STATE OF INDIANA

Joseph E. Kernan
Governor

STATE BUDGET AGENCY

212 State House
Indianapolis, IN 46204-2796
(317) 232-5610

Marilyn F. Schultz
Director

REVENUE FORECASTING METHODOLOGY

Technical Committee:

Erik Gonzalez
Bob Lain
Prof. John Mikesell
Dan Novreske
Jeff Spalding
Brian Tabor

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Discussion of the forecast
Real Gross Domestic Product (GDP) is forecasted to grow by 3.7% in FY 2005, 3.2% in FY 2006, and 3.1% in FY 2007. In nominal terms, GDP is forecasted to increase by 5.9% in FY 2005, 5.4% in FY 2006, and 5.4% in FY 2007. U.S. Personal Income is forecasted to increase by 5.0% in FY 2005, 5.3% in FY 2006, and 5.7% in FY 2007. Nonfarm Personal Income in Indiana is forecasted to increase by 4.3% in FY 2005, 4.8% in FY 2006, and 5.1% in FY 2007.

Total General Fund and Property Tax Replacement Fund revenues exceeded the January 2004 forecast for FY 2004 by $58.4M or 0.6%. Through the first five months of FY 2005, total General Fund and Property Tax Replacement Fund revenues exceeded the forecast target by $187.9M or 4.5%. Just over 90% of this error was accounted for by individual income taxes and corporate income taxes.

Discussion of the equations used in the forecast

Sales Tax
The equation used by the Committee in January 2004 under-forecasted sales tax revenues for FY 2004 by $4.9M or 0.1%. Through the first five months of FY 2005, sales tax revenues exceeded the forecast targets by $16.4M or 0.8%. The Committee retained this equation which uses fiscal year nominal Indiana Nonfarm Personal Income (FY_NFIPI) and a dummy variable (D1) to account for the rapid increase and destruction of wealth during the years of 1996 through 2001. The model used by the Committee is replicated as Equation (1) below.

Equation (1)   Sales Tax = 162.977602 + 0.021097(FY_NFIPI) +
                     108.065572(D1) + Adjs.

                     D1 = 1 if year >1995 and < 2002

Individual Income Tax
Individual income tax revenues exceeded the FY 2004 forecast by $27.4M or 0.7%. However, individual income tax revenue exceeded the forecast targets by $84.0M or 5.6% through the first five months of FY 2005. The Committee determined that the approach it adopted in January 2004 to account for the rapid increase in wealth in the late 1990's and the rapid destruction of much of that wealth has become inadequate. Now that state-level data is becoming available encompassing the entire time period during which wealth increased rapidly and then declined sharply, the Committee was able to adopt another approach.

Using information reported for Indiana by the Internal Revenue Service, the Committee estimated the individual income tax revenues attributable to increases and decreases in capital gains. These estimates were used to remove the effects of capital gains and losses above long-term trend from the equation the Committee adopted. The Committee adopted an equation that uses fiscal year nominal Indiana Nonfarm Personal income. In doing so, the Committee is assuming that the realization of capital gains and losses has returned to its historical relationship to growth in the U.S. economy and will remain there throughout the forecast period. The equation used is replicated as Equation (2) below.

Equation (2)   Individual Income Tax = -106.387139 + 0.023397(FY_NFIPI) +
                     Adjs.

Corporate Income Tax
The corporate income tax has historically been the most difficult for the Committee to forecast. However, the Committee determined that when two developments are taken into account, the equation it adopted in January 2004 performed satisfactorily. In January 2004, the Utilities Receipts Tax had been in effect for only one year and the Committee under-forecasted the revenues from this tax. In addition, the Indiana Tax Court's decision in *Aztar Indiana Gaming Corporation vs. the Indiana Department of State Revenue* resulted in additional corporate income taxes both on a one-time and on-going basis. Therefore, the Committee elected to retain the equation it used in January 2004 and to account for these two developments. The equation employed by the Committee is replicated as equation (3) below.

Equation (3)   Corporate Adjusted Gross Income = 3,353.934782 +
                     0.693312(CY_RGDP) – 24,901.941964 (Rate Differential) –
                     2,981.207759(D1) + Utility Receipts Tax + Adj.

                     Where D1 = 1 if year > 2001

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 Nonfarm Personal Income (RFY_NFIPI), and estimate of the sum of the four surrounding states real prices (RALLPRICE), the real Indiana price (RINPRICE), a dummy variable for 1985 and years after (D85), a variable which takes the real Indiana price multiplied by D85 (PRICED85), the real cigarette excise tax rate (CIGRATE) and a trend variable equal to the fiscal year forecasted minus 1965 (TREND). Tobacco Product sales are estimated based on fiscal year real Indiana Nonfarm Personal Income (RFY_NFIPI), a price index for tobacco products (PRICE), and the excise tax on tobacco products (TOBRATE). The sales, income, price, and tobacco product excise tax variables are expressed in natural logarithms.

Equation (4) Cigarette Sales = 1.971 + 0.652 (RFY_NFIPI) + 0.019 (RALLPRICE) – 0.672 (RINPRICE) – 1.894 (D85) + 0.383 (PRICE 85) -0.139 (CIGRATE) -0.010 (TREND)

Equation (4a) Cigarette Tax = 0.555 (Cigarette Sales)

Equation (5) Tobacco Product Sales = -11.074 + 1.044 (RFY_NFIPI) + 0.683 (PRICE) – 0.376 (TOBRATE).

Equation (5a) Tobacco Products Tax = 0.18 (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 Nonfarm Personal Income (RFY_NFIPI), 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 liquor equation includes a dummy variable for 1987 and years after multiplied by the log of real Indiana Nonfarm Personal Income (D87_RFY_NFIPI). For all equations, the income and price variables were adjusted by the Gross Domestic Product price deflator. The sales, income and price variables are expressed in terms of natural logarithms.

Equation (6) Beer sales = -2.729 + 0.943(LAGSALE) +   0.330(RFY_NFIPI) – 0.143(BPRICE) - 0.009(TREND)

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

Equation (7) Liquor sales = - 1.778 + 0.626(LAGSALE) + 0.572(RFY_NFIPI) - 0.450(LPRICE) - 0.025(TREND) – 0.426 (D91) + 0.016 (TREND91)

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

Equation (8) Wine sales = -0.562 + 0.837 (LAGSALE) + 0.213 (RFY_NFIPI) - 0.308 (WPRICE) – 0.009 (D87_RFYNFIPI)

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

Riverboat Wagering Tax
The Committee adopted a riverboat wagering receipts equation to estimate the riverboat wagering tax base. The tax base estimate is then used to compute estimated wagering tax collections. The equation uses quarterly nominal Indiana Nonfarm Personal Income (Q_NFIPI). The equation also contains dummy variables (DIL) to account for the impact of Illinois dockside gaming on wagering in Indiana; (DIN) to account for the impact of Indiana dockside gaming on wagering in Indiana; (DQ4_00) to account for unusually poor weather conditions during the 4th Quarter of 2000; and (DQ1_02) to account for facilities changes and other economic impacts on wagering during the 1st Quarter of 2002. The equation chosen is replicated as Equation (9) below.

Equation (9) $(\text{Total Wagering Receipts})^2 = -732{,}822{,}036{,}402 +$
$(5{,}734 * \text{Q\_NFIPI}) - (19{,}793{,}947{,}809 * \text{DIL}) +$
$(44{,}972{,}104{,}966 * \text{DIN}) - (30{,}726{,}387{,}591 * \text{DQ4\_00}) +$
$(38{,}628{,}006{,}451 * \text{DQ1\_02})$

Where DIL = 1 if calendar quarter = 4th Quarter 1999 or after

Where DIN = 1 if calendar quarter = 3rd Quarter 2002 or after

Where DQ4_00 = 1 if calendar quarter = 4th Quarter 2000

Where DQ1_02 = 1 if calendar quarter = 1st Quarter 2002

GENERAL FUND

Sales Tax:

For Each Fiscal Year to be Forecasted

1. Multiply 0.021097 times fiscal year Indiana Nonfarm Personal Income.

2. Add 162.977602 to the results of Step 1.

3. Divide the results of Step 2 by 0.05 and multiply the results by 0.06 to account for the sales tax rate increase effective December 1, 2002 under HEA 1001-2002ss.

4. Multiply the results of Step 3 by 0.49192 to account for the percentage of sales taxes deposited in the General Fund under HEA 1001-2002ss.

Individual Income Tax:

For Each Fiscal Year to be Forecasted

1. Multiply 0.023397 times fiscal year Indiana Nonfarm Personal Income.

2. Subtract 106.387139 from the results of Step 1.

3. Subtract 229.0 for FY 2005, 236.9 for FY 2006, and 194.5 for FY 2007 from the results of Step 2 to account for tax measures enacted in 1997, 1999, and 2002.

4. Multiply the results of Step 3 by 0.86 to account for the percentage of individual income tax deposited in the General Fund under HEA 1001-2002ss.

Corporate Income Tax:

For Each Fiscal Year to be Forecasted

1. Multiply 0.693312 times calendar year U.S. Real Gross Domestic Product

2. Add 3,353.934782 to the results of Step 1.

3. Multiply -24,901.941964 times 0.051 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. Subtract 2,981.207759 from the results of Step 3.

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

6. Subtract 51.5 from the results of Step 5 to account for the impact of changes to the Research and Development Expense Credit contained in HEA 1001-2002ss.

7. Add 167.4 to the results of Step 8 to account for the revenues from the Utility Receipts Tax.

8. Add 20 to the results of Step 7 to account for General Fund revenues from the Financial Institutions Tax.

9. For FY 2005, add 81.2 to account for the one-time impact of *Aztar Indiana Gaming Corporation vs. the Indiana Department of State Revenue*.

10. Add 32.1for FY 2005 to the results of Step 9 to account for the ongoing impact of *Aztar Indiana Gaming Corporation vs. the Indiana Department of State Revenue*.

11. Add 34.6 for FY 2006 and 37.3 for FY 2007 to the results of Step 8 to account for the ongoing impact of *Aztar Indiana Gaming Corporation vs. the Indiana Department of State Revenue*.

Cigarette Tax:

For each fiscal year in the forecast:

1. Multiply 0.652 by the logarithm of fiscal year real nonfarm Indiana personal income.

2. Add 1.971 to the result of step 1.

3. Multiply 0.019 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 -0.672 by the logarithm of the real cigarette price in Indiana.

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

7. Subtract -1.894 from the result of step 6 for years after 1985.

8. Multiply 0.383 by the logarithm of real Indiana prices for years after 1985.

9. Add the result of step 8 to the result of step 9.

10. Multiply -0.139 by the logarithm of the real cigarette excise tax rate.

11. Add the result of step 10 to the result of step 9.

12. Subtract 1965 from the fiscal year forecasted.

13. Multiply the result of step 12 by -0.010.

14. Add the result of step 13 to the result of step 11.

15. Take the exponential of step 14, to get sales.

16. Multiply the result of step 15 by 0.555 to get total revenue.

17. Multiply the result of step 16 by 0.8397 to get general fund revenue.

Tobacco Products Tax:

1. Multiply 1.043 by the logarithm of fiscal year real nonfarm Indiana personal income.

2. Subtract -11.074 from the result of step 1.

3. Multiply 0.683 by the logarithm of the of the real tobacco product price.

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

5. Multiply 100 by the tobacco products excise tax rate.

6. Multiply -0.376 by the logarithm of the result of step 5.

7. Add the result of step 6 to the result of step 4.

8. Take the exponential of step 7, to get sales.

9. Multiply the result of step 8 by 0.8397 to get general fund revenue.

Alcoholic Beverage Tax - Beer:

For Each Fiscal Year to be Forecasted

1. Multiply 0.943 by the logarithm of beer sales, lagged one year.

2. Subtract 2.729 from the result of step 1.

3. Multiply 0.330 by the logarithm of fiscal year real non-farm Indiana personal income.

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

5. Multiply -0.143 by the logarithm of the real beer price.

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

7. Multiply -0.009 by a 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 .04 to get general fund revenue.

Alcoholic Beverage Tax - Liquor:

For Each Fiscal Year to be Forecasted

1. Multiply 0.626 by the logarithm of liquor sales, lagged one year.

2. Subtract 1.778 to the result of step 1.

3. Multiply 0.572 by the logarithm of fiscal year real non-farm Indiana personal income.

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

5. Multiply -0.450 by the logarithm of the real liquor price.

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

7. Multiply -0.025 by a trend term.

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

9. Multiply -0.426 by a dummy for 1991.

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

11. Multiply 0.016 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 Forecasted

1. Multiply 0.837 by the logarithm of wine sales, lagged one year.

2. Subtract 0.562 from the result of step 1.

3. Multiply 0.213 by the logarithm of fiscal year real non-farm Indiana personal income.

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

5. Multiply -0.308 by the logarithm of 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 non-farm 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.

PROPERTY TAX REPLACEMENT FUND

Sales Tax:

For Each Fiscal Year to be Forecasted

1. Multiply the results of Step 3 of the General Fund Sales Tax calculation by 0.5 to account for the percentage of sales tax deposited in the Property Tax Replacement Fund under HEA 1001-2002ss.

Individual Income Tax:

For Each Fiscal Year to be Forecasted

1. Multiply the results of Step 3 of the General Fund Individual Income Tax calculation by 0.14 to account for the percentage of sales tax deposited in the Property Tax Replacement Fund under HEA 1001-2002ss.

Riverboat Wagering Tax:

For each fiscal year to be forecast:

1. Multiply 5,734 by quarterly nominal Indiana Nonfarm Personal Income in thousands.

2. Subtract 732,822,036,402 from the result of Step One.

3. Subtract 19,793,947,809 from the result in Step Two for the 4th Quarter of 1999 and each calendar quarter thereafter.

4. Add 44,972,104,966 to the result in Step Three for the 3rd Quarter of 2002 and each calendar quarter thereafter.

5. Take the square root of the result in Step 4 to obtain quarterly total wagering receipts.

6. Sum the quarterly totals from Step 5 for the fiscal year to obtain fiscal year total wagering receipts.

7. Distribute fiscal year total wagering receipts from Step 6 among the ten riverboats based on the actual FY 2004 percentage distribution of wagering receipts among the riverboats.

8. Use the fiscal year wagering receipts distributed to each riverboat from Step 7 to compute the fiscal year wagering tax for each riverboat.

9. Sum the fiscal year wagering tax totals for each riverboat from Step 8 to obtain fiscal year total wagering tax collections.

10. Subtract from the Step 9 result, 2,169,011 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 95,046,641each year to account for wagering tax distributions to riverboat communities.

11. Add to the Step 10 result, 16,258,743 in FY 2005 only to adjust for collection of unpaid wagering taxes from FY 2003.