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REVENUE FORECASTING METHODOLOGY

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Discussion of the Forecast

In December 2010, General Fund revenues were forecasted to increase by 6.3% in FY 2011, 3.5%, in FY 2012, and 4.1% in FY 2013. This update forecasts General Fund revenue to increase by 7.2% in FY 2011, 5.1% in FY 2012, and 3.7% in FY 2013.

The economic forecast underlying this update to the December 2010 revenue forecast was released by IHS Global Insight on April 12, 2011. In December 2010, Indiana personal income was forecasted to increase by 3.2% in FY 2011, 3.1% in FY 2012, and 4.2% in FY 2013. IHS Global Insight currently forecasts Indiana personal income to increase by 4.6% in FY 2011, 3.9% in FY 2012, and 3.9% in FY 2013. Indiana personal income excluding transfer payments to individuals is forecasted to increase by 4.6% in FY 2011, 4.2% in FY 2012, and 4.1% in FY 2013. Personal income will be increased from what it otherwise would be in CY 2011 by a temporary reduction in payroll taxes paid by individuals and reduced from what it otherwise would be beginning in CY 2013 by an increase in payroll taxes paid by individuals with earned income in excess of $200,000 and couples with earned income in excess of $250,000.

In December 2010, IHS Global Insight forecasted Indiana's unemployment rate to increase from 10.0% in FY 2010 to 10.2% in FY 2011 before declining to 9.8% in FY 2012 and 9.2% in FY 2013. The U.S. Bureau of Labor Statistics has since revised the State's unemployment rate for FY 2010 upward to 10.6%. Currently, IHS Global Insight is forecasting Indiana's unemployment rate to decline to 9.2% in FY 2011, 8.5% in FY 2012, and 8.2% in FY 2013.

In December 2010, IHS Global Insight forecasted nominal GDP to increase by 4.0% in FY 2011, 3.7% in FY 2012, and 4.8% in FY 2013. IHS Global Insight is currently forecasting nominal GDP to increase by 4.2% in FY 2011, 4.8% in FY 2012, and 4.3% in FY 2013. In real terms, GDP is currently forecasted to increase by 2.8% in FY 2011, by 3.1% in FY 2012, and by 2.7% in FY 2013. In December 2010, IHS Global Insight forecasted real GDP to increase by 2.7% in FY 2011, 2.6% in FY 2012, and 3.3% in FY 2013.

Corporate profits were forecasted in December 2010 to increase by 28.4% in CY 2010 before falling by 0.9% in CY 2011 and increasing by 2.8% in CY 2012. Corporate profits increased in CY 2010 by 29.2%. IHS Global Insight is currently forecasting corporate profits to increase by 3.6% in CY 2011 and 2.2% in CY 2012.

Discussion of the Equations Used in the Forecast

Sales Tax

As of March 2011, sales tax revenues have been above prior year amounts for the thirteenth consecutive month. This was preceded by a year over year decline for sixteen straight months from November 2008 to February 2010. On a year-to-date basis through March 2011, sales tax revenues were up 5.0%.

In December 2009, the Committee determined that labor and investment income drive sales tax revenues differently than government transfer payment income. Specifically, transfer payments are largely spent on items which are not subject to sales taxes such as food and shelter. For that reason, large changes in the share of personal income accounted for by transfer payments will introduce upward or downward biases into sales tax forecasts that rely on the levels of total personal income. From the second quarter of 2009 through at least the fourth quarter of 2010, government transfer payments accounted for more than 20% of Indiana personal income. That is more than 1.5 times the historical average that prevailed between the first quarter of 1969 and the first quarter of 2009.

In December 2010, the Committee also examined another development of the economic contraction, the high Indiana unemployment rate. The dramatic increase in national and state unemployment rate resulted in historic lows in consumer confidence leading to further decline in personal consumer expenditure. Including unemployment in the model serves as a proxy variable for the low consumer confidence.

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): Quarterly Sales Tax Base = 1.0024 * (EXP (-1.2167 + (0.9186 * LN (IPI Net of Transfers)) - (0.0393 * LN (IN Unemployment Rate)))) + Adjustments

Individual Income Tax

In December 2009, the Committee determined that the income tax forecast should be derived using two separate equations to account for the fact that estimated payments react differently to business cycles than withholdings, final payments, and refunds. The estimated payments equation contains a two quarter lagged value of the S&P index, nominal GDP growth over the same quarter in the previous year, estimated payments lagged four quarters, and a binary variable for the second and fourth quarter. The equation is replicated as Equation (2a), below. The equation for withholdings, final payments, and refunds uses the level of total Indiana Personal Income and a binary variable for the fourth quarter to account for seasonal increase associated with the April 15 filing date. The equation is described below in Equation (2b).

Equation (2): Individual Income Tax = Quarterly Estimated Payments + Quarterly Withholding & Others

Equation (2a): Quarterly Estimated Payments = -31.34+ (0.0768 * (S&P Index $_{t-2}$)) + (539.6 * (Percent Change in Prior Year Same Quarter Nominal GDP)) + (0.535 * (Adjusted Estimated Payments $_{t-4}$)) + (48.12 if Q =2) - (61.55 if Q = 4) + Adjustments

Equation (2b): Quarterly Withholding + Final Payments – Refunds = 89.41 + (0.0039* (IN Personal Income)) + (288 when FY Q4) + Adjustments

Corporate Income Tax

The forecast equation employed by the Committee in December 2010 and again for this update is driven by Calendar Year National Income and Product Accounts (NIPA) corporate profits and a binary variable to account for the impact from the 2008 recession. The binary variable was introduced to capture the impact from net operating loss carry backs caused by the sharp 16.4% decline in profits in 2008. The equation employed by the Committee is replicated as Equation (3). Revenues from the Utility Receipts Tax, the Utility Services Use Tax, and the Financial Institutions Tax were forecast separately and the results of the Equation (3) were adjusted accordingly.

Equation (3): Corporate Income Tax Base = 1.0059 * (EXP (5.9483 + (0.4244 * LN (CY Corporate Profits)) - (0.5537 if FY = 2010, 2011, 2012, and 2013))) + Adjustments

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), 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 = -5.018 + 1.067 (RFY_IPI) + 0.206 (ALLPRICE)
- 0.869 (RINPRICE) - 0.088 (CIGRATE) – 0.037 (TREND)

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

Equation (5): Tobacco Product Sales = -10.418 +1.135 (RFY_IPI) - 0.128 (PRICE)
- 0.016 (TOBRATE) + 0.041 (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) and the square of the TREND variable (TREND2). The wine equation includes a dummy variable for 1987 (DUM 87) and years after, and that dummy variable 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 = -0.489 + 0.906 (LAGSALE) + 0.160 (RFY_IPI)
- 0.034 (BPRICE) - 0.004 (TREND)

Equation (6a): Beer Tax = 0.115 (Beer Sales)

Equation (7): Liquor Sales = -1.059 + 0.550 (LAGSALE) + 0.572 (RFY_IPI)
- 0.071 (LPRICE) - 0.059 (TREND) + 0.001(TREND2)

Equation (7a): Liquor Tax = 2.68 (Liquor Sales)

Equation (8): Wine Sales = -7.678 + 0.528 (LAGSALE) + 1.065 (RFY_IPI)
- 0.118 (WPRICE) – 0.839 (D87_RFY_IPI) + 9.667 (DUM87)

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 racinos. 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, local revenue sharing, and riverboat communities and other purposes. 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): $Q\_AGR = -4.768 + 0.649(Q\_NIPI) + 0.516(Q\_TURNSTILE) + 0.036(D\_FRLICK) - 0.049(D\_FRWINDS) - 0.079(D\_RACINO) - 0.022(D\_Q2) - 0.021(D\_Q3) - 0.037(D\_Q4)$

Where Q_TURNSTILE is the actual quarterly turnstile count for the casinos through the 1st Quarter of 2011 and thereafter is assumed to experience 2% decline in the 2nd Quarter of 2011, and no change in FY 2012 and FY 2013.

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 racinos. This estimate is based on the adjusted gross wagering receipts generated at the racinos from July 2010 to March 2011, with the nine-month total annualized. The annualized total is the estimate for FY 2011. The estimates for FY 2012 and FY 2013 assume year-over-year declines of 0.7% and 4.9%, respectively. The FY 2012 and FY 2013 estimates also assume 7% and 14% reductions, respectively, in the base receipts estimate for Hoosier Park to account for the potential competitive impact from a new casino operation in Toledo, Ohio, beginning in early 2012. The annual adjusted gross wagering receipts estimate for each racino is then used to compute the yield of the slot machine wagering tax.

SPECIFIC METHODOLOGY
(April 15, 2011)

Sales Tax

For Each Fiscal Year to be Forecast:

1. Multiply 0.918593 by the natural logarithm of the quarterly Indiana Personal Income Net of Transfers.

2. Multiply -0.039341 by the natural logarithm of the quarterly Indiana Unemployment Rate.

3. Add the results of Step 1 and Step 2.

4. Subtract 1.216698 from the result of Step 3.

5. Compute the exponential of the result of Step 4. Multiply the result by 1.00236 to obtain the total quarterly sales tax base.

6. Repeat Steps 1 through 5 to account for each quarter in the Fiscal Year.

7. For FY 2011 add 66,231.4 to account for the sales tax base from the actual collections in the first three quarters to the result of the fiscal year fourth quarter forecast from Step 6. For FY 2012 and FY 2013 add all the four quarterly sales tax base forecasts from Step 6.

8. Multiply the results of Step 7 by the sales tax rate (7%).

9. Add 30.4 in FY 2011, 32.2 in FY 2012, and 33.5 in FY 2013 to the result of Step 8 to account for the impact of tax measures enacted in 2007, 2008, 2009 and, 2010.

10. Subtract 12.1 from FY 2011 and 23.5 from FY 2012 to the results of step 9 to remove the impact of 'Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010' on the Indiana Personal Income variable.

11. Multiply the results of Step 10 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 0.0768 times the quarterly S&P Index from two quarters prior.

2. Multiply 539.6 times the nominal GDP growth over same quarter previous year.

3. Multiply 0.535 times Quarterly Adjusted Estimated Payments from four quarters prior.

4. Add the results of Steps 1, Step 2, and Step 3.

5. Subtract 31.34 from the results of Step 4.

6. Add 48.12 to Step 5 if Fiscal Year Quarter 4.

7. Subtract 61.54 from Step 6 if Fiscal Year Quarter 2.

8. Multiply 0.00385 times Indiana Personal Income.

9. Add 288.0 to Step 8 if Fiscal Year Quarter 4.

10. Add 89.4 to Step 9.

11. Add the results from Step 7 and Step 10.

12. Repeat Steps 1 through 11 to account for each quarter in the Fiscal Year.

13. For FY 2011 add 3,246.8 to account for the actual income tax collections in the first three quarters to the result of the fiscal year fourth quarter forecast from Step 12. For FY 2012 and FY 2013 add all the four quarterly forecasts from Step 12.

14. Subtract 310.6 for FY 2011, 309.1 for FY 2012, and 327.0 for FY 2013 from the results of Step 13 to account for tax measures enacted in 1997, 1999, 2002, 2005, 2006, 2007, 2008, 2009, and 2010.

15. Subtract 78.8 for FY 2011, add 44.1 in FY 2012, and add 126.6 in FY 2013 to the results of Step 14 to account for the impacts of local income tax distributions.

Corporate Income Tax
For Each Fiscal Year to be Forecast:

1. For each Fiscal Year multiply 0.424431 by the natural logarithm of the prior Calendar Year Corporate Profit.

2. Subtract 0.553681 from Step 1 for FY 2011, FY 2012, and FY 2013.

3. Add the results of Step 1 and Step 2.

4. Add 5.948288 to the results of Step 3.

5. Compute the exponential of the result of Step 4. Multiply the result by 1.005933 to obtain the total Fiscal Year corporate tax base.

6. Multiply the results of Step 5 by the tax rate (8.5%).

7. Add 215.3 to the result of Step 6 to account for the revenues from the Utility Receipts Tax.

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

9. Add 10.0 in FY 2012 and FY 2013 to the results of Step 8 to account for General Fund impact from the Financial Institutions Tax.

10. Add 10.4 for FY 2011, 7.7 for FY 2012 and 9.2 M for FY 2013 to the results of Step 9 to account for tax measures enacted in 2004, 2005, 2006, 2007, 2008, 2009 and 2010.

Cigarette Tax
For Each Fiscal Year to be Forecast:

1. Multiply 1.067 by the logarithm of fiscal year real Indiana Personal Income.

2. Subtract 5.018 from the result of Step 1.

3. Multiply 0.206 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 -0.869 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 -0.088 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 of the forecast.
10. Multiply the result of Step 9 by -0.037.
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 0.545 to get General Fund revenue.

Tobacco Products Tax

For Each Fiscal Year to be Forecast:

1. Multiply 1.135 by the logarithm of fiscal year real Indiana Personal Income.
2. Subtract 10.418 from the result of Step 1.
3. Multiply -0.128 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 -0.016 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 of the forecast.
9. Multiply the result of Step 9 by 0.041.
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.to get General Fund revenue.

Alcoholic Beverage Tax - Beer

For Each Fiscal Year to be Forecast:

1. Multiply 0.906 by the logarithm of beer sales, lagged one year.
2. Subtract 0.489 from the result of Step 1.
3. Multiply 0.160 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 -0.034 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 0.550 by the logarithm of liquor sales, lagged one year.
2. Subtract 1.059 from the result of Step 1.
3. Multiply 0.572 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 -0.071 by the real liquor price.
6. Add the result of Step 5 to the result of Step 4.

7. Multiply -0.059 by the trend term.

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

9. Multiply 0.001 by the trend term squared.

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

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

12. Multiply the result of Step 11 by 2.68 to get total revenue; multiply the result of Step 11 by 1.00 to get General Fund revenue.

Alcoholic Beverage Tax - Wine

For Each Fiscal Year to be Forecast:

1. Multiply 0.528 by the logarithm of wine sales, lagged one year.

2. Subtract 7.679 from the result of Step 1.

3. Multiply 1.065 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 -0.118 by the real wine price.

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

7. Multiply 9.667 by the dummy for 1987 and after.

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

9. Multiply -0.839 by the dummy for 1987 multiplied by the logarithm fiscal year real Indiana Personal Income.

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

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

12. Multiply the result of Step 11 by 0.47 to get total revenue; multiply the result of Step 11 by 0.20 to get General Fund revenue.

Riverboat Wagering Tax
For Each Fiscal Year to be Forecast:

1. Multiply 0.649 by the natural logarithm of quarterly nominal Indiana Personal Income.

2. Subtract 4.768 from the result of Step 1.

3. Multiply 0.516 by the natural logarithm of the quarterly casino turnstile count and add the result to the result of Step 2.

4. Add 0.024 to the result of Step 3 for the 4th Quarter of 2006, and add 0.036 to the result of Step 3 for each calendar quarter thereafter.

5. Subtract 0.033 from the result of Step 4 for the 3rd Quarter of 2007, and subtract 0.049 from the result of Step 4 for each calendar quarter thereafter.

6. Subtract 0.026 from the result of Step 5 for the 2nd Quarter of 2008, and subtract 0.079 from the result of Step 5 for each calendar quarter thereafter.

7. Subtract 0.022 from the result of Step 6 if the calendar quarter is the 2nd Quarter; subtract 0.021 from the result of Step 6 if the calendar quarter is the 3rd Quarter; or subtract 0.038 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 0.9984 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 FY 2010 percentage distribution of adjusted gross wagering receipts by riverboat casino.

11. Reduce the estimated adjusted gross wagering receipts for Blue Chip casino by 20% in FY 2011, FY 2012, and FY 2013 to account for potential competitive impacts from new tribal casino operations in southwestern Michigan.

12. Reduce the estimated adjusted gross wagering receipts for Belterra Casino, Grand Victoria Casino, and Hollywood Casino by 19% in FY 2013 to account for potential competitive impacts from new casino operations in Cincinnati, Ohio, and Columbus, Ohio, beginning in late 2012.

13. Use the fiscal year adjusted gross wagering receipts totals by riverboat casino from Step 12 to compute the fiscal year wagering tax for each riverboat casino.

14. Sum the fiscal year wagering tax totals for each riverboat casino from Step 13 to obtain the fiscal year total wagering tax collections from the 11 riverboat casinos.

15. Subtract from the Step 14 result, $1,848,370 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; $102,799,196 in FY 2011, $103,955,700 in FY 2012, and $103,523,645 in FY 2013 to account for wagering tax distributions to riverboat communities and other purposes.