.8% in FY 2011.

This document discusses the methodologies used by the Revenue Forecast Technical Committee to update its April 17, 2008, revenue forecast and provides the projected revenues for FY 2009, FY 2010, and FY 2011. For additional information regarding this revenue forecast update see the document *General Fund Revenue Forecast Update* from the Revenue Forecast Technical Committee dated May 27, 2009.

Discussion of the Equations Used in the Forecast

Sales Tax

The Committee determined that while the structure of the sales tax equation used in December and again in April was generally sound, it was over-forecasting in the current economic conditions. The Committee determined that using U.S. personal consumption expenditures in place of real GDP produced an equally sound equation that produced results more consistent with the current economic conditions. This equation regresses the natural log of the sales tax base on the natural log of fiscal year nominal Indiana Personal Income (FY_IPI), the natural log of the sales tax rate, and the percentage change in U.S. personal consumption expenditures. The model used by the Committee is replicated as Equation (1) below. Since this is a model that uses sales tax in its log form, it was converted to dollar levels by taking the exponential and multiplying it by an adjustment factor.

Equation (1): Sales Tax Base = (1.0009* (EXP (-1.319050 + (0.996611* LN (FY_IPI)) - (0.170993* LN (Tax Rate)) + (0.929390* % Chg FY PCE)))) + Adjs.

Individual Income Tax

In April 2009, individual income tax revenues were 30.6% lower than in April 2008. Of note was that estimated payments were 64.5% lower than in April 2008 and accounted for almost 60% of the year-over-year decline in total individual income tax revenues. The Committee determined that the equation used in December and April was not adequately capturing the impact of the recession particularly on investment and business income. The Committee adopted an equation that regresses income tax revenues on Indiana wage and salary disbursements and the value of financial assets held by U.S. households and nonprofit organizations. The equation is replicated as Equation (2), below.

Income taxes imposed by counties in Indiana are collected by the state and distributed back to the imposing counties. The collection and distribution mechanisms result in a material lag between the time local income taxes are collected and the time the state is able to segregate those taxes for distribution to the appropriate counties. As a result, local income taxes collected in prior years are distributed from current income tax collections. The Committee found that the collection and distribution mechanisms in place result in a material impact on current state income tax revenues reported during the forecast period. The results from Equation (2) were adjusted to account for this impact.

Equation (2): Individual Income Tax = -106.56846 + 0.03451 * (FY Nominal Wages and Salaries) + .027 * (Household Assets) + Adjs.

Corporate Income Tax

The Committee retained the Corporate Adjusted Gross Income tax equation used in April 2009. The Corporate Income Tax model is driven by corporate profits as reported in the National Income and Product Accounts, the difference between the effective state corporate adjusted gross income tax rate and the effective state individual income tax rate, slope variables to account for periods when growth in corporate income tax collections was stronger than growth in corporate profits, and a dummy variable to account for the first-year impacts of implementing the Financial Institutions Tax. The equation employed by the Committee is replicated as Equation (3), below. Revenues from the Utility Receipts Tax, the Utility Services Use Tax, and the Financial Institutions Tax were forecast separately and the results of Equation (3) adjusted accordingly.

Equation (3): Corporate Adjusted Gross Income Tax = ((6,851.478749
+ 1.18331907 * (Corp. Profits) – 24,151.18344 * (Rate Differential)
+ 2.540632224*(D1) + 0.700500993 * (D2) + 1,129.224225*(D3)) * .085)
+ Utility Receipts Tax + Utility Service Use Tax+ Financial Institutions Tax
+Adjs.

Where D1= (1* Corp Profits) if year > 1994 and < 2001
Where D2= (1*Corp Profits) if year > 2005 and < 2008
Where D3 = 1 if year = 1990

Cigarette & Tobacco Products Tax

The Committee adopted two equations to estimate the Cigarette Tax and Tobacco Products Tax. Cigarette Sales, measured in packs of 20, depend upon fiscal year real Indiana Personal Income (RFY_IPI), and an estimate of the sum of the four surrounding states' real prices (RALLPRICE), the real Indiana price (RINPRICE), the real cigarette excise tax rate (CIGRATE), and a trend variable equal to the fiscal year forecast minus 1965 (TREND). Tobacco Product sales are estimated based on fiscal year real Indiana Personal Income (RFY_IPI), a price index for tobacco products (PRICE), the excise tax on tobacco products (TOBRATE), and the trend variable (TREND). The sales, income, and price variables are expressed in natural logarithms. The tobacco product excise tax is not in natural logarithm form.

Equation (4): Cigarette Sales = -4.353 + 1.012 (RFY_IPI) + .204 (ALLPRICE)
- 0.861(RINPRICE) - 0.092 (CIGRATE) - 0.033 (TREND)

Equation 4(a): Gross Cigarette Tax = 0.995 (Cigarette Sales)

Equation (5): Tobacco Product Sales = -18.274 +1.860 (RFY_NFIPI) - 0.233 (PRICE)
- 0.018 (TOBRATE) + 0.026 (TREND)

Equation (5a): Tobacco Products Tax = 0.24 (Tobacco Products Sales)

Alcoholic Beverage Taxes

The alcoholic beverage tax model includes three equations: one for beer, one for liquor, and one for wine. All three equations include fiscal year real Indiana Personal Income (RFY_IPI), the real beverage price (BPRICE, LPRICE, WPRICE), and the lagged sales of the beverage in gallons (BLAGSALE, LLAGSALE, WLAGSALE). The beer equation has a trend variable (TREND). The liquor equation includes a trend variable (TREND), a dummy variable for 1991 and years after (D91), and a variable which takes the trend variable multiplied by D91 (TRENDD91). The wine equation includes a dummy variable for 1987 and years after multiplied by the log of real Indiana Personal Income (D87_RFY_IPI). For all equations, the income and price variables were adjusted by the Gross Domestic Product price deflator. The sales and income variables are expressed in terms of natural logarithms. The price, trend, and dummy variables are not in natural logarithms.

Equation (6): Beer sales = -0.447 + 0.897(LAGSALE) + 0.167(RFY_IPI)
- 0.040(BPRICE) - 0.004(TREND)

Equation (6a): Beer tax = 0.115(Beer sales)

Equation (7): Liquor sales = 2.037 + 0.564(LAGSALE) + 0.226 (RFY_IPI)
- 0.045(LPRICE) - 0.017(TREND) – 0.598(D91) + 0.022 (TREND91)

Equation (7a): Liquor tax = 2.68(Liquor sales)

Equation (8): Wine sales = -0.574 + 0.842 (LAGSALE) + 0.201 (RFY_IPI)
- 0.080 (WPRICE) – 0.009 (D87_RFY_IPI)

Equation (8a): Wine tax = 0.47(Wine sales)

Gaming Taxes

The Committee adopted separate procedures to estimate the yield from the riverboat wagering tax paid by the state's 11 riverboat casinos and from the slot machine wagering tax paid by the state's two racetrack slot machine facilities.

The Committee adopted an equation to estimate the adjusted gross wagering receipts of the 11 riverboat casinos, which serves as the tax base for the riverboat wagering tax. The riverboat wagering tax base estimate is then used to compute estimated wagering tax collections from the riverboat casinos. Amounts are subtracted from this result to account for annual distributions to the Indiana Gaming Commission, the Indiana Economic Development Corporation, the West Baden Springs Historic Hotel Preservation and Maintenance Fund, local revenue sharing, and riverboat communities.

The adjusted gross wagering receipts equation uses quarterly adjusted gross wagering receipts (AGR) generated at the riverboat casinos, quarterly nominal Indiana Personal Income (Q_NIPI), and the quarterly turnstile count (Q_TURNSTILE) at the riverboat casinos to account for the impact of market and capacity factors on the wagering tax base. The equation contains a dummy variable (D_FRLICK) to account for the addition of the French Lick Casino and its impact on the riverboat wagering tax base. The equation includes a dummy variable (D_FRWINDS) to account for the competitive impact of the Four Winds Casino on the riverboat wagering tax base. The Four Winds Casino is a tribal casino located in New Buffalo, Michigan, about 20 miles from the Blue Chip Casino in Michigan City, Indiana. The equation includes a dummy variable (D_RACINO) to account for the opening of the slot machine facilities at Hoosier Park and Indiana Downs and their impact on the riverboat wagering tax base. It also includes quarterly dummy variables (D_Q2, D_Q3, and D_Q4) to account for seasonal variation in adjusted gross wagering receipts. The equation chosen is replicated as Equation (9), below.

Equation (9): $Q\_AGR = -7.34 + 0.713(Q\_NIPI) + 0.577(Q\_TURNSTILE) + 0.024(D\_FRLICK) - 0.046(D\_FRWINDS) - 0.042(D\_RACINO) - 0.025(D\_Q2) - 0.024(D\_Q3) - 0.036(D\_Q4)$

Where Q_TURNSTILE is the actual quarterly turnstile count for the casinos through the 1st Quarter of 2009 and thereafter is assumed to experience year-over-year decline of 1.9% during the remainder of FY 2009, year-over-year decline of 1% during FY 2010, and no year-over-year change during FY 2011.

Where D_FRLICK = 0.67 in 4th Quarter 2006 and 1 in calendar quarters thereafter.

Where D_FRWINDS = 0.67 in 3rd Quarter 2007 and 1 in calendar quarters thereafter.

Where D_RACINO = 0.33 in 2nd Quarter 2008 and 1 in calendar quarters thereafter.

Where D_Q2 = 1 during the 2nd calendar quarter of a year.

Where D_Q3 = 1 during the 3rd calendar quarter of a year.

Where D_Q4 = 1 during the 4th calendar quarter of a year.

The Committee also adopted an estimate of the yield from the slot machine wagering tax paid by the state's two horse racetracks. This estimate is based on the adjusted gross wagering receipts generated at the two racetrack slot machine facilities from July 2008 to April 2009, with the nine-month total annualized. The annualized total is assumed for FY 2009 and FY 2010, with 1.6% growth in FY 2011. The annualized totals for each facility are then used to compute the yield of the slot machine wagering tax.

SPECIFIC METHODOLOGY
(May 27, 2009)

Sales Tax:

For Each Fiscal Year to be Forecast

1. Multiply 0.996611 by the natural logarithm of the fiscal year Indiana Personal Income.
2. Subtract 1.319050 from the results of Step 1.
3. Multiply -0. 170993 by the logarithm of the fiscal year sales tax rate (7%).
4. Multiply 0. 929390 by the percent change in fiscal year Nominal Personal Consumption Expenditures.
5. Add the results of Step 2, Step 3, and Step 4.
6. Compute the exponential of the result of Step 5. Multiply the result by 1. 0009 to obtain the total fiscal year sales tax base.
7. Multiply the results of Step 6 by the sales tax rate (7%).
8. Add 12.4 in FY 2009, 18.6 in FY 2010, and 19.6 in FY 2011 to the result of Step 7 to account for the impact of tax measures enacted in 2004, 2005, 2006, 2007, and 2008.
9. Multiply the results of Step 8 by 0.99178 to account for the percentage of sales taxes deposited in the General Fund under HEA 1001- 2008.

Individual Income Tax:

For Each Fiscal Year to be Forecast

1. Multiply 0. 03451 times fiscal year Nominal Wages and Salaries.
2. Multiply 0.027 times fiscal year Nominal Household Financial Assets.
3. Add the results of Step 1 and Step 2.
4. Subtract 106.56846 from the results of Step 3.
5. Subtract 280.0 for FY 2009, 318.1 for FY 2010, and 318.9 for FY 2011 from the results of Step 4 to account for tax measures enacted in 1997, 1999, 2002, 2005, 2006, 2007, and 2008.

6. Subtract 136.6 for FY 2009 and 104.4 in FY 2010 from the results of Step 5 to account for the impacts of local income tax distributions as explained in the section of this document describing the individual income tax equation.

Corporate Income Tax:

For Each Fiscal Year to be Forecast

1. Multiply 1.183319 times fiscal year U.S. Corporate Profits.

2. Add 6,851.478749 to the results of Step 1.

3. Multiply -24,151.18344 times 0.0511 and add the result to the results of Step 2 to account for the impact of a differential between the corporate income tax rate and the individual income tax rate.

4. Multiply the results of Step 3 by the statutory corporate income tax rate of 0.085.

5. Subtract 31.5 from the results of Step 4 to account for the impact of changes to the Research and Development Expense Credit contained in HEA 1001-2002ss.

6. Add 215.3 to the results of Step 5 to account for the revenues from the Utility Receipts Tax.

7. Add 12.9 to the results of Step 6 to account for the revenues from the Utility Service Use Tax.

8. Add 20.0 in FY 2009 and Subtract 15.0 in FY 2010 to the results of Step 7 to account for General Fund impact from the Financial Institutions Tax.

9. Add 3.49 for FY 2009, 3.22 for FY 2010, and -11.4 for FY 2011 to the results of Step 8 to account for tax measures enacted in 2005, 2006, 2007, and 2008.

10. Add 11.4 for FY 2009, 11.2 for FY 2010, and 11.5 for FY2011 to the results of Step 9 to account for the ongoing impact of *Aztar Indiana Gaming Corporation vs. the Indiana Department of State Revenue*.

Cigarette Tax:

For Each Fiscal Year to be Forecast

1. Multiply 1.012 by the logarithm of fiscal year real Indiana Personal Income.

2. Subtract 4.353 from the result of Step 1.

3. Multiply 0.204 by the logarithm of the sum of the real cigarette prices in the four surrounding states.

4. Add the result of Step 3 to the result of Step 2.
5. Multiply -0.861 by the logarithm of the real cigarette price in Indiana.
6. Add the result of Step 5 to the result of Step 4.
7. Multiply -0.092 by the logarithm of the real cigarette excise tax rate.
8. Add the result of Step 7 to the result of Step 6.
9. Subtract 1965 from the fiscal year forecast.
10. Multiply the result of Step 9 by -0.033.
11. Add the result of Step 10 to the result of Step 8.
12. Take the exponential of Step 11 to get sales.
13. Multiply the result of Step 12 by 0.995 to get total revenue.
14. Multiply the result of Step 13 by 0.5368 to get General Fund revenue.

Tobacco Products Tax:

For Each Fiscal Year to be Forecast

1. Multiply 1.860 by the logarithm of fiscal year real Indiana Personal Income.
2. Subtract 18.274 from the result of Step 1.
3. Multiply 0.233 by the logarithm of the of the real tobacco product price.
4. Subtract the result of Step 3 from the result of Step 2.
5. Multiply 100 by the tobacco products excise tax rate.
6. Multiply -0.018 by the result of Step 5.
7. Add the result of Step 6 to the result of Step 4.
8. Subtract 1965 from the fiscal year forecast.
9. Multiply the result of Step 9 by 0.026.
10. Add the result of Step 9 to the result of Step 7

11. Take the exponential of Step 10 to get sales.

12. Multiply the result of Step 11 by 0.24 to get total revenue.

13. Multiply the result of Step 12 by 0.75.

14. Multiply the result of Step 13 by 0.5368 to get General Fund revenue.

Alcoholic Beverage Tax - Beer:

For Each Fiscal Year to be Forecast

1. Multiply 0.897 by the logarithm of beer sales, lagged one year.
2. Subtract 0.447 from the result of Step 1.
3. Multiply 0.167 by the logarithm of fiscal year real Indiana Personal Income.
4. Add the result of Step 3 to the result of Step 2.
5. Multiply -0.040 by the real beer price.
6. Add the result of Step 5 to the result of Step 4.
7. Multiply -0.004 by the trend term.
8. Add the result of Step 7 to the result of Step 6.
9. Take the exponential of the result of Step 8 to get sales.
10. Multiply the result of Step 9 by 0.115 to get total revenue; multiply the result of Step 9 by 0.04 to get General Fund revenue.

Alcoholic Beverage Tax - Liquor:

For Each Fiscal Year to be Forecast

1. Multiply 0.564 by the logarithm of liquor sales, lagged one year.
2. Subtract 2.037 to the result of Step 1.
3. Multiply 0.226 by the logarithm of fiscal year real Indiana Personal Income.
4. Add the result of Step 3 to the result of Step 2.
5. Multiply -0.045 by the real liquor price.

6. Add the result of Step 5 to the result of Step 4.

7. Multiply -0.017 by the trend term.

8. Add the result of Step 7 to the result of Step 6.

9. Multiply -0.598 by a dummy for 1991.

10. Add the result of Step 9 to the result of Step 8.

11. Multiply 0.022 by the trend term multiplied by the dummy for 1991.

12. Add the result of Step 11 to the result of Step 10.

13. Take the exponential of the result of Step 12 to get sales.

14. Multiply the result of Step 13 by 2.68 to get total revenue; multiply the result of Step 13 by 1.00 to get General Fund revenue.

Alcoholic Beverage Tax - Wine:

For Each Fiscal Year to be Forecast

1. Multiply 0.842 by the logarithm of wine sales, lagged one year.

2. Subtract 0.574 from the result of Step 1.

3. Multiply 0.201 by the logarithm of fiscal year real Indiana Personal Income.

4. Add the result of Step 3 to the result of Step 2.

5. Multiply -0.080 by the real wine price.

6. Add the result of Step 5 to the result of Step 4.

7. Multiply -0.009 by the dummy for 1987 multiplied by the logarithm fiscal year real Indiana Personal Income.

8. Add the result of Step 7 to the result of Step 6.

9. Take the exponential of the result of Step 8 to get sales.

10. Multiply the result of Step 9 by 0.47 to get total revenue; multiply the result of Step 9 by 0.20 to get General Fund revenue.

Gaming Taxes:

For Each Fiscal Year to be Forecast

1. Multiply 0.713 by the natural logarithm of quarterly nominal Indiana Personal Income.

2. Subtract 7.34 from the result of Step 1.

3. Multiply 0.577 by the natural logarithm of the quarterly casino turnstile count and add the result to the result of Step 2.

4. Add 0.016 to the result of Step 3 for the 4th Quarter of 2006, and add 0.024 to the result of Step 3 for each calendar quarter thereafter.

5. Subtract 0.031 from the result of Step 4 for the 3rd Quarter of 2007, and subtract 0.046 from the result of Step 4 for each calendar quarter thereafter.

6. Subtract 0.014 from the result of Step 5 for the 2nd Quarter of 2008, and subtract 0.042 from the result of Step 5 for each calendar quarter thereafter.

7. Subtract 0.025 from the result of Step 6 if the calendar quarter is the 2nd Quarter; subtract 0.024 from the result of Step 6 if the calendar quarter is the 3rd Quarter; or subtract 0.036 from the result of Step 6 if the calendar quarter is the 4th Quarter.

8. Compute the exponential of the result of Step 7 and multiply this result by 1.00003 to obtain the total quarterly adjusted gross wagering receipts of the riverboat casinos.

9. Sum the quarterly totals from Step 8 for the fiscal year to obtain the total fiscal year adjusted gross wagering receipts of the riverboat casinos.

10. Divide the total fiscal year adjusted gross receipts from Step 9 between the 11 riverboat casinos based on the actual July 2008 to April 2009 percentage distribution of adjusted gross wagering receipts by riverboat casino.

11. Use the fiscal year adjusted gross wagering receipts totals by riverboat casino from Step 10 to compute the fiscal year wagering tax for each riverboat casino.

12. Sum the fiscal year wagering tax totals for each riverboat casino from Step 11 to obtain the fiscal year total wagering tax collections from the 11 riverboat casinos.

13. Subtract from the Step 12 result, 3,824,922 each year to account for reimbursement to the Indiana Gaming Commission for administrative expenses; 33,000,000 each year to account for local revenue sharing; and 95,046,641 each year to account for wagering tax distributions to riverboat communities.

14. Subtract from the Step 13 result, 12,283,783 in FY 2009, 12,131,604 in FY 2010, and 12,403,488 in FY 2011 to account for distributions of wagering tax from the French Lick

Casino to the Indiana Economic Development Corporation, the West Baden Springs Historic Hotel Preservation and Maintenance Fund, and area communities.

15. Add to the Step 14 result, 60,103,265 in FY 2009, 104,769,461 in FY 2010, and 106,737,097 in FY 2011 to account for revenue yield from the slot machine wagering tax paid by the racetrack slot machine facilities.