Revenue Estimate Methodology

Fiscal Year 2016-17

IFO Independent Fiscal Office

June 24, 2016

About the Independent Fiscal Office

The Independent Fiscal Office (IFO) provides revenue projections for use in the state budget process along with impartial and timely analysis of fiscal, economic and budgetary issues to assist Commonwealth residents and the General Assembly in their evaluation of policy decisions. In that capacity, the IFO does not support or oppose any policies it analyzes, and will disclose the methodologies, data sources and assumptions used in published reports and estimates.

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The Independent Fiscal Office was created
by the Act of Nov. 23, 2010 (P.L.1269, No.120).

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INDEPENDENT FISCAL OFFICE

Second Floor, Rachel Carson State Office Building
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June 24, 2016

The Honorable Members of the Pennsylvania General Assembly:

This report accompanies the Independent Fiscal Office's publication entitled *Official Revenue Estimate: Fiscal Year 2016-17*. The report describes the methodologies used to produce the revenue estimates included in that publication. Pursuant to statute, the office shall release an official revenue estimate by June 15, 2016. The official revenue estimate supersedes the preliminary revenue estimate released by the Independent Fiscal Office on May 3, 2016.

We welcome any questions or comments regarding the contents of this report.

Sincerely,

MATTHEW J. KNITTEL
Director

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Introduction

This document discusses the methodologies used by the Independent Fiscal Office (IFO) to forecast various tax and non-tax revenues. It contains three parts. The first part provides an overview of the general methods used by the IFO. The second part describes the derivation of Disposable Current Income (DCI), a constructed income measure used to forecast certain tax revenues that rely on consumption, such as sales and use taxes and lottery purchases. The third part describes the specific models used to forecast major revenue sources. All historical revenue data used by the models described in the final section can be found at the IFO's website (www.ifo.state.pa.us) under the "Data" tab.

General Methods

The methods used to forecast tax revenues can be divided into three groups: (1) cash flow, (2) basic tax liability and (3) full tax liability. For each method, projections might be made on an annual or quarterly basis. The choice of periodicity depends on the time patterns of data and whether quarterly data allow regression models to exploit pertinent information that might be masked by aggregation to an annual basis.

Cash Flow Method

Under the cash flow method, firms act as collection agents for the Commonwealth and remit weekly or monthly tax collections based on recent transactions. Payment rules are simple and refunds are generally not paid because firms merely forward any taxes they collect. Revenues that use the cash flow method include cigarette, realty transfer, fuels, lottery, table games and sales and use taxes. For these revenue sources, tax liability is not accrued over the calendar year. Instead, tax liability is triggered by the consumption of a particular good or service.

Basic Tax Liability Method

Under the basic tax liability method, firms accrue tax liability on a calendar year basis and remit payments in either March or April (depending on the tax type). Those payments include two types of remittances: a final or "true-up" payment attributable to the prior calendar year and an estimated payment for the current calendar year. For revenues that use this method, the forecasting equations project calendar year tax liability, which is then converted into cash flows, taking into account any recent overpayments or "safe harbor" payment rules. Due to payment rules and the potential for overpayment of tax liability, cash flow patterns might temporarily diverge from the underlying pattern of actual tax liability. Revenues that use the basic tax liability method include gross receipts, bank shares and insurance premiums taxes.

Full Tax Liability Method

Under the full tax liability method, projections are made for some or all of the fields reported on the tax return. The models that use this method are more complex because (1) multiple forecasts must be made to project tax liability, (2) overpayments of tax liability are common and may be pushed forward as credits into future tax years and (3) tax liability must be converted into cash flows that could span multiple fiscal years. The personal income and corporate net income taxes use this method.

In general, tax return data used for personal and corporate net income tax projections are available with a two year lag. For this exercise, the latest year of final data is tax year 2013. (For most taxpayers, the tax year and calendar year are the same. The exception is certain firms whose accounting year ends in a month other than December.) However, based on revenues received through May 2016, analysts can construct a fairly accurate estimate of tax year 2014 and 2015 liabilities. Projections of tax liability are then made for tax years 2016 and 2017 and converted into cash flows based on payment rules and historical monthly revenue data.

Statistical Software

All regression models described in this report use the SAS statistical software package. The software uses a maximum likelihood estimation procedure that corrects for the serial correlation and heteroskedasticity often encountered in time series regressions. For all regressions, diagnostic checks were performed to confirm that regression residuals were normally distributed, uncorrelated and had constant variance over time.

Derivation of Disposable Current Income

Personal income tax and sales and use taxes comprise roughly 75 percent of General Fund tax revenues for non-recession years. These two revenue sources are linked because the decision to purchase taxable goods is a function of wage and business income, while wage and business income are simultaneously a function of total consumer and business purchases. Hence, the methodologies used to project these tax revenues should be linked in some manner, whether directly (such as a vector autoregression) or indirectly. The methodology used by the IFO models certain sales and use taxes as a function of Disposable Current Income (DCI) to capture that linkage. The linkage occurs because wage and business income comprise roughly 70 percent of DCI.

Disposable Current Income is equal to Current Income less Taxes. Current Income includes all income earned, received or realized by Pennsylvania residents during the calendar year. The measure is different than state personal income reported by the U.S. Bureau of Economic Analysis in the National Income and Product Accounts because personal income is a measure of "economic" income. Economic income is an appropriate and consistent measure of overall welfare, but it is less useful for projecting tax revenues because it includes certain types of income that individuals cannot spend (e.g., accruals to pension funds and certain imputed income) and, therefore, would not affect consumption-related tax revenues such as sales and use, cigarettes and table games or lottery purchases. Moreover, economic income excludes capital gains realizations, which are highly cyclical and share a strong correlation with trends in sales tax collections.

The most complete report of the spendable or current income of Pennsylvania residents appears on the annual federal income tax return. The IRS publishes those data on its website.[1] However, research shows that some income is not reported on federal tax returns due to reporting errors or non-compliance. Therefore, amounts reported on Pennsylvania federal income tax returns are adjusted to account for unreported income based on IRS "tax gap" studies.[2] The Current Income measure also includes all taxable and non-taxable Social Security and other transfer payments made to Pennsylvania residents as reported by the Social Security Administration.

Table 1 decomposes Current Income into six income categories: wage income (56 percent of total for 2016), capital income (10 percent), business net income (11 percent), retirement income (10 percent), transfer income (11 percent) and residence adjustment (2 percent). The forecast projects that Current Income will increase to $557.7 billion in 2016 (3.9 percent) and $581.5 billion in 2017 (4.3 percent).

Current Income does not reflect mandatory taxes that must be remitted on income and property. Those taxes include federal, state and local income taxes, state and local property taxes, motor

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[1] See IRS, "SOI Tax Stats – Historic Table 2," http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2.

[2] The "tax gap" is the difference between actual collections and the amounts that should be remitted. The IRS defines the "net misreporting percentage" as the share of true income not reported. A recent tax gap study finds the following net misreporting percentages: wage income (1 percent), net capital gains (21 percent), dividends and interest (6 percent), S corporation and partnership income (12 percent), sole proprietorship income (63 percent), pension income (8 percent) and social security income (13 percent). See IRS, "Tax Gap for Tax Year 2006," http://www.irs.gov/pub/newsroom/overview_tax_gap_2006.pdf. These adjustments are also made by the U.S. Bureau of Economic Analysis for the corresponding elements of personal income.

license fees and employee payroll taxes. Historical and projected taxes are listed at the bottom of Table 1. Federal income tax data are from the IRS. State income tax data are from the Pennsylvania Department of Revenue. Other tax data are from the U.S. Census Bureau or the U.S. Social Security Administration (payroll taxes).[3,4]

The forecast projects that federal, state and local income, property and payroll taxes of Pennsylvania residents will total $116.4 billion (3.7 percent increase) for 2016 and $121.0 billion (3.9 percent) for 2017. The ratio of total Taxes to Current Income can be viewed as an average effective tax rate across all Pennsylvania residents.

The deduction of Taxes from Current Income yields Disposable Current Income. That series provides the most complete measure of income that is available for spending or consumption.

[3] All taxes are displayed on a cash flow basis (when they are remitted) as opposed to a liability basis (as they are accrued). See U.S. Census, "State and Local Government Finances," http://www.census.gov/govs/local/.

[4] See U.S. Social Security Administration, "Annual Statistical Supplement, 2015," http://www.ssa.gov/policy/docs/statcomps/supplement/

Table 1
Pennsylvania Disposable Current Income

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Type of Income												
Labor Income: Wages and Salaries	$240.7	$253.5	$260.3	$254.5	$259.8	$270.0	$280.1	$285.1	$296.5	$306.5	$316.2	$327.8
Capital Income												
Capital Gains	28.5	33.6	15.5	9.5	14.0	14.6	23.7	18.7	26.1	28.7	30.8	32.8
Dividends	8.9	10.9	9.4	7.0	8.5	8.2	10.9	8.6	10.1	10.9	11.8	12.5
Interest-Rent-Royalty	14.8	17.0	15.9	14.2	13.6	13.4	13.3	12.5	12.6	12.9	13.6	14.5
Business Net Income[1]	43.1	43.6	44.6	40.1	44.2	47.6	50.5	49.1	52.2	55.4	58.5	61.1
Retirement: Pensions and Savings	32.7	36.1	36.3	34.3	39.6	42.2	45.8	47.1	49.7	52.7	55.4	58.5
Transfers												
Social Security	28.5	29.9	31.2	33.9	34.8	35.7	37.8	39.3	40.8	42.3	43.7	45.8
Income Maintenance, UC, Other	11.5	12.4	13.9	20.0	21.6	20.1	19.7	18.7	17.2	17.6	17.8	18.2
Residence Adjustment	7.2	8.5	9.4	7.8	8.4	8.4	8.8	8.7	9.1	9.5	9.9	10.2
Current Income	**415.8**	**445.5**	**436.6**	**421.3**	**444.6**	**460.3**	**490.7**	**487.8**	**514.4**	**536.5**	**557.7**	**581.5**
Growth Rate	7.4%	7.1%	-2.0%	-3.5%	5.5%	3.5%	6.6%	-0.6%	5.5%	4.3%	3.9%	4.3%
Taxes												
Federal Income	39.7	43.7	41.9	38.1	40.8	42.1	46.4	48.7	51.7	54.2	56.7	59.3
State: Income, Property, Motor	27.8	29.9	30.8	29.6	30.5	31.5	32.4	33.7	34.5	35.8	36.9	38.0
Employee Payroll (OASDI and HI)	18.3	19.0	19.6	19.0	19.2	14.9	15.4	21.2	21.6	22.2	22.9	23.6
Less: Total Taxes	**85.7**	**92.5**	**92.3**	**86.7**	**90.5**	**88.6**	**94.2**	**103.6**	**107.7**	**112.3**	**116.4**	**121.0**
Growth Rate	6.8%	7.9%	-0.3%	-6.1%	4.4%	-2.1%	6.4%	9.9%	4.0%	4.2%	3.7%	3.9%
Equals: Disposable Current Income	**330.1**	**353.0**	**344.3**	**334.6**	**354.1**	**371.7**	**396.5**	**384.2**	**406.7**	**424.2**	**441.2**	**460.5**
Growth Rate	7.6%	7.0%	-2.5%	-2.8%	5.8%	5.0%	6.7%	-3.1%	5.8%	4.3%	4.0%	4.4%
Tax / Current Income	20.6%	20.8%	21.1%	20.6%	20.3%	19.2%	19.2%	21.2%	20.9%	20.9%	20.9%	20.8%

Note: Calendar years, dollar amounts in billions.
[1] Includes S corporation, partnership and sole proprietorship net income. Converts expensing deductions due to bonus depreciation or Section 179 to regular MACRS depreciation.
Source: Historical data are from IRS Statistics of Income Division, U.S. Census Bureau, Social Security Administration and U.S. Department of Labor. Projections are from the IFO. Federal income taxes are on a cash flow basis.

Capital Stock and Franchise Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$1,020	2.0%
2009	788	-22.8
2010	761	-3.4
2011	819	7.6
2012	837	2.2
2013	602	-28.1
2014	320	-46.8
2015	242	-24.6
2016	142	-41.1
2017	0	-100.0

Note: Fiscal year ending, millions of dollars.

Rate

The tax is levied at the following rates:[5]

Tax Year	Mills	Tax Year	Mills
2005	5.99	2011	2.89
2006	4.89	2012	1.89
2007	3.89	2013	0.89
2008	2.89	2014	0.67
2009	2.89	2015	0.45
2010	2.89	2016	0.00

Base

The tax is imposed on the apportioned capital stock value (CSV) of a corporation doing business in or employing capital or property in Pennsylvania. The CSV is determined by a statutory formula using two equally weighted components: (1) the corporation's five-year average net income capitalized at a rate of 9.5 percent and (2) 75 percent of its net worth. The first $160,000 of CSV is exempt from tax.

Transfers

For FY 2008-09 and later years, General Fund revenues are net of a $40 million annual transfer to the Hazardous Sites Cleanup Fund (HSCF).

Exemptions

Nonprofit and family farm corporations are exempt from tax. Assets used in manufacturing, research and development and certain processing activities are also exempt from tax.

Methodology

The previous forecast for capital stock and franchise tax used a variation of the basic tax liability model. Historical tax payment data were aggregated by type of payment (estimated vs. final) and by tax year to construct a rate-adjusted series beginning in 1995. This series represented the sum of cash payments for each taxable year. A log-linear regression projected future values for that series using state GDP and a five-year average of before-tax corporate profits as the explanatory variables. The growth rates from that output were then applied to cash payments for the most recent available tax year to determine values through 2015. Projected tax year payments were then adjusted to account for scheduled rate reductions. The model separated the projected values into estimated and final payments based on historical payment patterns.

For FY 2016-17, the transfers to the HSCF are expected to offset all revenues. Therefore, no forecast was created.

[5] Act 23 of 2000 implemented a gradual nine-year phase-out of the capital stock and franchise tax. Act 48 of 2009 froze the millage rate at 2.89 mills through 2011, reduced the rate to 1.89 for 2012 and 0.89 for 2013. Act 52 of 2013 adjusted the millage rate to 0.67 for 2014 and 0.45 for 2015. The tax expired for tax year 2016.

Cigarette Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$784	0.7%
2009	754	-3.8
2010	976	29.4
2011	1,075	10.2
2012	1,070	-0.5
2013	1,024	-4.3
2014	977	-4.6
2015	927	-5.1
2016	916	-1.2
2017	883	-3.6

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 8 cents per cigarette or $1.60 per pack (20 cigarettes per pack).

Base

Tax is imposed per cigarette or little cigar weighing less than 4 lbs. per thousand. The tax on little cigars became effective January 2010.

Transfers

Annual transfers of $30.730 million and $20.485 million are made to the Children's Health Insurance Program (CHIP) and the Agricultural Conservation Easement Purchase (ACEP) Fund, respectively. For January 2004 through October 2009, 18.52 percent of tax revenues were transferred to the Health Care Provider Retention Account.

Exemptions

Exemptions include sales to veterans' organizations if cigarettes are purchased for gratuitous issue to veteran patients in federal, state or state-aided hospitals, sales to voluntary unincorporated organizations of military forces personnel and sales to retail dealers located in Veterans' Administration hospitals for sales to patients.

Methodology

Based on revenues for the first eleven months of the current fiscal year, cigarette tax collections are projected to decline by 1.2 percent from FY 2014-15. Revenues for FY 2016-17 are projected using the cash flow method and a Holt-Winters additive smoothing model incorporating quarterly data for 2003Q1 through 2016Q2.

The estimate is adjusted to account for the impact of the additional $2.00 per pack cigarette tax imposed in Philadelphia beginning in October 2014. The annual impact associated with the Philadelphia tax is projected to be -$23 million. The forecast assumes an additional $20 million in FY 2015-16 and $15 million in FY 2016-17 to account for an uptick in sales, which is likely driven by lower gasoline prices. The mandated transfers of $30.730 million to CHIP and $20.485 million to ACEP are then subtracted to obtain net General Fund cigarette tax revenues.

Corporate Net Income Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$2,418	-3.0%
2009	1,980	-18.1
2010	1,791	-9.5
2011	2,131	19.0
2012	2,022	-5.1
2013	2,423	19.8
2014	2,502	3.2
2015	2,811	12.4
2016	2,843	1.1
2017	2,921	2.8

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 9.99 percent.

Base

The tax is levied on federal taxable income, modified by certain additions (e.g., certain federal "bonus" depreciation) and subtractions (e.g., foreign income). Firms that file a consolidated federal income tax return must report on a separate company basis for Pennsylvania corporate net income tax (CNIT) purposes. Multistate firms apportion net income using market-based sourcing rules and a 100 percent sales factor.

Transfers

None.

Exemptions

All pass-through business entities (S corporations, partnerships and sole proprietors) and non-profit corporations are exempt from CNIT. Limited liability companies that elect to be taxed as partnerships for federal tax purposes are also exempt from tax. Banks, savings and loan agencies and insurance companies remit other corporate levies in lieu of the CNIT.

Methodology

The CNIT model is a simplified tax liability model. The model uses the latest corporate payment data to assign estimated and final payments to the tax year from which they originate. Gross tax liability by tax year is then extrapolated to future years using the growth in (national) domestic profits of non-financial corporations. The base tax year from which this extrapolation is made is currently tax year 2015. The model includes modest adjustments for recent changes to net operating loss deduction rules and federal bonus depreciation. Once those adjustments have been incorporated, the model converts tax liability to fiscal year cash flows based on historical payment patterns.

Revenue projections incorporate the following tax law changes:

- Pennsylvania decoupled from federal 50 percent bonus depreciation, but conformed to full expensing effective for part of tax year 2010 and all of tax year 2011. Both provisions have implications for future tax revenues.
- Effective for tax years beginning after December 31, 2014, Pennsylvania increased the cap on net operating losses from the greater of $4 million or 25 percent, to the greater of $5 million or 30 percent.
- Effective for tax years beginning after December 31, 2015, Pennsylvania eliminated the capital stock and franchise tax, which reduces revenues as unused capital stock and franchise tax credits are transferred and applied against CNIT liabilities.

Financial Institution Taxes

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$192	-10.2%
2009	199	3.5
2010	223	12.2
2011	238	6.7
2012	272	14.7
2013	351	29.0
2014	318	-9.6
2015	294	-7.5
2016	331	12.7
2017	341	2.7

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 0.89 percent for banks and trust companies, and 11.5 percent for mutual thrift institutions.

Base

The tax on banks and trust companies is levied on the (apportioned) value of capital stock shares as of January 1. The tax on mutual thrift institutions is levied on net income.

Transfers

None.

Exemptions

Shares held by tax-exempt entities and credit unions are not subject to tax.

Methodology

The bank and trust company tax forecast utilizes a structural model which incorporates the growth of bank equity capital and recent revenue collections. Statutory changes to the bank shares tax effective January 1, 2014 included (1) the reduction of the tax rate from 1.25 percent to 0.89 percent, (2) the elimination of the six-year moving average to calculate the tax base and (3) requiring interstate apportionment of tax liabilities based solely on receipts.

The mutual thrift institution tax forecast utilizes state GDP to predict future tax liabilities from recent revenue collections. Tax year payments are converted to fiscal year receipts based on the historical split between estimated and regular payments.

Gross Receipts Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$1,349	4.3%
2009	1,377	2.1
2010	1,287	-6.5
2011	1,225	-4.8
2012	1,330	8.6
2013	1,306	-1.8
2014	1,279	-2.1
2015	1,262	-1.4
2016	1,301	3.1
2017	1,265	-2.8

Note: Fiscal year ending, millions of dollars.

Rate

The rate is 59 mills for electric light, water power and hydroelectric companies, and 50 mills for telecommunications and transportation companies.

Base

The tax is levied on gross receipts from certain sales.

Transfers

Revenues are net of the 0.25 mill transfer to the Alternative Fuels Incentive Grant Fund.

Methodology

The gross receipts tax forecast utilizes a tax liability model. The model projects tax year receipts for three sectors: electric, telecommunications and transportation using historical trends and related economic data. Tax year receipts are then broken out into fiscal year receipts based on historical splits between estimated and regular payments.

Inheritance Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$829	9.5%
2009	772	-6.8
2010	754	-2.4
2011	805	6.8
2012	828	2.8
2013	845	2.1
2014	877	3.8
2015	1,002	14.2
2016	962	-4.0
2017	1,009	4.9

Note: Fiscal year ending, millions of dollars.

Rates

The tax rate is based on the beneficiary's relationship to the decedent. Transfers of property to lineal heirs are taxed at 4.5 percent; transfers to siblings are taxed at 12 percent and transfers to all other persons (excluding spouses and certain parents) are taxed at 15 percent. The tax must be paid within nine months following the decedent's death, with a discount of 5 percent allowed if paid within three months.

Base

The value of property at the time of the decedent's death, as well as the value of certain transfers made during the decedent's lifetime.

Transfers

None.

Exemptions

Property transferred to a spouse or to a parent from a child under 21 years of age is exempt from the tax. Additionally, transfers to governmental entities, veteran organizations, charitable or fraternal organizations and transfers of family farms and equipment for the business of agriculture are exempt.

Methodology

The regression uses a log transformation with fiscal year inheritance tax revenues as the dependent variable and nominal national GDP and the S&P 500 Index as the independent variables. The regression also includes a dummy variable for the former estate tax.[6] The regression uses historical data from FY 1988-89 through FY 2015-16.

[6] The estate tax was a pick-up tax that allowed Pennsylvania to absorb the maximum credit for state inheritance and estate taxes permitted under federal law. The Pennsylvania estate tax was equal to the difference between the state taxes paid and the maximum federal credit. The American Taxpayer Relief Act of 2012 extended the deduction for the estate tax but did not reintroduce the credit.

Insurance Premiums Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$418	1.4%
2009	432	3.2
2010	460	6.5
2011	429	-6.7
2012	458	7.0
2013	447	-2.5
2014	432	-3.3
2015	454	5.1
2016	463	2.0
2017	433	-6.4

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 2 percent on gross premiums (along with any applicable retaliatory tax), 3 percent on surplus lines insurance and 5 percent on marine insurance.

Base

The tax is imposed on gross premiums of domestic and foreign insurance companies with business transactions in Pennsylvania. Gross premiums are considered to be premiums, premium deposits or assessments. For marine insurance companies, underwriting profits are taxed in lieu of premiums. The surplus lines insurance tax is imposed on the insured party instead of the insurance company.

Transfers

Revenues from foreign fire insurance companies are deposited into the Fire Insurance Tax Fund and revenues from foreign casualty insurance companies are deposited into the Municipal Pension Aid Fund.

Exemptions

Purely mutual beneficial associations, nonprofit hospitals and medical associations are exempt from tax. Additionally, canceled policies, premiums for reinsurance, annuity considerations and dividends, earnings of participating members in mutual or stock insurance companies and premiums written by automobile insurance companies for extraordinary medical benefit coverage are exempt from tax.

Methodology

The forecast utilizes a tax liability model to project estimated, regular and other payments by tax year using the growth rate of nominal state GDP. Tax year liabilities are then converted to fiscal year collections based on historical data. The decline in FY 2016-17 revenue is a function of (1) the first year application of Innovate PA tax credits and (2) a temporary anomaly in the estimated and regular split of tax year payments.

Liquor Tax and Malt Beverage Tax

Liquor Tax

Historical and Projected Revenues		
FYE	**Revenue**	**Growth Rate**
2008	$251	4.9%
2009	267	6.1
2010	271	1.7
2011	282	4.0
2012	298	5.8
2013	311	4.4
2014	321	3.1
2015	334	4.2
2016	346	3.6
2017	375	8.3

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 18 percent of the net retail purchase, which includes the wholesale cost of the product, plus any mark-up, handling charge and federal tax.

Base

The tax is levied upon all liquors sold by the Liquor Control Board.

Transfers/Exemptions

None.

Methodology

The liquor tax forecast is a structural model based on a growth rate that takes into account recent trends in revenue collections. Beginning in FY 2016-17, the estimate incorporates the impact of Act 39 of 2016 ($14 million).

Malt Beverage Tax

Historical and Projected Revenues		
FYE	**Revenue**	**Growth Rate**
2008	$26	4.4%
2009	26	-1.2
2010	27	2.4
2011	26	-2.5
2012	26	-0.1
2013	25	-2.9
2014	25	-0.2
2015	24	-2.5
2016	25	2.5
2017	25	-0.3

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is two-thirds cents per half pint or eight fluid ounces; in larger quantities, the rate is one cent per pint or 16 fluid ounces. The rate has remained constant since 1947.

Base

The malt beverage tax is levied upon malt or brewed beverages manufactured and sold for use in Pennsylvania, or manufactured outside of Pennsylvania but sold for importation and use in Pennsylvania.

Transfers/Exemptions

None.

Methodology

The malt beverage tax forecast is a structural model based on a growth rate that takes into account recent trends in revenue collections. This revenue source is generally unresponsive to economic conditions.

Personal Income Tax

Historical and Projected Revenues

FYE	Revenue: Withheld	Revenue: Non-Withheld	Revenue: Total	Growth Rate
2008	$7,811	$3,097	$10,908	6.3%
2009	7,799	2,400	10,199	-6.5
2010	7,852	2,117	9,969	-2.3
2011	8,013	2,422	10,436	4.7
2012	8,296	2,504	10,801	3.5
2013	8,523	2,848	11,371	5.3
2014	8,744	2,693	11,437	0.6
2015	9,072	3,036	12,107	5.9
2016	9,397	3,164	12,561	3.7
2017	9,671	3,343	13,014	3.6

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 3.07 percent.

Base

The tax is levied upon the taxable income of resident and non-resident individuals, estates and trusts and pass-through business entities. Eight income categories comprise taxable income: (1) compensation for labor services (e.g., wages, salaries, options, bonuses), (2) net business profits, (3) net capital gains, (4) rent and royalty income, (5) dividends, (6) interest, (7) gambling and lottery proceeds and (8) gains or income distributed from estates or trusts. Losses may only be used to offset gains within the same category of income.

Transfers

None.

Exemptions

Major exemptions include: qualified distributions from certain savings plans (e.g., 401k and Individual Retirement Accounts), pensions, all gains from sales of principal residences, contributions made to Health Savings Accounts and Archer Medical Accounts, any payments made by employers on behalf of employees for health or life insurance, life insurance proceeds, unemployment compensation, worker's compensation, compensation for certain military service and most educational grants and scholarships.

Methodology

The personal income tax (PIT) model is a full tax liability model that projects values for each of the eight income categories that comprise taxable income. The model makes projections from the latest year that tax data are available (preliminary 2014 data) through 2017 and then applies the single tax rate to total projected taxable income to determine calendar year tax liability. Tax liability is then converted into payments on a fiscal year cash flow basis, including adjustments for tax forgiveness, interest and penalty payments, refunds, carry-forwards and extra payments remitted but not accounted for on PIT annual tax forms.

Tax return data show that wage-salary income comprises the majority of Pennsylvania personal taxable income (approximately 80 percent), while business net income (10 percent) and dividends, capital gains, interest and other taxable income sources (10 percent combined) comprise the residual amount. Tax on wage and salary income is largely remitted through employer withholding. Tax on business net income, rents, estate income and other types of non-wage income are remitted through quarterly estimated payments (roughly 54 percent of non-withheld income) and the April final payment (46 percent of non-withheld income).

Although tax return data are not yet available for 2015, revenues through May 2016 may be used to estimate those tax year liabilities. Taxable compensation (generally wages) that will be reported on tax returns can be predicted accurately based on the very high correlation between withholding remittances and reported wage income. For non-wage income, estimated and annual payment data can inform the level of income that will be reported, but not the composition of that income (e.g., net business profits versus capital gains), so judgment must be used to estimate the composition of this type of income. Once the model establishes taxable income and payments for the appropriate tax years, the various categories of income can be projected based on the economic forecast.

Estimation of PIT Income Sources

The personal income tax model has two components based on income type and manner of remittance: wage income (withholding) and non-wage income (estimated and annual payments).

Wage Income: The growth rate of wages-salaries from the economic forecast is used as an extrapolator to predict future withholding remittances and taxable compensation.

Non-Wage Income: To predict non-wage income and the resulting estimated and final payments, the model projects all non-wage income categories separately for each tax year. All regressions use annual data and the same historical time period (1997-2014).[7] Due to the small number of data points, the annual models are relatively simple and utilize one or two explanatory variables. The forecast uses the methodologies listed below to project the liabilities associated with each of the income categories reported on the Pennsylvania tax return.

1. ***Net Business Income:*** A regression model that uses the log of business net income as the dependent variable and the log of state GDP as the primary independent variable.

2. ***Net Capital Gains (Including Sale of Property) and Dividends:*** The forecast assumes that both series return to a historical share of state GDP over the next five years. Tax year 2013 is the latest year of final tax data. For both series, tax year 2014 is based on growth rates from U.S. federal tax returns and preliminary Pennsylvania tax return data. For dividends, tax year 2015 is based on quarterly data published by FactSet for dividends paid by the S&P500.

3. ***Interest Income:*** Interest income is primarily a function of the average growth rates of various short- and long-term interest rates. For 2016 and 2017, the model projects interest income based on a regression model that uses the log of interest income as the dependent variable and two independent variables including the log of state GDP and the log of a computed five-year weighted average rate for (1) the three-month treasury bill, (2) the one-year treasury bill and (3) the five-year treasury note as the independent variable.[8]

4. ***Rents, Royalties, Estates, Gambling and Lottery Earnings:*** These income categories comprise less than three percent of Pennsylvania taxable income and are extrapolated based on the current forecast of state GDP.

[7] Preliminary data are available only for 2014.

[8] For 2014 and 2015, interest income is estimated based on the average growth of U.S. personal interest income as reported by Bureau of Economic Analysis and interest paid by financial depository institutions as reported by the Federal Deposit Insurance Corporation.

Other Adjustments

Tax year liabilities are converted to tax year payments by adjusting for (1) tax forgiveness credits, (2) overpayments that are either carried forward to the next tax year or refunded to the taxpayer, (3) payments not associated with a return and (4) interest and penalties paid by tax filers.[9] The resulting payments are then converted to fiscal year cash flows.

Tax Forgiveness: Using recent tax data, the model estimates the share of income that qualifies for tax forgiveness and carries that share into the forecast period, with a small downward adjustment over time to account for the fact that tax forgiveness is not indexed for inflation. The model then computes the average share of income qualifying for tax forgiveness that is classified as withheld income versus non-withheld income. Each share is then either applied to withheld or non-withheld liabilities moving forward.

Overpayments: Using recent tax data, the model calculates the average sum of refunds and carry-forwards as a share of total tax liability. The model uses similar data to ascertain the average total yearly refunds as a percentage of the sum of total refunds and carry-forwards. In recent years, roughly 70 percent of the claimed overpayments were refunded and the other 30 percent were carried-forward. These shares are then applied to the forecast period.

In addition to refunds and carry-forwards, some tax remittances are made during the year but not reported on a tax return. These "extra" payments are determined by comparing liabilities for a given tax year (after adjustments for tax forgiveness, refunds and carry-forwards from previous years) to remittances for the same year.

Interest and Penalties: For recent years, penalties and interest were 0.0031 percent of total taxable income. This percentage was carried forward into the forecast period.

Tax Year Payments into Fiscal Year Cash Flow:

The model assumes that all employer withholding remitted during the calendar year (January through December) is attributable to the same tax year.[10] For estimated payments, the model assumes that revenue remitted from January through February is for the previous tax year and revenue remitted from March through December is for the current tax year. For annual or final payments, the model assumes that all remittances that occur within a calendar year (January to December) are for the previous tax year.

After calculating the total payments for each tax year, the model then converts this payment stream into a fiscal year cash flow based on the most recent 10 years of remittance data. The model utilizes adjustments to account for: (1) the split between estimated and final payments for non-wage income, (2) the typical withholding, quarterly and annual payment pattern for non-recession years and (3) money expected to be transferred to annual PIT collections from the Enhanced Revenue Collections Account (ERCA) for PIT refunds averted under enhanced revenue collection efforts.

[9] Payments that are not associated with a return can include any of the following situations: (1) out of state residents working in Pennsylvania that may have Pennsylvania tax withheld by their employer, but do not file a tax return to claim the payments credited to them, (2) residents subject to withholding and potentially eligible for tax forgiveness, but fail to file the tax return which is required to claim their refund and (3) taxpayers making estimated quarterly payments but failing to file a tax return to claim the payments.

[10] While January may contain some payments attributed to the previous month, this small overlap has a nominal impact on the overall estimates.

Realty Transfer Tax

Historical and Projected Revenues		
FYE	Revenue	Growth Rate
2008	$430	-24.8%
2009	294	-31.4
2010	296	0.5
2011	279	-5.7
2012	292	4.7
2013	339	15.9
2014	375	10.8
2015	414	10.2
2016	472	14.0
2017	506	7.2

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 1 percent, customarily divided equally between buyer and seller.

Base

The tax is levied upon the actual consideration or price of real property and contracted-for improvements to property transferred by deed, instrument, lease or other writing. The tax is due upon the presentation of the document for recording, or 30 days after the acceptance of the document, whichever comes first. The tax is remitted to the county recorder of deeds and forwarded to the Commonwealth.

Transfers

General Fund tax revenues are net of a 15 percent transfer to the Keystone Recreation, Park and Conservation Fund.

Exemptions

Government entities are exempt from the tax as are certain transfers among family members, family farms, religious organizations, nonprofit industrial development agencies, volunteer organizations and transfers between shareholders and partners. The exempt status of one party does not relieve other parties from the full amount of tax due.

Methodology

The realty transfer tax model forecasts revenues using a log transformation and quarterly data, with revenues as the dependent variable and the residential tax base as the independent variable. The residential tax base is equal to Pennsylvania existing home sales multiplied by the Pennsylvania median existing home sales price. The regression uses historical data from 2000Q1 through 2016Q1. Although the model does not directly incorporate an economic variable to represent the business portion of the tax base, it is assumed that revenues for this segment closely correlate with residential sales.

Sales and Use Tax

Historical and Projected Revenues

FYE	Revenue: Non-Motor	Motor	Total	Growth Rate
2008	$7,396	$1,101	$8,497	-1.1%
2009	7,176	960	8,136	-4.2
2010	7,033	996	8,029	-1.3
2011	7,527	1,063	8,590	7.0
2012	7,612	1,161	8,772	2.1
2013	7,726	1,168	8,894	1.4
2014	7,892	1,238	9,130	2.7
2015	8,167	1,326	9,493	4.0
2016	8,493	1,349	9,842	3.7
2017	8,807	1,382	10,188	3.5

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 6 percent.

Base

The tax is levied upon the retail sale of tangible personal property and certain services. Use tax is levied upon tangible personal property and taxable services purchased outside the Commonwealth but used therein if tax was not paid at time of purchase. A hotel occupancy tax is levied upon room rentals of less than 30 days by the same person.

Transfers

General Fund tax revenues are net of (1) a transfer of 0.947 percent to the Public Transportation Assistance Fund and (2) a transfer of 4.4 percent to the Public Transportation Trust Fund beginning in FY 2007-08. An additional transfer to the Public Transportation Trust Fund will begin in FY 2022-23. This transfer is based on the greater of: (1) the ratio of $450 million to FY 2021-22 sales tax receipts multiplied by current year sales tax receipts or (2) $450 million.

Exemptions

Major exemptions include: food (ready-to-eat food is not exempt), most footwear and clothing, textbooks, prescription and non-prescription drugs, sales for resale and residential heating fuels. All government and non-profit purchases are also exempt.

Methodology

The sales and use tax model is a quarterly cash flow model with two components: non-motor vehicle and motor vehicle. Most non-motor sales and use taxes are remitted on a monthly basis, based on actual collections from the prior month and anticipated collections for the current month. For motor vehicle purchases, the sales tax remittance occurs when the application for title is made.

The non-motor vehicle regression uses a log transformation, quarterly data and three explanatory variables: business income plus wages, the housing price index and certain business purchases that are subject to sales tax (e.g., computers, software and communications equipment).[11] The motor vehicle regression uses a log transformation, quarterly data and three explanatory variables: Disposable Current Income, wage and business net income as a share of Current Income and Pennsylvania new car and light truck registrations. Motor and non-motor model projections are gross of any transfers, which are deducted from projections to derive net flows to the General Fund.

Beginning in FY 2016-17, the estimate for non-motor sales and use tax incorporates the impact of Act 39 of 2016 ($6 million).

[11] Business purchases are based on U.S. investment data from the Bureau of Economic Analysis. State level data on business purchases are not available.

Table Games Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	n.a.	--
2009	n.a.	--
2010	n.a.	--
2011	$69	--
2012	95	38.4%
2013	89	-6.7
2014	90	2.0
2015	96	6.0
2016	101	5.2
2017	106	4.8

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 14 percent during the first two years following commencement of table games, 12 percent thereafter and an additional 34 percent on fully automated electronic gaming tables.

Base

The tax is levied upon the gross table game revenue of licensed gaming entities. The base includes the total cash received from contest fees, table game play and rake collected, less cash paid out to fund prizes distributed to players as a result of a table game win, including funds used to purchase annuities and personal property distributed as prizes.

Transfers

Table games tax is deposited into the General Fund. If the Secretary of the Budget certifies that the balance in the Budget Stabilization Reserve Fund exceeds $750 million, the funds are deposited into the Property Tax Relief Fund.

Exemptions

None.

Methodology

Through May 2016, table games revenues are growing at a rate of 5.3 percent over the prior fiscal year. The remaining month of FY 2015-16 is estimated based on current trends and historical collection patterns. The estimate is then grown by the increase in state GDP for Arts, Entertainment and Recreation for FY 2016-17.

Motor Licenses and Fees

Historical and Projected Revenues

FYE	Vehicle Reg. & Titling	Reg. Other States	Operators' Licenses	Other Misc.	Special Hauling Permit	Total	Growth Rate
2008	$694	$64	$61	$32	$20	$872	0.2%
2009	665	106	61	32	19	884	1.4
2010	668	80	61	30	18	858	-3.0
2011	692	85	61	29	23	892	4.0
2012	683	92	62	27	29	893	0.1
2013	688	87	61	28	28	893	0.0
2014	686	96	54	31	27	894	0.2
2015	728	96	76	14	37	951	6.4
2016	739	113	71	16	34	972	2.2
2017	753	115	72	24	34	999	2.8

Note: Fiscal year ending, millions of dollars.

Rates

Act 89 of 2013 increased many of the fees imposed by Title 75 and tied future increases to the rate of inflation. In general, fees are adjusted on July 1st of any calendar year ending in an odd number. The adjustment is based on the percentage change in the consumer price index for all urban consumers (CPI-U) for the 24-month period ending on the January 31st prior to the increase. The first adjustment was based on the period August 1, 2013 to January 31, 2015 (18 months) and occurred on July 1, 2015. Due to the relatively low inflation experienced during the base period, most fees did not increase at that time.

Vehicle Registration Fees: Fees vary depending on the vehicle type and weight. Two of the most common fees are passenger cars at $36 and motorcycles at $18. Neither of these fees increased on July 1, 2015. Registration fees for trucks and truck tractors ranged from $58.50 to $1,687.50 (depending on weight) prior to 2015. Effective January 1, 2015, fees ranged from $60 to $1,827. The fee schedule increased again effective July 1, 2015, and ranged from $60 to $1,966. Effective July 1, 2016 fees will range from $62 to $2,105.

Vehicle Titling Fees: Previously $22.50 per vehicle, the fee increased to $50 effective April 1, 2014 and to $51 on July 1, 2015 (based on the change in the CPI-U). This category of fees will gradually shift to the Public Transportation Trust Fund and the Multimodal Transportation Fund over the next few years. They will be fully transitioned beginning with FY 2017-18.

Registration Fees Received from Other States/International Registration Plan (IRP): Proportional registration fee of trucks and other large commercial vehicles that travel over state lines. [12]

[12] It is proportional based on the miles traveled in each state or province (Canada). For example, if a truck that weighs 80,000 lbs. drives 25 percent of its total miles in Pennsylvania, Pennsylvania would receive 25 percent of the normal Pennsylvania registration fee for that truck.

Operators' License Fees: Varies depending on type and length of license. Two common fees are the four-year license renewal ($29.50) and the four-year commercial license renewal ($69.50). These fees did not increase on July 1, 2015.

Special Hauling Permit Fees: Fees are equal to a base amount of $35 or $71 (depending on width) plus a factor for weight and miles traveled (4 cents multiplied by weight in tons and total miles traveled) effective July 1, 2014. Previously the fees were equal to the base amount of $25 or $50, plus a factor for weight/miles traveled (3 cents multiplied by weight in tons and total miles traveled). These fees did not increase on July 1, 2015.

Base

Vehicle Registration Fees: Most are annual per vehicle.

Vehicle Titling Fees: Fee paid when a vehicle is sold or transferred (in most cases).

Registration Fees Received from Other States/IRP: Annually per truck or large commercial vehicle, based on the proportion of miles driven in Pennsylvania in the previous one-year period.

Operators' License Fees: Fee paid by all individuals who are residents of Pennsylvania and operate a motor vehicle. Most fees are for four-year terms.

Transfers

A portion of the registration fee for trucks exceeding 26,000 lbs. is deposited into the Highway Bridge Improvement Restricted Account. The amount placed in this account ranges from $72 to $180 depending on truck weight.

Exemptions

Exemptions from vehicle registration fees include certain farm equipment, golf carts, mobile homes, vehicles moved solely by human or animal power and certain construction equipment. Exemptions from commercial operator license fees include military personnel who operate commercial vehicles for military purposes, firefighters or emergency squad members who operate various emergency vehicles and drivers operating farm equipment.

Methodology

Vehicle Registration and Titling: The FY 2015-16 vehicle registration and titling estimate is based on year-to-date collections projected through the end of the current fiscal year. The FY 2016-17 estimate utilizes a structural model based on historical collection patterns and adjusted for fee increases imposed under Act 89 of 2013.

Registration Fees from Other States/IRP: The FY 2015-16 estimate is based on year-to-date collections projected through the end of the current fiscal year. The FY 2016-17 estimate utilizes a structural model based on historical collection patterns and adjusted for fee increases imposed under Act 89 of 2013.

Operators' Licenses: Operators' license revenue does not appear to be significantly linked to any economic variable, but it does contain a small four-year cyclical component. The FY 2015-16 estimate is based on year-to-date collections projected through the end of the current fiscal year. The FY 2016-17 estimate utilizes a structural model based on historical collection patterns.

Other Miscellaneous Fees: The FY 2015-16 estimate is based on year-to-date collections projected through the end of the current fiscal year. The FY 2016-17 estimate utilizes a structural model based on historical collection patterns.

Special Hauling Permit Fees: The FY 2015-16 estimate is based on year-to-date collections projected through the end of the current fiscal year. A structural model is used to forecast growth for FY 2016-17.

Oil Company Franchise Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$448	-3.3%
2009	453	1.1
2010	448	-1.1
2011	455	1.6
2012	458	0.7
2013	445	-2.8
2014	534	20.0
2015	747	39.9
2016	827	10.6
2017	880	6.5

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 153.5 mills for liquid fuels (gasoline) and 208.5 mills for fuels (diesel) applied to the average wholesale price (AWP) of liquid fuels and fuels, and expressed on a cents-per-gallon basis. Prior to January 1, 2014, the average wholesale price was capped at $1.25/gallon and the rate had been 19.2 cents/gallon for gasoline and 26.1 cents/gallon for diesel since 2005.[13] Act 89 of 2013 increased the AWP to $1.87/gallon effective January 1, 2014 and to $2.49/gallon effective January 1, 2015. The current rate is 38.3 cents/gallon for gasoline and 52.0 cents/gallon for diesel. The AWP is imposed at a minimum of $2.99/gallon effective January 1, 2017 (no cap). Bus companies may apply for a reimbursement credit equal to 55 mills of the tax (roughly 13.7 cents/gallon at the current AWP).

[13] The Pennsylvania Department of Revenue calculates the AWP of liquid fuels and fuels for the 12-month period ending September 30. The price for 2005 was calculated to be $1.17/gallon (34 Pa.B. 6615, December 11, 2004, http://www.pabulletin.com/secure/data/vol34/34-50/2205.html). This is the last time that the calculated AWP fell below the $1.25 cap.

Base

The tax is imposed on a cents-per-gallon basis on all liquid fuels and fuels as defined by statute.

Transfers

57 mills (roughly 14.2 cents/gallon at the current AWP) is deposited into the Motor License Fund (MLF) as unrestricted revenue. Beginning in FY 2015-16, $35 million of the unrestricted portion of the tax will be transferred to the Multimodal Transportation Fund. The remaining portion of the tax reflects restricted receipts and is deposited into various restricted revenue accounts, distributed to municipalities, etc. The amounts listed above correspond to unrestricted receipts that remain in the MLF.

Exemptions

Exemptions include fuel that is delivered to: the federal government, the Commonwealth, a political subdivision, a volunteer fire or ambulance company, volunteer rescue squad, a second class county port authority or a nonpublic nonprofit school. The tax is also not imposed on fuel used in aircraft or aircraft engines.[14]

Methodology

The FY 2015-16 Oil Company Franchise Tax estimate is based on year-to-date collections projected through the end of the fiscal year. FY 2016-17 collections are estimated by applying the appropriate tax rates to projections of gasoline and diesel fuel consumption.

[14] Aviation gasoline and jet fuel are taxed separately and revenue is deposited into a restricted revenue account.

Act 89 Oil Company Franchise Tax

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	n.a.	--
2009	n.a.	--
2010	n.a.	--
2011	n.a.	--
2012	n.a.	--
2013	n.a.	--
2014	$307	--
2015	735	139.7%
2016	719	-2.2
2017	723	0.5

Note: Fiscal year ending, millions of dollars.

Rate

The tax rate is 64 mills effective January 1, 2014, 49 mills effective January 1, 2015, 48 mills effective January 1, 2016, 41 mills effective January, 1, 2017 and 39 mills effective January 1, 2018. The rate is applied to the average wholesale price (AWP) of liquid fuels and fuels, and expressed on a cents-per-gallon basis. Act 89 of 2013 set the AWP to $1.87/gallon effective January 1, 2014 and $2.49/gallon effective January 1, 2015. The current rate is 12.0 cents/gallon. The AWP is set at a minimum of $2.99/gallon effective January 1, 2017.

Base

The tax is imposed on a cents-per-gallon basis on all liquid fuels (gasoline) and fuels (diesel) as defined by statute.

Transfers

Tax revenue is deposited into the Motor License Fund (MLF) and 4.17 percent of the tax is transferred to the Liquid Fuels Tax Fund. The amounts shown in the table only reflect the MLF portion of the tax.

Exemptions

Exemptions include fuel that is delivered to: the federal government, the Commonwealth, a political subdivision, a volunteer fire or ambulance company, volunteer rescue squad, a second class county port authority or a nonpublic nonprofit school. The tax is also not imposed on fuel used in aircraft or aircraft engines.[15]

Methodology

The FY 2015-16 Act 89 Oil Company Franchise Tax estimate is based on year-to-date collections projected through the end of the fiscal year. FY 2016-17 collections are estimated by applying the appropriate tax rates to projections of gasoline and diesel fuel consumption.

[15] Aviation gasoline and jet fuel are taxed separately and revenue is deposited into a restricted revenue account.

Lottery Fund Revenues

Historical and Projected Revenues

FYE	Revenue	Growth Rate
2008	$1,518	1.3%
2009	1,389	-8.5
2010	1,510	8.7
2011	1,561	3.4
2012	1,694	8.5
2013	1,759	3.8
2014	1,766	0.4
2015	1,729	-2.1
2016	1,881	8.8
2017	1,904	1.2

Note: Fiscal year ending, millions of dollars.

Products

The Pennsylvania Lottery sells terminal-based and instant ticket games at over nine thousand retailers across the Commonwealth.

Methodology

The Lottery Fund projection uses different modeling techniques depending on recent sales history and the type of product. The instant ticket forecast is based on recent trends for (1) ticket sales as a share of Disposable Current Income and (2) per capita sales for residents aged 18 or older. The forecast reflects the impact of income growth, population growth and higher market saturation. Various numbers games (Pick 2, Pick 3, etc.,) are combined into a single series as sales data reveal evidence of a long-term trend decline. The declining trend of the sales base is forecasted to continue through FY 2016-17. The forecast for in-state lotto games (Treasure Hunt, Cash 5, etc.,) is based on trends for per capita sales for residents aged 18 or older. FY 2016-17 projections for multi-state lotto games (Powerball and Mega Millions) is forecast based on historical levels and growth in Current Income and residents aged 18 or older.

The Lottery forecast for FY 2015-16 is based on year-to-date collections through May. The forecast for FY 2016-17 assumes that prizes and commissions paid comprise a recent historical share of total ticket sales. The estimate assumes the continuation of the transfer from the Gaming Fund at historical levels (roughly $165 million per annum). The FY 2016-17 estimate includes the expansion of lottery sales at state liquor stores (Act 39 of 2016). The Pennsylvania Lottery projects that the expansion will increase gross ticket sales by $54 million in that fiscal year.