OFFICIAL REVENUE ESTIMATE

Methodology

FY 2021-22

June 2021

Independent Fiscal Office

Independent Fiscal Office

Rachel Carson State Office Building
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INDEPENDENT FISCAL OFFICE

June 24, 2021

The Honorable Members of the Pennsylvania General Assembly:

This report accompanies the Independent Fiscal Office's publication entitled *Official Revenue Estimate: Fiscal Year 2021-22*. The report describes the methodologies used to produce the revenue estimates included in that publication.

Questions or comments regarding the contents of this report are welcome and may be submitted to contact@ifo.state.pa.us.

Sincerely,

Matthew J. Knittel

Dr. Matthew J. Knittel
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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 Cash 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.

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.

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 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 periodic payments based on their anticipated or actual liability. Those payments include two types of remittances: an estimated payment for the current calendar year and a final or "true-up" payment attributable to the prior 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 2018. (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 2021, analysts can construct a fairly accurate estimate of tax year 2019 and 2020 liabilities. Projections of tax liability are then made for tax years 2021 and 2022 and converted into cash flows based on payment rules and historical monthly revenue data.

Derivation of Disposable Cash Income

Personal income tax and sales and use taxes comprise roughly 75% 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 sales and use taxes as a function of Pennsylvania Disposable Cash Income (DCI) to capture that linkage. The linkage occurs because wage and business income comprise roughly 80% of DCI, and the sales tax forecast uses the sum of those two income sources to make projections.

Pennsylvania DCI is equal to Cash Income less Taxes. (See **Table 1**.) Cash 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 gaming or lottery purchases.

The most complete report of the spendable or cash 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 Cash 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 Cash Income into six income categories: labor income (54% of total for 2021, includes residence adjustment), capital income (11%), business net income (8%), retirement income (10%) and transfer income (17%). Transfer income is unusually high for 2020 and 2021 due to economic impact payments and extra federal and state unemployment compensation related to the COVID-19 pandemic. In normal years, that income source would comprise 11% of Cash Income. The forecast projects that Cash Income will increase to $716.9 billion in 2021 (3.7%) before declining to $700.3 billion in 2022 (-2.3%).

[1] See "SOI Tax Stats – Historic Table 2" (IRS).
[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%), net capital gains (15%), dividends (5%), interest (1%), S corporation and partnership income (11%), sole proprietorship income (56%), pension income (3%) and social security income (11%). See "Federal Tax Compliance Research: Tax Gap Estimates for Tax Years 2011–2013" (IRS, September 2019). These adjustments are also made by the U.S. Bureau of Economic Analysis for the corresponding elements of personal income.

Cash 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 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 $136.9 billion (4.2% increase) for 2021 and $141.6 billion (3.4% increase) for 2022.

The deduction of Taxes from Cash Income yields Disposable Cash Income. That series provides the most complete measure of income that is available for spending or consumption. The forecast projects that DCI will increase to $580.0 billion in 2021 (3.6%) and decline to $558.7 billion in 2022 (-3.7%).

[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 "State and Local Government Finances" (U.S. Census Bureau).
[4] See "Annual Statistical Supplement, 2020" (U.S. Social Security Administration).

Table 1
Pennsylvania Disposable Cash Income

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Type of Income																
Wages and Salaries	$259.6	$269.7	$280.0	$285.2	$296.4	$308.4	$312.7	$325.3	$339.2	$353.8	$353.5	$376.1	$392.4	$408.3	$424.3	$441.0
Capital Income																
Capital Gains	13.0	13.5	22.0	17.3	23.9	27.5	23.4	31.3	35.7	37.5	43.5	47.8	50.6	53.1	55.7	58.3
Dividends	8.4	8.1	10.9	8.5	10.2	9.9	9.9	10.7	12.0	12.5	11.8	13.0	14.0	14.9	15.7	16.6
Interest-Rent-Royalty	17.5	18.2	18.3	18.0	19.3	19.8	20.1	20.4	22.5	23.3	21.6	21.9	23.0	23.8	24.7	25.6
Business Net Income	41.3	43.3	47.7	47.0	49.5	51.8	52.0	53.3	54.6	55.9	56.3	57.5	60.8	64.1	67.2	70.0
Pensions and Savings	39.6	42.2	46.0	49.3	52.1	54.7	55.4	57.8	60.9	63.9	66.7	69.1	71.9	74.9	77.8	80.8
Government Transfers																
Social Security	34.8	35.7	37.8	39.4	40.8	42.3	43.2	44.3	46.2	48.7	50.6	52.5	54.5	57.0	59.5	62.0
Income Maintenance	21.6	20.2	19.7	18.7	17.6	18.2	18.3	17.9	17.8	18.2	76.5	67.5	21.0	21.5	22.1	22.6
Residence Adjustment	8.0	7.9	8.2	8.2	9.0	8.9	9.4	9.9	10.8	10.8	10.8	11.5	12.0	12.5	13.0	13.5
Cash Income	**443.8**	**458.7**	**490.7**	**491.6**	**518.7**	**541.5**	**544.4**	**571.0**	**599.6**	**624.7**	**691.3**	**716.9**	**700.3**	**730.1**	**759.9**	**790.3**
Growth Rate	5.3%	3.4%	7.0%	0.2%	5.5%	4.4%	0.5%	4.9%	5.0%	4.2%	10.7%	3.7%	-2.3%	4.3%	4.1%	4.0%
Taxes																
Federal Income	40.8	42.9	47.2	48.9	53.1	56.4	56.7	60.2	58.0	59.6	63.7	66	67.7	70.5	73.6	76.8
State: Income, Property, Motor	30.2	30.9	31.8	33.2	33.9	35.2	36.5	37.5	39.1	40.7	41.6	43.2	45.0	46.9	48.9	50.9
Employee Payroll (OASDI and HI)	19.2	14.9	15.4	21.2	21.8	22.8	23.0	24.0	25.0	26.1	26.1	27.7	28.9	30.0	31.1	32.3
Less: Total Taxes	**90.2**	**88.7**	**94.4**	**103.3**	**108.8**	**114.4**	**116.2**	**121.7**	**122.1**	**126.4**	**131.4**	**136.9**	**141.6**	**147.4**	**153.6**	**160.0**
Growth Rate	3.6%	-1.7%	6.4%	9.4%	5.2%	5.3%	1.6%	4.6%	0.4%	3.5%	3.9%	4.2%	3.4%	4.2%	4.2%	4.2%
Disposable Cash Income	**353.6**	**370.0**	**396.3**	**388.3**	**409.9**	**427.1**	**428.2**	**449.3**	**477.5**	**498.3**	**559.9**	**580.0**	**558.7**	**582.7**	**606.3**	**630.3**
Growth Rate	5.7%	4.6%	7.1%	-2.0%	5.6%	4.2%	0.2%	5.0%	6.3%	4.4%	12.4%	3.6%	-3.7%	4.3%	4.0%	4.0%

Note: Figures in dollar millions. Calendar year data. Federal income taxes are on a cash flow basis. Business Net Income includes S corporations, partnerships, sole proprietors and independent contractors.

Source: Historical data are from IRS Statistics of Income Division, U.S. Census Bureau and Social Security Administration. Projections are from the IFO.

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General Fund Methodologies

Corporate Net Income Tax

Corporate Net Income Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$2,811	$2,842	$2,751	$2,879	$3,398	$2,827	$4,412	$3,810
Growth Rate	12.4%	1.1%	-3.2%	4.6%	18.0%	-16.8%	56.1%	-13.6%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 9.99%.

Base

The tax is levied on federal taxable income, modified by certain additions (e.g., 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% 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 full 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 2020. The model then converts tax liability to fiscal year cash flows based on historical payment patterns.

Gross Receipts Tax

Gross Receipts Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$1,262	$1,305	$1,231	$1,150	$1,250	$1,104	$990	$1,048
Growth Rate	-1.4%	3.4%	-5.7%	-6.6%	8.7%	-11.7%	-10.4%	5.8%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax 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.

Exemptions

Gross receipts (1) of public utilities owned or operated by a municipality to the extent the receipts are derived from business conducted within the municipality, (2) derived from the sale of electricity by an electric light company which are attributable to the recovery of purchased energy costs, clean-up costs and investment write-off costs due to damage to a nuclear-generating facility or (3) of electric cooperatives, are exempt from tax.

Methodology

The gross receipts tax (GRT) forecast utilizes a basic 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.

Insurance Premiums Tax

Insurance Premiums Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$454	$465	$433	$451	$444	$474	$443	$438
Growth Rate	5.1%	2.3%	-6.7%	4.0%	-1.5%	6.6%	-6.5%	-1.0%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

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

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 basic tax liability model to project estimated, regular and other payments by tax year. Tax year liabilities are adjusted for the application of Innovate PA and Pennsylvania Life and Health Insurance Guaranty Association (PLHIGA) tax credits and converted to fiscal year cash collections based on historical data.

[5] A retaliatory tax is imposed on companies incorporated in other states that impose a higher burden on Pennsylvania companies doing business there.

Financial Institution Taxes

Financial Institution Taxes Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$294	$330	$323	$371	$380	$393	$419	$439
Growth Rate	-7.5%	12.2%	-2.3%	15.1%	2.4%	3.4%	6.5%	4.9%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 0.95% for banks and trust companies, and 11.5% 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. The bank shares tax rate increased from 0.89% to 0.95% effective January 1, 2017.

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.

Sales and Use Tax

Sales and Use Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Non-Motor	$8,167	$8,448	$8,638	$8,989	$9,616	$9,453	$10,958	$10,800
Motor	1,326	1,347	1,367	1,393	1,484	1,365	1,811	1,677
Total	**9,493**	**9,795**	**10,004**	**10,381**	**11,100**	**10,818**	**12,769**	**12,477**
Growth Rate	4.0%	3.2%	2.1%	3.8%	6.9%	-2.5%	18.0%	-2.3%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 6%.

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% to the Public Transportation Assistance Fund and (2) a transfer of 4.4% to the Public Transportation Trust Fund beginning in fiscal year (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. Beginning in FY 2016-17 and thereafter, transfers are made to the Commonwealth Financing Authority for debt service payments. The amount and timing of the transfers are determined by the State Treasurer and Secretary of the Budget.

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 monthly, 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.

Quarterly non-motor vehicle and motor vehicle collections are projected (1) as a share of the quarterly change in total wage and business net income and (2) adjusted to reflect spending patterns associated with payments to individuals under the American Rescue Plan Act. Motor and non-motor model projections are gross of any transfers, which are deducted from projections to derive net flows to the General Fund.

Cigarette Tax

Cigarette Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$927	$912	$1,262	$1,198	$1,119	$924	$967	$874
Growth Rate	-5.1%	-1.7%	38.4%	-5.0%	-6.6%	-17.4%	4.6%	-9.6%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

Effective August 1, 2016, the tax rate is 13 cents per cigarette or $2.60 per pack (20 cigarettes per pack).

Base

The tax is imposed per cigarette or little cigar weighing less than 4 lbs. per thousand. The tax base is restrained due to a federal law change that increased the legal age to purchase tobacco products from 18 to 21 in December 2019.

Transfers

Annual transfers of $30.730 million and $25.485 million are made to the Children's Health Insurance Program (CHIP) and the Agricultural Conservation Easement Purchase (ACEP) Fund, respectively. Additionally, a $115.3 million transfer to the Tobacco Settlement Fund (TSF) was first authorized in April 2020 and is expected to occur annually moving forward. For any fiscal year in which the revenue deposited into the Local Cigarette Tax Fund (Philadelphia cigarette tax) is less than $58 million, an amount equal to $58 million less actual fiscal year collections will be transferred from General Fund cigarette tax revenues to the Local Cigarette Tax Fund by July 15 following the end of the fiscal year. The first transfer occurred in July 2017 and the amount for July 2021 is projected to be $27.3 million.

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

Collections for FY 2020-21 are based on revenues for the first 11 months of the current fiscal year. Base consumption for FY 2021-22 is projected using a Holt-Winters additive smoothing model incorporating rate-adjusted quarterly data for 2003Q1 through 2021Q2. The projected tax base is then converted to a cash estimate by adjusting to the current cigarette tax rate. The estimate is then reduced to account for the impact of the applicable annual transfers.

Other Tobacco Taxes

Other Tobacco Taxes Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$0	$0	$84	$119	$130	$127	$135	$139
Growth Rate	n.a.	n.a.	n.a.	n.a.	9.1%	-2.0%	6.1%	2.6%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 55 cents per ounce of smokeless, pipe or roll-your-own tobacco. The tax is imposed at a rate of 40% of the wholesale price of e-cigarette products.

Base

The tax is imposed per ounce of smokeless, pipe and roll-your-own tobacco products and on the wholesale price of e-cigarettes (vapor-producing devices and liquid cartridges). The tax base is restrained due to a federal law change that increased the legal age to purchase tobacco products from 18 to 21 in December 2019.

Transfers

None.

Exemptions

Products exported for sale outside the Commonwealth are exempt from the other tobacco products tax.

Methodology

Other tobacco products tax revenues are projected using tobacco product shipment and quarterly revenue data for 2016Q3 through 2021Q2. The smokeless, pipe and roll-your-own tax base was calculated by projecting national shipments of other tobacco products, then adjusting for the population of Pennsylvania. The e-cigarette revenue projection is based on historical collections and an inflationary adjustment for other tobacco products.

Malt Beverage Tax

Malt Beverage Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$24	$25	$24	$24	$24	$23	$24	$24
Growth Rate	-2.5%	1.9%	-2.2%	-1.1%	-2.4%	-1.6%	1.4%	0.0%

Note: Figures in dollar millions. Years are fiscal year ending.

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 assumes flat revenue collections. Beginning in FY 2017-18, revenues are reduced by $2 million for the reinstated Brewer's Tax Credit.

Liquor Tax

Liquor Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$334	$348	$362	$372	$382	$366	$415	$416
Growth Rate	4.2%	4.1%	4.0%	2.7%	2.8%	-4.2%	13.5%	0.1%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 18% 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, collections include the impact of liquor modernization (Acts 39 and 85 of 2016).

Personal Income Tax

Personal Income Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Withheld	$9,072	$9,391	$9,614	$10,037	$10,444	$10,543	$10,833	$11,449
Non-withheld	3,036	3,115	3,050	3,362	3,652	2,292	5,448	4,102
Total	**12,107**	**12,506**	**12,664**	**13,399**	**14,096**	**12,835**	**16,281**	**15,551**
Growth Rate	5.9%	3.3%	1.3%	5.8%	5.2%	-8.9%	26.9%	-4.5%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 3.07%.

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

Beginning in FY 2019-20, $13.3 million is transferred annually for debt service payments related to the lease of the Farm Show Complex.

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 final tax data are available (2018) through 2022 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.

Tax return data show that wage-salary income comprises the majority of Pennsylvania personal taxable income (approximately 76%), while business net income (11%) and dividends, capital gains, interest and other taxable income sources (13% 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 55% of non-withheld income) and the April final payment (45% of non-withheld income).

Although finalized tax return data are not yet available for 2019 or 2020, revenues through May 2021 may be used to estimate tax liabilities for those years. 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 PIT 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 (1997-2018). The forecast uses the methodologies listed below to project the liabilities associated with each of the income categories reported on the Pennsylvania tax return.

- 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 was used to inform growth rates in tax years 2019 through 2021.
- 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.
- Interest Income: Interest income is primarily a function of the average growth rates of various short- and long-term interest rates. The model projects interest income based on a regression 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.
- Rents, Royalties, Patents and Copyrights: The model assumes that the overall growth in royalty payments tracks with the projected growth in natural gas prices. The yearly growth rates of the residual income (i.e., rents, patents and copyrights) is extrapolated based on the current forecast of state GDP.
- Estates and Trusts and Gambling and Lottery Earnings: These income categories comprise less than 1% of Pennsylvania taxable income and are extrapolated based on the current forecast of state GDP.

Tax Year Payments into Fiscal Year Cash Flow

After calculating the total payments for each tax year, the model then converts this payment stream into a fiscal year cash flow based on recent 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) the impact of various tax law changes.

Realty Transfer Tax

Realty Transfer Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$414	$482	$478	$514	$534	$498	$646	$683
Growth Rate	10.2%	16.4%	-0.8%	7.6%	3.8%	-6.8%	29.7%	5.7%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is 1%, 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% transfer to the Keystone Recreation, Park and Conservation Fund. Beginning in July 2016, revenues equal to the lesser of (1) $25 million or (2) 40% of the difference between revenues collected in the prior fiscal year and $447.5 million are transferred annually to the Housing Affordability and Rehabilitation Fund. The parameter was increased from $25 million to $40 million effective July 2019. The FY 2021-22 transfer is projected to be $40 million.

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 projection uses a cash flow model and forecasts revenues based on recent trends in the residential housing market. The residential tax base is equal to Pennsylvania quarterly purchase-only index multiplied by Pennsylvania existing home sales. 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 that portion closely correlate with residential sales.

Inheritance Tax

Inheritance Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$1,002	$962	$978	$1,019	$1,054	$1,082	$1,350	$1,307
Growth Rate	14.2%	-4.0%	1.6%	4.2%	3.4%	2.7%	24.7%	-3.2%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate is based on the beneficiary's relationship to the decedent. Transfers of property to lineal heirs are taxed at 4.5%, transfers to siblings are taxed at 12% and transfers to all other persons (excluding spouses and certain parents) are taxed at 15%. The tax must be paid within nine months following the decedent's death, with a discount of 5% 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 2020-21. The estimate for FY 2020-21 is based on collections for the first 11 months of the fiscal year.

[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.

Gaming Taxes

Gaming Taxes Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$96	$100	$121	$123	$132	$143	$237	$250
Growth Rate	6.0%	4.5%	20.4%	2.0%	7.0%	8.6%	65.7%	5.3%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The table games tax rate is 14% during the first two years following commencement of table games and 12% thereafter. An additional 34% tax is levied on fully automated electronic gaming tables. Act 84 of 2016 temporarily increased the table games tax rate from 12% to 14%, effective July 1, 2016 and expiring on June 30, 2019. Act 13 of 2019 extended the expiration of the table games tax rate increase through August 1, 2021. A tax rate of 15% is imposed on fantasy contests, 14% on iGaming (table games only), 42% on video gaming terminals (VGTs) and 34% on sports betting.

Base

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

Transfers

If the Secretary of the Budget certifies that the balance in the Budget Stabilization Reserve Fund exceeds $750 million, the revenues from the table games tax are deposited into the Property Tax Relief Fund.

Exemptions

None.

Methodology

The FY 2020-21 estimate is based on current trends and historical collection patterns through May. The FY 2021-22 estimate is based on historical collections and incorporates new revenues for gaming expansion.

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Motor License Fund Methodologies

Motor Licenses and Fees

Motor Licenses and Fees Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Veh. Reg. & Titling	$728	$720	$758	$776	$730	$747	$832	$806
Reg. Other States	96	123	122	139	139	155	161	167
Operators' Licenses	76	71	70	68	72	46	77	71
REAL ID	0	0	0	0	5	27	7	8
Other Misc.	14	15	19	27	10	-53	4	4
Spec. Hauling Permit	37	33	32	37	37	32	31	31
Total	**951**	**963**	**1,001**	**1,046**	**992**	**954**	**1,111**	**1,086**
Growth Rate	6.4%	1.2%	3.9%	4.5%	-5.1%	-3.9%	16.5%	-2.3%

Note: Figures in dollar millions. Years are fiscal year ending.

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 1 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 January 31 prior to the increase. The fee increases effective July 1, 2021 were determined based on the change in the CPI-U for the period February 1, 2019 to January 31, 2021, or 3.9211%.

Vehicle Registration Fees: Fees vary depending on the vehicle type and weight. Two of the most common fees are passenger cars at $38 and motorcycles at $20. These fees will increase to $39 and $21 respectively, effective July 1, 2021. Registration fees for trucks and truck tractors range from $64 to $2,326 (depending on weight) and will range from $67 to $2,417 effective July 1, 2021.

Vehicle Titling Fees: This category was fully transitioned to the Public Transportation Trust Fund and the Multimodal Transportation Fund 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.[7]

Operators' License Fees: Varies depending on type and length of license. Two common fees are the four-

[7] 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% of its total miles in Pennsylvania, Pennsylvania would receive 25% of the normal Pennsylvania registration fee for that truck.

year license renewal ($31.50) and the four-year commercial license renewal ($98.50). The four-year commercial license renewal will increase to $102.50 on July 1, 2021.

Special Hauling Permit Fees: Fees are equal to a base amount of $37 or $78 (depending on width) plus a factor for weight and miles traveled (4 cents multiplied by weight in tons and total miles traveled). These fees will increase to $38 or $81 (depending on width) effective July 1, 2021.

REAL ID: The one-time fee to upgrade an operator's license to a REAL ID is $30.[8]

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 generated by four-year licenses.

Special Hauling Permit Fees: Operators that move certain loads or vehicles (e.g., oversized or overweight) over Pennsylvania roads.

REAL ID: Pennsylvania residents that opt to upgrade their current operator's license to a REAL ID.

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 per registration 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

The FY 2020-21 estimates are based on year-to-date collections projected through the end of the current fiscal year. The FY 2021-22 estimates utilize structural models based on historical collection patterns. Operators' license revenue contains a small four-year cyclical component. The FY 2021-22 estimate for REAL ID is from the 2021-22 Executive Budget.

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[8] Beginning May 3, 2023, Pennsylvanians will need a REAL ID-compliant driver's license, photo identification (ID) card, or another form of federally acceptable identification (such as a valid passport or military ID) to board a domestic commercial flight or enter a federal building or military installation that requires ID. See https://www.dmv.pa.gov/REALID/Pages/default.aspx.

Oil Company Franchise Tax

Oil Company Franchise Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$747	$837	$904	$1,018	$1,006	$931	$913	$950
Growth Rate	39.9%	12.0%	8.0%	12.7%	-1.2%	-7.4%	-2.0%	4.0%

Note: Figures in dollar millions. Years are fiscal year ending.

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 per gallon and the tax rate had been 19.2 cents per gallon for gasoline and 26.1 cents per gallon for diesel. Act 89 of 2013 increased the AWP to $1.87 per gallon effective January 1, 2014, and $2.49 per gallon effective January 1, 2015. The AWP is a minimum of $2.99 per gallon effective January 1, 2017 (no cap).

For the 12-month period ending September 30, 2020, the Department of Revenue determined the actual AWP to be $1.48 per gallon. Therefore, the AWP used to calculate the 2021 oil company franchise tax (OCFT) rates was the statutory minimum of $2.99 per gallon and the tax rates are 45.9 cents per gallon for liquid fuels and 62.4 cents per gallon for fuels. Bus companies may apply for a reimbursement credit equal to 55 mills of the tax (roughly 16.4 cents per gallon at the current AWP).

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 17.0 cents per gallon at the current AWP) is deposited into the Motor License Fund as unrestricted revenue. Beginning in FY 2015-16, $35 million of the unrestricted portion of the tax is transferred to the Multimodal Transportation Fund annually. The remaining portion of the tax reflects restricted receipts and is deposited into various restricted revenue accounts, distributed to municipalities, etc. The projections listed above correspond to unrestricted receipts that remain in the Motor License Fund.

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.[9]

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

Methodology

The FY 2020-21 OCFT estimate is based on year-to-date collections projected through the end of the fiscal year. FY 2021-22 collections are estimated by applying the appropriate tax rates to projections of gasoline and diesel fuel consumption.

Act 89 Oil Company Franchise Tax

Act 89 Oil Company Franchise Tax Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$739	$718	$718	$679	$682	$635	$624	$649
Growth Rate	2.3%	-3.0%	0.0%	-5.4%	0.4%	-6.8%	-1.7%	4.0%

Note: Figures in dollar millions. Years are fiscal year ending.

Rate

The tax rate was 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 AWP of liquid fuels and fuels, and expressed on a cents-per-gallon basis. The AWP is a minimum of $2.99 per gallon effective January 1, 2017 (no cap). The current rate is 11.7 cents per gallon.

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 and 4.17% of the tax is transferred to the Liquid Fuels Tax Fund. The projections shown in the table only reflect the unrestricted 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.[10]

Methodology

The FY 2020-21 Act 89 OCFT estimate is based on year-to-date collections projected through the end of the fiscal year. Collections for FY 2021-22 are estimated by applying the appropriate tax rates to projections of gasoline and diesel fuel consumption.

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

Lottery Fund Methodology

Lottery Fund Net Revenues

Lottery Fund Revenues Historical and Projected Revenues

	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	$1,723	$1,854	$1,709	$1,789	$1,931	$1,944	$2,003	$2,048
Growth Rate	-2.4%	7.6%	-7.8%	4.7%	7.9%	0.7%	3.1%	2.2%

Note: Figures in dollar millions. Years are fiscal year ending.

Products

The Pennsylvania Lottery sells terminal-based and instant ticket games at over 9,500 retailers across the Commonwealth. Beginning in 2018, players have access to online lotto games through the iLottery platform.

Methodology

The Lottery Fund projection uses different modeling techniques depending on recent sales history and the type of product. Sales of instant tickets, iLottery and the various numbers games increased dramatically in FY 2020-21, likely the result of increased consumer spending related to federal COVID relief payments to individuals. The Lottery projection for FY 2020-21 is based on year-to-date data through May and the forecast for FY 2021-22 generally assumes a return to historical sales trends. In addition, the forecast for FY 2021-22 projects prizes and commissions as a share of total ticket sales consistent with payouts in recent years, incorporates a deceleration of iLottery sales as players return to in-person forms of entertainment and reverts to annual transfers from the Gaming Fund.[11]

[11] In response to the COVID-19 pandemic, Property Tax/Rent Rebate payments that would have been disbursed in FY 2020-21 were accelerated into FY 2019-20. The result was two transfers in FY 2019-20 and no transfer in FY 2020-21.