

Building Our Future

Technical Appendix

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A. Revenue Estimation Framework

Revenue estimates in this report were constructed in three steps:

1. Create a base revenue estimate for each component of the revenue plan using available historical data. Base estimates may be for a single calendar or fiscal year or for a range of years.ⁱ
2. Forecast revenue from each component in fiscal year 2020 to create a consistent initial-year estimate.
3. Forecast inflation-adjusted (FY 2020 dollars) revenue from each component in fiscal year 2030. This is the final estimate for each component, and is directly comparable to fiscal year 2030 cost estimates produced by the Kirwan Commission.

Base Year Estimates

Table A-1 summarizes the year and source for each revenue component's base estimate. Estimates for domestic combined reporting, the throwback rule, restoration of the millionaire estate tax, expansion of the sales tax base (except digital goods) and restructuring of the personal income tax are based on the Institute on Taxation and Economic Policy (ITEP) Microsimulation Tax Model. This model uses a database of 750,000 anonymized individual tax records released by the IRS to simulate the impact of tax reform proposals on a representative sample of tax units.ⁱⁱ Because it is based on individual-level data, the ITEP model also allows estimation of the impact of reforms across the income distribution.ⁱⁱⁱ Estimates for other components are based on a variety of sources, including original analysis by MDCEP.

TABLE A-1 SUMMARY OF BASE REVENUE ESTIMATES

COMPONENT	BASE YEAR	SOURCE OF ESTIMATE		
		ITEP	MDCEP	Other
Clean Up Our Tax Code				
Combined Reporting (Domestic)	CY 2019	X		Public Interest Research Group
Combined Reporting (Offshore Tax Havens)	FY 2012			
Throwback Rule	CY 2019	X		
Close Pass-Through Loophole	CY 2011–2016		X	
Eliminate Ineffective Economic Development Subsidies	FY 2015–2018		X	
Restore Millionaire Estate Tax	CY 2019	X		
Modernize Our Sales Tax				
Expand Sales Tax Base (Excluding Digital Goods)	CY 2019	X		Center on Budget and Policy Priorities
Expand Sales Tax Base (Digital Goods)	FY 2011			
Expand Working Family Tax Credits	FY 2030		X	
Strengthen Our Income Tax				
Restructure Income Tax Rates	CY 2019	X		
Offset Special Treatment of Capital Gains	CY 2012–2016		X	
Note: The “ITEP” column indicates base estimates produced using the Institute on Taxation and Economic Policy Microsimulation Tax Model. The “MDCEP” column indicates original estimates by the Maryland Center on Economic Policy. “CY” indicates the calendar year. “FY” indicates the fiscal year.				

FY 2020 Estimates

While base estimates were calculated for a variety of time periods depending on available data, all revenue estimates should ultimately be comparable to the Kirwan Commission cost estimates, which are based on fiscal year 2030 public school enrollment and expressed in fiscal year 2020 dollars. Toward this end, base estimates were converted to consistent initial-year estimates for fiscal year 2020, expressed in fiscal year 2020 dollars. These initial-year estimates will be used in the next step to calculate final estimates.

Two approaches were used to calculate fiscal year 2020 estimates.

For components that are closely related to an existing revenue source in the Maryland state budget, fiscal year 2020 estimates were based on state revenue data. Components with a base year before 2019 were forecast to 2019 using historical revenue data reported in Appendix B of the state budget. Estimates for 2019 were then forecast to fiscal year 2020 using the Board of Revenue Estimates December 2018 Estimated Maryland Revenues.^{iv}

Table A-2 summarizes the conversion of 2019 estimates to fiscal year 2020 estimates for components that were forecast using state revenue estimates. The full-year change in revenue is used for components with a fiscal-year base estimate (see Table A-1). The half-year change is used for components with a calendar-year base estimate.

TABLE A-2. CALCULATION OF 2019–2020 STATE REVENUE GROWTH FACTORS

FISCAL YEAR	BOARD OF REVENUE ESTIMATES PROJECTIONS		
	Personal Income Tax	Corporate Income Tax	Sales and Use Tax
2019	\$10.2 billion	\$958 million	\$4.9 billion
2020	\$10.5 billion	\$965 million	\$5.0 billion
Full-Year Change (Used for components with FY base estimates)	3.2%	0.8%	3.4%
Half-Year Change (Used for components with CY base estimates)	1.6%	0.4%	1.7%
Source: Maryland Board of Revenue Estimates December 2018 Estimated Maryland Revenues. Note: Half-Year Change is defined as $\sqrt{1 + \text{Full-Year Change}} - 1$. This is slightly less than half of the full-year change.			

For components that are not closely related to an existing revenue source—or for which the required data are not available in state documents—fiscal year 2020 estimates were based on Maryland personal income growth. Historical data on actual Maryland personal income during each component’s base year (see Table A-1) are available from the U.S. Bureau of Economic Analysis. Maryland personal income in fiscal year 2020 was estimated using projections from the Maryland Department of Planning.^v

The Department of Planning has published projections of personal income in calendar years 2015 and 2020, expressed in 2009 dollars. An estimate of Maryland personal income in fiscal year 2020 was calculated from these projections in two steps:

- First, the Department of Planning projections were converted from 2009 dollars to current-year (nominal) dollars using the Price Index for Personal Consumption Expenditures.^{vi} This conversion uses historical values of the price index published by the Bureau of Economic Analysis and future-year forecasts published by the Congressional Budget Office (CBO).^{vii}
- Second, a fiscal year 2020 estimate was calculated by subtracting one half-year worth of growth from the calendar year 2020 estimate, assuming a constant percentage growth rate from 2015 to 2020.

Table A-3 summarizes this calculation.

TABLE A-3. CALCULATION OF FY 2020 MARYLAND PERSONAL INCOME

YEAR	PRICE INDEX FOR PERSONAL CONSUMPTION EXPENDITURES			MARYLAND PERSONAL INCOME	
	Historical (BEA) 2012 = 100	Historical Scaled: 2009 = 100	CBO Projection 2009 = 100	2009 \$	Nominal
CY 2009	94.1	100.0			
CY 2015	103.1	109.6		\$313 billion	\$343 billion
CY 2020			119.75	\$354 billion	\$424 billion
Total Change 2015–2020:					23.7%
Annual Change 2015–2020:					4.3%
Half-Year Change:					2.2%
FY 2020					\$415 billion

Sources: U.S. Bureau of Economic Analysis, Congressional Budget Office, Maryland Department of Planning. Note: Annual change is defined as $\sqrt[5]{1 + \text{Total Change}} - 1$. Half-year change is defined as $\sqrt{1 + \text{Annual Change}} - 1$.

Table A-4 summarizes which approach is used for each revenue component.

TABLE A-4. SUMMARY OF FY 2020 FORECASTING APPROACHES

COMPONENT	FORECASTING APPROACH	
	State Revenue Estimates	Maryland Personal Income
Clean Up Our Tax Code		
Combined Reporting (Domestic)	X	
Combined Reporting (Offshore Tax Havens)	X	
Throwback Rule	X	
Close Pass-Through Loophole		X
Eliminate Ineffective Economic Development Subsidies		X
Restore Millionaire Estate Tax		X
Modernize Our Sales Tax		
Expand Sales Tax Base (Excluding Digital Goods)	X	
Expand Sales Tax Base (Digital Goods)	X	
Expand Working Family Tax Credits	NA	NA
Strengthen Our Income Tax		
Restructure Income Tax Rates	X	
Offset Special Treatment of Capital Gains		X

Note: The cost of expanding working family tax credits is assumed to be \$50 million in FY 2030 (FY 2020 \$). For this reason, no FY 2020 estimate is needed.

Final Estimates

The final step was to forecast fiscal year 2030 revenue from each component, expressed in fiscal year 2020 dollars. This step requires estimating each component's nominal growth and adjusting that growth for inflation.

To adjust for inflation, the most appropriate price index in this context is the Implicit Price Deflator for State and Local Government (here referred to as IPD). Unlike other inflation measures such as the Consumer Price Index, IPD reflects changes in the cost of inputs to government services rather than goods and services consumed by households. However, no published forecast of IPD exists. For this reason, future growth in IPD was estimated by adjusting the CBO projection of the Consumer Price Index for All Urban Consumers (CPI-U) based on the average difference in historical growth rates between CPI-U and IPD.^{viii} Table A-5 summarizes this adjustment.

TABLE A-5. HISTORICAL GROWTH OF CPI-U AND IPD

FISCAL YEAR	CPI-U (BLS)		IPD (BEA)		DIFFERENCE
	Value	Change	Value	Change	
2014	235.0		104.6		
2015	236.7	0.72%	105.8	1.16%	+0.44%
2016	238.3	0.67%	105.6	−0.19%	−0.85%
2017	242.7	1.86%	107.4	1.70%	−0.15%
2018	248.1	2.25%	111.1	3.39%	+1.11%
Average					0.14%
Sources: U.S. Bureau of Labor Statistics and Bureau of Economic Analysis. Note: The difference between CPI-U growth and IPD growth is defined as $(1 + IPD\ Growth) / (1 + CPI-U\ Growth) - 1$.					

As with fiscal year 2020 estimates, revenue components that are closely related to existing state revenue sources were forecast using state revenue projections, while other components were forecast using projected Maryland personal income growth.^{ix} There are two exceptions. First, sales tax revenue was forecast using a hybrid approach that takes state revenue projections as one input. Second, the cost of expanding working family tax credits was assumed to be \$50 million in FY 2030 (FY 2020 \$).

Table A-6 summarizes the calculation of average annual growth rates based on Board of Revenue Estimates projections. These are used to forecast revenues from components linked to the corporate income tax and the personal income tax, and as an input to the sales tax forecast.

TABLE A-6. CALCULATION OF STATE REVENUE GROWTH RATES

FISCAL YEAR	BOARD OF REVENUE ESTIMATES PROJECTIONS			CPI-U CBO Projection		IPD MDCEP Estimate	
	Personal Income Tax	Corporate Income Tax	Sales And Use Tax	Value	Change	Change	Deflator
2020	\$10.53 billion	\$965 million	\$5.03 billion	260.1			1.00
2021	\$10.91 billion	\$1.06 billion	\$5.13 billion	266.7	2.54%	2.68%	0.97
2022	\$11.38 billion	\$1.15 billion	\$5.25 billion	273.4	2.49%	2.63%	0.95
2023	\$11.87 billion	\$1.20 billion	\$5.36 billion	280.1	2.46%	2.60%	0.92
2024	\$12.38 billion	\$1.24 billion	\$5.48 billion	286.9	2.41%	2.56%	0.90
FISCAL YEAR	INFLATION-ADJUSTED REVENUE PROJECTIONS						
	Personal Income Tax	Corporate Income Tax	Sales And Use Tax				
2020	\$10.53 billion	\$965 million	\$5.03 billion				
2021	\$10.63 billion	\$1.04 billion	\$5.00 billion				
2022	\$10.80 billion	\$1.09 billion	\$4.98 billion				
2023	\$10.98 billion	\$1.11 billion	\$4.96 billion				
2024	\$11.16 billion	\$1.12 billion	\$4.95 billion				
CHANGE 2020–2024							
Total	6.06%	15.92%	–1.60%				
Annual	1.48%	3.76%	–0.40%				
Sources: Maryland Board of Revenue Estimates December 2018 Estimated Maryland Revenues, CBO August 2018 Economic Outlook. Notes: IPD Change is defined as $(1 + \text{CPI-U Change}) \times 1.0014 - 1$. See Table A-5 for derivation. IPD Deflator is defined as $(\text{Prior Year Value}) / (1 + \text{IPD Change})$. Inflation-adjusted revenue projections are obtained by multiplying BRE revenue projections by the IPD Deflator. Annual change in inflation-adjusted revenue projections is defined as $\sqrt[4]{1 + \text{Total Change}} - 1$.							

To forecast fiscal year 2030 revenues from components not closely related to existing state revenue sources, an estimate is needed of inflation-adjusted Maryland personal income growth from 2020 to 2030. The Maryland Department of Planning has published projections for both years, but these are adjusted for inflation using the Price Index for Personal Consumption Expenditures. To obtain the appropriate estimate, it is necessary first to convert the Department of Planning projections into nominal dollars, and then to adjust for inflation using an estimate of IPD.

These adjustments require projecting the Price Index for Personal Consumption Expenditures and CPI-U out to 2030, two years past the period covered by the CBO Economic Outlook. For this purpose, it was assumed that both indices would continue to increase at their average annual growth rate during the last three years of the CBO projections (2025–2028). Table A-7 summarizes this calculation.

TABLE A-7. CALCULATION OF 2030 PRICE INDEX ESTIMATES

CALENDAR YEAR	CBO PROJECTIONS	
	Price Index for Personal Consumption Expenditures	CPI-U
2025	132.6	297.1
2028	140.7	318.6
Total Change 2025–2028:	6.07%	7.23%
Annual Change:	1.98%	2.36%
2030 Estimate:	146.3	333.8
Source: CBO August 2018 Economic Outlook.		

It is now possible to estimate annual growth in Maryland personal income from 2020 to 2030, expressed in 2020 dollars. This calculation is summarized in Table A-8.^x

B. Revenue Estimation: Clean Up Our Tax Code

Combined Reporting (Domestic)

Table B-1 summarizes this revenue estimate.

TABLE B-1. CALCULATION OF FY 2030 REVENUE: COMBINED REPORTING (DOMESTIC)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$80.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$80.3 million	0.8%	0.4%	BRE: Corporate income tax (see Table A-2)
FY 2030	FY 2020	\$116.2 million	3.8%	44.7%	BRE: Corporate income tax (see Table A-6)

Combined Reporting (Tax Havens)

Base year estimate: The Public Interest Research Group in 2014 published an estimate of revenue gains from incorporating offshore tax havens into state combined reporting systems.^{xi} Under this proposal, the state would develop a list of countries known to act as tax havens and require companies doing business in Maryland to include in their combined group any parent or subsidiary companies in these countries. The report estimated that this reform would have increased Maryland corporate income tax revenue by \$27 million in fiscal year 2012.

FY 2020 forecast: The base estimate was forecast to fiscal year 2019 based on historical growth in corporate income tax revenue.^{xii} The fiscal year 2019 estimate was then forecast to fiscal year 2020 using the Board of Revenue Estimates projection for the corporate income tax. Table B-2 summarizes this calculation.

TABLE B-2. CALCULATION OF FY 2020 REVENUE: COMBINED REPORTING (TAX HAVENS)

YEAR	REVENUE ESTIMATE	CORPORATE INCOME TAX	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
FY 2012	\$27.3 million	\$844.9 million			Public Interest Research Group
FY 2019	\$37.6 million	\$1.2 billion	4.7%	37.9%	State budget: Corporate income tax
FY 2020	\$37.9 million		0.8%	0.8%	BRE: Corporate income tax (see Table A-2)
Notes: Corporate income tax revenue in FY 2012 and FY 2019 is for all funds, as reported in Appendix B of the FY 2019 Fiscal Digest.					

FY 2030 forecast: \$55 million, based on the Board of Revenue Estimates projection for the corporate income tax. Table B-3 summarizes this calculation.

TABLE B-3. CALCULATION OF FY 2030 REVENUE: COMBINED REPORTING (TAX HAVENS)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
FY 2020	FY 2020	\$37.9 million			See Table B-2
FY 2030	FY 2020	\$54.9 million	3.8%	44.7%	BRE: Corporate income tax (see Table A-6)

Throwback Rule

Table B-4 summarizes this revenue estimate.

TABLE B-4. CALCULATION OF FY 2030 REVENUE: THROWBACK RULE

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$60.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$60.2 million	0.8%	0.4%	BRE: Corporate income tax (see Table A-2)
FY 2030	FY 2020	\$87.1 million	3.8%	44.7%	BRE: Corporate income tax (see Table A-6)

Close the Pass-Through Loophole

Base year estimate: MDCEP estimated revenues from a 4 percent entity-level tax on profits in excess of \$1 million of pass-through entities other than sole proprietorships. This estimate is based on data from the IRS and the District of Columbia Office of the Chief Financial Officer, and applies to calendar years 2011 through 2016.

The base estimate was calculated by multiplying estimates of the three components below:

- Tax rate (known)

- Theoretically taxable income: The total Maryland profits in excess of \$1 million of pass-through entities other than sole proprietorships
- Yield rate: The share of theoretically taxable income actually taxed after any deductions, credits, or other tax breaks

Theoretically taxable income was estimated by combining data from two sources:

- IRS data for 2011 through 2016 on the total profits of S-corporations and partnerships reported by Maryland residents^{xiii}
- Detailed IRS data for 2003 on the number and total profits of pass-through entities nationwide disaggregated by gross business receipts^{xiv}

Table B-5 shows the income of Maryland residents from S-corporations and partnerships from 2011 to 2016.

TABLE B-5. PASS-THROUGH INCOME OF MARYLAND RESIDENTS	
CALENDAR YEAR	S-CORPORATIONS AND PARTNERSHIPS
2011	\$9.68 billion
2012	\$11.06 billion
2013	\$10.45 billion
2014	\$11.36 billion
2015	\$12.25 billion
2016	\$12.98 billion
Source: IRS Historic Table 2, 2011–2016.	

The data in Table B-5 differ from theoretically taxable income in two ways. First, these data associate pass-through income with Maryland on the basis of owners' residence rather than the state where a company does business. For example, if a Maryland resident invests in a company whose operations and sales occur entirely in Delaware, part of this company's profits would be improperly included in Maryland pass-through income. Likewise, if a Delaware resident invests in a company whose operations and sales occur entirely in Maryland, part of this company's profits would be improperly excluded from Maryland pass-through income. This could result in an overestimate or underestimate.^{xv} This estimate assumes that this error is zero.

Second, these data include income from companies with less than \$1 million in profits as well as the first \$1 million in profits of larger companies. Detailed IRS data from 2003 were used to estimate the taxable share of S-corporation and partnership income.^{xvi} Table B-6 summarizes the 2003 data.

TABLE B-6. COUNT AND NET INCOME OF PASS-THROUGH COMPANIES BY BUSINESS RECEIPTS CLASS, 2003

BUSINESS RECEIPTS	S-CORPORATION AND PARTNERSHIPS	
	Number Of Companies	Net Income
Less than \$10 million	5.6 million	\$185 billion
\$10 million or more	88,000	\$330 billion
Total	5.7 million	\$515 billion
Source: IRS Statistics of Income Integrated Business Data Table 2.		

To estimate the taxable share of S-corporation and partnership income, it was first assumed that no company with less than \$10 million in business receipts has more than \$1 million in profits.^{xvii} Among companies with \$10 million or more in business receipts, taxable profits are equal to either *Net Income* – \$1 million or \$0, whichever is greater. This means that total taxable profits are at least equal to *Total Net Income* – \$1 million × *Number of Companies*. This gives a lower-bound estimate of taxable profits of \$242 billion, or 47 percent of all S-corporation and partnership profits.

Combining this estimate with the data in Table B-5, it is now possible to estimate theoretically taxable income in 2011 through 2016. Table B-7 summarizes this calculation.

TABLE B-7. THEORETICALLY TAXABLE INCOME OF MARYLAND PASS-THROUGH ENTITIES

CALENDAR YEAR	TOTAL INCOME	THEORETICALLY TAXABLE INCOME
2011	\$9.68 million	\$4.55 billion
2012	\$11.06 million	\$5.20 billion
2013	\$10.45 million	\$4.91 billion
2014	\$11.36 million	\$5.34 billion
2015	\$12.25 million	\$5.76 billion
2016	\$12.98 million	\$6.10 billion
Note: Theoretically taxable income is defined as 47 percent of total income. Excludes income from sole proprietorships.		

The next step is to estimate the yield rate, or the share of theoretically taxable income that will actually be taxed. This was estimated by comparing revenue from the District of Columbia’s unincorporated business franchise tax to IRS data on the total pass-through income of District residents.^{xviii} Table B-8 summarizes this calculation.

**TABLE B-8. DISTRICT OF COLUMBIA UNINCORPORATED BUSINESS
FRANCHISE TAX YIELD RATE**

FISCAL YEAR	REVENUE	TAX RATE	EFFECTIVE TAX BASE	DISTRICT OF COLUMBIA PASS-THROUGH INCOME	YIELD RATE
2012	\$163 million	9.975%	\$1.63 billion	\$3.27 billion	50%
2013	\$154 million	9.975%	\$1.55 billion	\$3.38 billion	46%
2014	\$135 million	9.975%	\$1.36 billion	\$3.29 billion	41%
2015	\$140 million	9.400%	\$1.49 billion	\$3.44 billion	43%
2016	\$169 million	9.200%	\$1.84 billion	\$3.70 billion	50%
				Average:	46%
Sources: District of Columbia Office of the Chief Financial Officer and IRS Historic Table 2. Notes: The effective tax base is defined as revenue divided by the tax rate. District of Columbia Pass-Through Income in fiscal year <i>t</i> is defined as <i>Business or Profession Net Income + Partnership/S-Corp Net Income</i> , averaged between tax years <i>t</i> and <i>t</i> – 1.					

It is now possible to calculate the base year revenue estimate. Table B-9 summarizes this calculation.

TABLE B-9. BASE REVENUE ESTIMATE: CLOSE THE PASS-THROUGH LOOPHOLE

CALENDAR YEAR	S-CORPORATION AND PARTNERSHIP INCOME			REVENUE ESTIMATE
	Total	Theoretically Taxable	Adjusted Taxable	
2011	\$9.68 million	\$4.55 billion	\$2.09 billion	\$83.68 million
2012	\$11.06 million	\$5.20 billion	\$2.39 billion	\$95.67 million
2013	\$10.45 million	\$4.91 billion	\$2.26 billion	\$90.40 million
2014	\$11.36 million	\$5.34 billion	\$2.46 billion	\$98.26 million
2015	\$12.25 million	\$5.76 billion	\$2.65 billion	\$105.91 million
2016	\$12.98 million	\$6.10 billion	\$2.81 billion	\$112.23 million
Note: Theoretically taxable income is defined as 47 percent of total income. Adjusted taxable income is defined as 46 percent of theoretically taxable income. The revenue estimate is equal to 4 percent of adjusted taxable income.				

FY 2020 forecast: The base estimate was forecast to fiscal year 2020 based on projected growth in Maryland personal income. Table B-10 summarizes this calculation.

TABLE B-10. CALCULATION OF FY 2020 REVENUE: CLOSE THE PASS-THROUGH LOOPHOLE

YEAR	REVENUE ESTIMATE	MARYLAND PERSONAL INCOME	SHARE OF PERSONAL INCOME
CY 2011	\$83.68 million	\$305.18 billion	0.0274%
CY 2012	\$95.67 million	\$314.14 billion	0.0305%
CY 2013	\$90.40 million	\$313.19 billion	0.0289%
CY 2014	\$98.26 million	\$324.97 billion	0.0302%
CY 2015	\$105.91 million	\$341.30 billion	0.0310%
CY 2016	\$112.23 million	\$353.88 billion	0.0317%
		Average:	0.0300%
FY 2020	\$124.26 million	\$414.85 billion	0.0300%
Source: Historical Maryland personal income from U.S. Bureau of Economic Analysis. See Table A-3 for derivation of FY 2020 personal income.			

FY 2030 forecast: \$138 million, based on Maryland personal income growth. Table B-11 summarizes this calculation.

TABLE B-11. CALCULATION OF FY 2030 REVENUE: CLOSE THE PASS-THROUGH LOOPHOLE

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
FY 2020	FY 2020	\$124.3 million			See Table B-10
FY 2030	FY 2020	\$138.1 million	1.06%	11.13%	Maryland personal income (see Table A-8)

Eliminate Ineffective Economic Development Subsidies

Base year estimate: MDCEP estimated the revenue gain in fiscal years 2015 through 2018 from eliminating the following economic development subsidy programs:

- Enterprise Zone Tax Credit
- Film Production Activity Tax Credit
- Biotechnology Investment Incentive Tax Credit
- Businesses that Create New Jobs Tax Credit
- One Maryland Economic Development Tax Credit

This estimate is based on data from the Fiscal Year 2018 Tax Expenditure Report published by the Maryland Department of Budget and Management.^{xix} Table B-12 summarizes this estimate.

TABLE B-12. CALCULATION OF BASE ESTIMATE: ELIMINATE INEFFECTIVE ECONOMIC DEVELOPMENT SUBSIDIES

SUBSIDY	HISTORICAL COST			
	FY 2015	FY 2016	FY 2017	FY 2018
Enterprise zone tax credit on corporate income tax	\$0.5 million	\$0.5 million	\$0.5 million	\$0.5 million
Corporate income tax credit for qualified film production entities	\$7.5 million	\$0.0 million	\$11.5 million	\$5.0 million
Enterprise Zone tax credit on personal income taxes	\$0.1 million	\$0.1 million	\$0.3 million	\$0.3 million
Property tax credit for the Urban Enterprise Zone Tax credit	\$13.5 million	\$16.5 million	\$19.7 million	\$22.4 million
Corporate income tax credit for biotechnology investment	\$1.8 million	\$1.8 million	\$1.8 million	\$1.8 million
Individual income tax credit for biotechnology investment	\$10.2 million	\$10.2 million	\$10.2 million	\$10.2 million
Corporate income tax credit for businesses that create new jobs	\$1.0 million	\$1.0 million	\$1.0 million	\$1.0 million
Corporate income tax credit for One Maryland project/startup costs	\$7.0 million	\$7.0 million	\$7.0 million	\$7.0 million
Personal income tax credit for One Maryland project/startup costs	\$1.9 million	\$2.5 million	\$2.5 million	\$2.5 million
Total	\$43.5 million	\$39.6 million	\$54.5 million	\$50.7 million
Source: Maryland Fiscal Year 2018 Tax Expenditure Report.				

FY 2020 forecast: Because the precise cost of these programs in future years is not known, it was assumed that this cost would grow at the same rate as Maryland personal income. Table B-13 summarizes the calculation of the fiscal year 2020 revenue gain under this assumption.

TABLE B-13. CALCULATION OF FY 2020 REVENUE: ELIMINATE INEFFECTIVE ECONOMIC DEVELOPMENT SUBSIDIES

FISCAL YEAR	REVENUE ESTIMATE	MARYLAND PERSONAL INCOME	SHARE OF PERSONAL INCOME
2015	\$43.5 million	\$333.7 billion	0.0130%
2016	\$39.6 million	\$347.0 billion	0.0114%
2017	\$54.5 million	\$361.5 billion	0.0151%
2018	\$50.7 million	\$374.4 billion	0.0135%
		Average:	0.0133%
2020	\$55.0 million	\$414.8 billion	0.0133%
Source: Historical Maryland personal income from U.S. Bureau of Economic Analysis. See Table A-3 for derivation of FY 2020 personal income.			

FY 2030 forecast: \$61 million, based on Maryland personal income growth. Table B-14 summarizes this calculation.

TABLE B-14. CALCULATION OF FY 2030 REVENUE: ELIMINATE INEFFECTIVE ECONOMIC DEVELOPMENT SUBSIDIES

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
FY 2020	FY 2020	\$55.0 million			See Table B-13
FY 2030	FY 2020	\$61.2 million	1.06%	11.13%	Maryland personal income (see Table A-8)

Restore the Millionaire Estate Tax

Base year estimate: \$92 million in calendar year 2019, based on the ITEP Microsimulation Tax Model

FY 2020 forecast: Although the estate tax is an existing state revenue source, it was not possible to estimate fiscal year 2020 revenue using state revenue data because the Board of Revenue Estimates does not separately report projected growth in estate tax revenue. For this reason, the base estimate was instead forecast to fiscal year 2020 based on projected growth in Maryland personal income. This calculation uses the half-year growth estimate for Maryland personal income derived in Table A-3.

FY 2030 forecast: \$104 million, based on Maryland personal income growth. Table B-15 summarizes this calculation.

TABLE B-15. CALCULATION OF FY 2030 REVENUE: RESTORE THE MILLIONAIRE ESTATE TAX

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$92.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$94.0 million	4.35%	2.15%	Maryland personal income (see Table A-3)
FY 2030	FY 2020	\$104.4 million	1.06%	11.13%	Maryland personal income (see Table A-8)

C. Revenue Estimation: Modernize Our Sales Tax

Expand the Sales Tax Base (Excluding Digital Goods)

Base year estimate: \$457 million in tax year 2019 (ITEP Microsimulation Tax Model)

FY 2020 forecast: \$465 million, based on the Board of Revenue Estimates projection for the sales tax.

FY 2030 forecast: \$491 million, based on a hybrid approach combining the Board of Revenue Estimates projection for the sales tax with the CBO projection for personal consumption expenditures.

The board of revenue estimates projects 2.2 percent annual growth in sales tax revenue between fiscal years 2020 and 2024 (–0.4 percent adjusted for inflation). This is considerably slower than expected growth in other revenue sources. Table C-1 summarizes the calculation of fiscal year 2030 revenue from expansion of the sales tax base if it grows according to the Board of Revenue Estimates projection.

TABLE C-1. CALCULATION OF BRE-BASED FY 2030 REVENUE: EXPAND THE SALES TAX BASE (EXCLUDING DIGITAL GOODS)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$457.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$464.6 million	3.4%	1.7%	BRE: Sales and use tax (see Table A-2)
FY 2030	FY 2020	\$446.2 million	–0.4%	–4.0%	BRE: Sales and use tax (see Table A-6)

The slow projected growth in sales tax revenue is due to a combination of slow wage growth, which leads to slow growth in personal consumption, and an ongoing shift in consumption patterns away from taxable forms and toward nontaxable forms.^{xx} Expanding the sales tax base is expected to mitigate the second factor, because some services that are expected to represent an increasing share of personal consumption in future years will be taxable after the expansion.

Under optimistic assumptions, the share of personal consumption subject to the sales tax might remain constant in future years, rather than declining as expected under the status quo. In this scenario, sales tax revenue would grow at the same rate as personal consumption expenditures in future years.

To estimate fiscal year 2030 revenue in this scenario, an estimate of annual inflation-adjusted growth in personal consumption expenditures is needed. This was calculated using the CBO projections of nominal personal consumption expenditures and CPI-U from 2020 to 2028 (the end of the August 2018 CBO Economic Outlook). Table C-2 summarizes this calculation.

TABLE C-2. CALCULATION OF PERSONAL CONSUMPTION EXPENDITURES GROWTH RATE

	FY 2020	FY 2028	CHANGE	
			Total	Annual
Personal Consumption Expenditures (Nominal)	\$15.0 trillion	\$20.6 trillion		
CPI-U	260.1	314.9	21.05%	2.42%
IPD	1.00	0.82	22.39%	2.56%
Personal Consumption Expenditures (2020 \$)	\$15.0 trillion	\$16.9 trillion	12.07%	1.43%
Sources: CBO August 2018 Economic Outlook. Notes: IPD Annual Change is defined as $(1 + \text{CPI-U Change}) \times 1.0014 - 1$. See Table A-5 for derivation. IPD Total Change is defined as $(1 + \text{IPD Annual Change})^8 - 1$. IPD Deflator for 2028 is defined as $(2020 \text{ Value}) / (1 + \text{IPD Total Change})$.				

It is now possible to estimate fiscal year 2030 revenue from expansion of the sales tax base if it grows at the same rate as personal consumption expenditures. Table C-3 summarizes this calculation.

TABLE C-3. CALCULATION OF PCE-BASED FY 2030 REVENUE: EXPAND THE SALES TAX BASE (EXCLUDING DIGITAL GOODS)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$457.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$464.6 million	3.4%	1.7%	BRE: Sales and use tax (see Table A-2)
FY 2030	FY 2020	\$535.7 million	1.4%	15.3%	Personal consumption expenditures (see Table C-2)

Although expansion of the sales tax base is likely to slow the decline in the taxable share of personal consumption expenditures, it may be too optimistic to assume that this decline will stop altogether. Other factors may cause the taxable share to continue declining. For example, nontaxable health care expenditures are expected to rise more quickly than other types of consumption as our population continues to age. For this reason, it is reasonable to assume that sales tax revenue will grow more quickly than under the status quo, but more slowly than growth in personal consumption expenditures.

This report assumes that the new sales tax revenue from base expansion will be halfway between the BRE forecast and a growth path based on personal consumption expenditures. Table C-4 summarizes this calculation.

TABLE C-4. FINAL CALCULATION OF FY 2030 REVENUE: EXPAND THE SALES TAX BASE (EXCLUDING DIGITAL GOODS)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$457.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$464.6 million	3.4%	1.7%	BRE: Sales and use tax (see Table A-2)
FY 2030	FY 2020	\$446.2 million	-0.4%	-4.0%	BRE: Sales and use tax (see Table C-1)
FY 2030	FY 2020	\$535.7 million	1.4%	15.3%	Personal consumption expenditures (see Table C-2)
FY 2030	FY 2020	\$491.0 million	0.6%	5.7%	Average of BRE-based estimate, PCE-based estimate

Expand the Sales Tax Base (Digital Goods)

Base year estimate: \$17 million in calendar year 2011, based on estimates published by the Center on Budget and Policy Priorities.

The Center on Budget and Policy Priorities in 2012 published two estimates of the revenue Maryland would have collected in calendar year 2011 if the state had applied its sales tax to digital goods such as apps and ebooks.^{xxi} If the state had collected sales tax on all sales of digital goods, the revenue yield would have been \$19.9 million. However, the report cited a number of reasons why states may not be able to collect this full amount, including the U.S. Supreme Court's 1992 *Quill* decision preventing states from collecting sales tax on many online purchases. The report estimated revenue of \$13.3 million under a partial collection scenario.

The Supreme Court's 2018 *Wayfair* decision reversed the Court's earlier ruling, allowing states to collect taxes on a larger share of online sales today than they were able to in 2011.^{xxii} For this reason, this report assumes the average of the report's two estimates.

FY 2020 forecast: The base estimate was forecast to calendar year 2019 based on historical growth in sales tax revenue.^{xxiii} The calendar year 2019 estimate was then forecast to fiscal year 2020 using the Board of Revenue Estimates projection for sales tax. Table C-5 summarizes this calculation.

TABLE C-5. CALCULATION OF FY 2020 REVENUE: EXPAND THE SALES TAX BASE (DIGITAL GOODS)

YEAR	REVENUE ESTIMATE	SALES TAX	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
2011	\$16.6 million	\$3.9 billion			Center on Budget and Policy Priorities
2019	\$20.5 million	\$4.8 billion	2.7%	23.4%	State budget: Sales and use tax
FY 2020	\$20.8 million		3.4%	1.7%	BRE: Sales and use tax (see Table A-2)
Notes: Historical sales tax revenue in FY 2011 and FY 2019 is as reported in Appendix B of the Fiscal Digest. Base expansion revenue estimates for 2011 and 2019 are for calendar years, not fiscal years. It is assumed that the growth rate from CY 2011 to CY 2019 is essentially equal to the growth rate from FY 2011 to FY 2019.					

FY 2030 forecast: \$22 million, based on the hybrid approach described in the previous subsection. Table C-6 summarizes this calculation.

TABLE C-6. CALCULATION OF FY 2030 REVENUE: EXPAND THE SALES TAX BASE (DIGITAL GOODS)

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2011	CY 2011	\$16.6 million			Center on Budget and Policy Priorities
FY 2020	FY 2020	\$20.8 million	2.7%	25.5%	See Table C-5
FY 2030	FY 2020	\$20.0 million	-0.4%	-4.0%	BRE: Sales and use tax (see Table A-6)
FY 2030	FY 2020	\$24.0 million	1.4%	15.3%	Personal consumption expenditures (see Table C-2)
FY 2030	FY 2020	\$22.0 million	0.6%	5.7%	Average of BRE-based estimate, PCE-based estimate

Expand Working Family Tax Credits

This report assumes a cost of \$50 million in fiscal year 2030 (FY 2020 \$) as a placeholder for a specific expansion of working family tax credits. This amount is expected to be sufficient to fully offset the impact of sales tax base expansion on the lowest 20 percent of households by income.

D. Revenue Estimation: Strengthen Our Income Tax

Restructure Income Tax Rates

The Institute on Taxation and Economic Policy estimated the revenue in calendar year 2019 from adopting the personal income tax structure shown in Table D-1.

TABLE D-1. REFORMED INCOME TAX STRUCTURE

SINGLE OR MARRIED FILING SEPARATELY		MARRIED OR HEAD OF HOUSEHOLD		MARGINAL TAX RATE
Taxable Income	Base Tax	Taxable Income	Base Tax	
\$0 to \$3,000	\$0.00	\$0 to \$4,500	\$0.00	3.0%
\$3,000 to \$6,000	\$90.00	\$4,500 to \$9,000	\$135.00	3.5%
\$6,000 to \$12,000	\$195.00	\$9,000 to \$18,000	\$292.50	4.0%
\$12,000 to \$24,000	\$435.00	\$18,000 to \$36,000	\$652.50	4.5%
\$24,000 to \$48,000	\$975.00	\$36,000 to \$72,000	\$1,462.50	5.0%
\$48,000 to \$96,000	\$2,175.00	\$72,000 to \$144,000	\$3,262.50	5.5%
\$96,000 to \$192,000	\$4,815.00	\$144,000 to \$288,000	\$7,222.50	6.0%
\$192,000 to \$1 million	\$10,575.00	\$288,000 to \$1 million	\$15,862.50	6.5%
Over \$1 million	\$63,095.00	Over \$1 million	\$62,142.50	7.0%

Note: "Base tax" refers to the tax responsibility of a household at the bottom of a given income bracket. For example, a single filer with \$48,000 taxable income will pay \$2,175 in state income tax. A filer's tax responsibility is equal to *Base Tax + Marginal Tax Rate × (Taxable Income – Bracket Lower Bound)*. For example, a single filer with \$50,000 taxable income would pay \$2,175 + 5.5% × (\$50,000 – \$48,000) = \$2,285. Under the current structure, this filer would pay \$2,322.50.

This estimate was forecast to fiscal year 2030 based on the Board of Revenue Estimates projection for the personal income tax. Table D-2 summarizes this calculation.

TABLE D-2. CALCULATION OF FY 2030 REVENUE: RESTRUCTURE INCOME TAX RATES

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
CY 2019	CY 2019	\$678.0 million			ITEP Microsimulation Tax Model
FY 2020	FY 2020	\$688.7 million	3.2%	1.6%	BRE: Personal income tax (see Table A-2)
FY 2030	FY 2020	\$797.8 million	1.5%	15.8%	BRE: Personal income tax (see Table A-6)

Offset Special Treatment of Capital Gains

Base year estimate: MDCEP estimated the revenue from a 1 percent surtax on capital gains income in calendar years 2012 through 2016, using data from the IRS.^{xxiv} Table D-3 summarizes this calculation.

**TABLE D-3. CALCULATION OF BASE ESTIMATE:
OFFSET SPECIAL TREATMENT OF CAPITAL GAINS**

CALENDAR YEAR	MARYLAND CAPITAL GAINS INCOME	REVENUE ESTIMATE
2012	\$7.9 billion	\$79 million
2013	\$6.6 billion	\$66 million
2014	\$9.5 billion	\$95 million
2015	\$9.6 billion	\$96 million
2016	\$8.6 billion	\$86 million
Source: IRS Statistics of Income Historic Table 2. Note: The revenue estimate is equal to 1 percent of capital gains income.		

FY 2020 forecast: \$106 million, based on Maryland personal income growth. Table D-4 Summarizes this calculation.

**TABLE D-4. CALCULATION OF FY 2020 REVENUE: OFFSET SPECIAL
TREATMENT OF CAPITAL GAINS**

CALENDAR YEAR	REVENUE ESTIMATE	MARYLAND PERSONAL INCOME	SHARE OF PERSONAL INCOME
2012	\$79 million	\$314.1 billion	0.0251%
2013	\$66 million	\$313.2 billion	0.0212%
2014	\$95 million	\$325.0 billion	0.0293%
2015	\$96 million	\$341.3 billion	0.0283%
2016	\$86 million	\$353.9 billion	0.0242%
		Average:	0.0256%
2020	\$106 million	\$414.85 billion	0.0256%
Source: Historical Maryland personal income from U.S. Bureau of Economic Analysis. See Table A-3 for derivation of FY 2020 personal income.			

FY 2030 forecast: \$118 million, based on Maryland personal income growth. Table D-5 summarizes this calculation.

TABLE D-5. CALCULATION OF FY 2030 REVENUE: OFFSET SPECIAL TREATMENT OF CAPITAL GAINS

YEAR	PRICE LEVEL	REVENUE ESTIMATE	CHANGE		SOURCE/GROWTH ASSUMPTION
			Annual	Total	
FY 2020	FY 2020	\$106 million			See Table D-4
FY 2030	FY 2020	\$118 million	1.06%	11.13%	Maryland personal income (see Table A-8)

E. Total Impact

Total Revenue

Table E-1 summarizes the total revenue gain in fiscal year 2030 (FY 2020 \$) from all revenue reform components. The rightmost column of Table E-1 indicates which components are included in the distributional analysis discussed in the next subsection.

TABLE E-1. TOTAL FY 2030 REVENUE GAIN

COMPONENT	REVENUE ESTIMATE	INCLUDED IN DISTRIBUTIONAL ANALYSIS?
Clean Up Our Tax Code		
Combined Reporting (Domestic)	\$116 million	Yes
Combined Reporting (Offshore Tax Havens)	\$55 million	No
Throwback Rule	\$87 million	No
Close Pass-Through Loophole	\$138 million	No
Eliminate Ineffective Economic Development Subsidies	\$61 million	No
Restore Millionaire Estate Tax	\$104 million	Yes
Subtotal	\$562 million	
Modernize Our Sales Tax		
Expand Sales Tax Base (Excluding Digital Goods)	\$491 million	Yes
Expand Sales Tax Base (Digital Goods)	\$22 million	No
Expand Working Family Tax Credits	–\$50 million	No
Subtotal	\$463 million	
Strengthen Our Income Tax		
Restructure Income Tax Rates	\$798 million	Yes
Offset Special Treatment of Capital Gains	\$118 million	No
Subtotal	\$916 million	
Total	\$1.94 billion	\$1.51 billion
Note: All revenue estimates are expressed in FY 2020 dollars.		

Distributional Analysis

Table E-2 summarizes the estimated impact of the revenue plan by income group, based on the ITEP Microsimulation Tax Model. This analysis includes the components indicated in the rightmost column of Table E-1, which together account for more than 75 percent of the total revenue gain.

TABLE E-2. DISTRIBUTIONAL ANALYSIS OF REVENUE REFORM PLAN

	INCOME GROUP						
	Lowest 80%				Top 20%		
	Lowest 20%	Second 20%	Third 20%	Fourth 20%	Next 15%	Next 4%	Top 1%
Minimum Income in Group	\$0	\$30,000	\$52,000	\$79,000	\$140,000	\$283,000	\$626,000
Maximum Income in Group	\$30,000	\$52,000	\$79,000	\$140,000	\$283,000	\$626,000	NA
Average Income in Group	\$16,000	\$40,000	\$64,000	\$106,000	\$197,000	\$395,000	\$1,671,000
Average Tax Change (\$)	+\$15	+\$21	+\$56	+\$185	+\$748	+\$2,000	+\$16,000
Average Tax Change (% of Income)	+0.1%	+0.1%	+0.1%	+0.2%	+0.4%	+0.5%	+0.9%
Share of Resident Revenue Gain	1%	1%	3%	9%	28%	20%	39%
Source: Institute on Taxation and Economic Policy.							

ⁱ Maryland's fiscal year begins July 1 and ends June 30. So, fiscal year 2019 includes quarters 3 and 4 of calendar year 2018 and quarters 1 and 2 of calendar year 2019.

ⁱⁱ For further discussion of the ITEP model, see the ITEP Microsimulation Tax Model Overview at <https://itep.org/itep-tax-model-simple/>. In general, the terms "household," "family," and "Marylander" as used in the body of this report refer to tax units. A household may in fact include multiple tax units, such as unrelated cohabiters who file separately.

ⁱⁱⁱ Although the revenue estimate for the throwback rule is based on the ITEP model, it does not include distributional impacts. Distributional impacts of restoring the millionaire estate tax are not separately reportable.

^{iv} "Report of the Maryland Board of Revenue Estimates on Estimated Maryland Revenues: Fiscal Years Ending June 30, 2019 and June 30, 2020," Maryland Board of Revenue Estimates, 2018, https://finances.marylandtaxes.gov/static_files/revenue/BRE_reports/FY_2019/December_2018_Estimated_Revenues.pdf

^v "Historical and Projected Total Personal Income for Maryland's Jurisdictions," Maryland Department of Planning, 2015, https://planning.maryland.gov/MSDC/Documents/projection/income/TPI_January2015Revisions.pdf

^{vi} This is the price index used by the U.S. Bureau of Economic Analysis to adjust personal income for inflation. Maryland Department of Planning staff confirmed in email correspondence that this is also the appropriate price index for use with Maryland personal income projections.

^{vii} Historical values of the price index are published by the Bureau of Economic Analysis, National Income and Product Accounts Table 2.3.4, https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&nipa_table_list=64&categories=survey. Projected future values are published by the Congressional Budget Office, August 2018 10-Year Economic Projections, <https://www.cbo.gov/about/products/budget-economic-data#4>

Note that the historical series and the CBO forecast are indexed to different years. The historical series is based on 2012 prices, while the CBO forecast is based on 2009 prices. To make these series comparable, the historical series is scaled by dividing by its average value in 2009 and multiplying by 100.

^{viii} Historical values of CPI-U are published by the Bureau of Labor Statistics, <https://www.bls.gov/cpi/data.htm>

Historical values of the Implicit Price Deflator for State and Local Government are published by the Bureau of Economic Analysis, National Income and Product Accounts Table 3.9.4,

https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&nipa_table_list=97&categories=survey

^{ix} These analytical choices necessarily reflect assumptions about how Maryland's economy will evolve over the next 11 years. Specifically, forecasts based on Maryland personal income growth assume that our economy will grow "uniformly," with all parts of the economy growing at the same rate. In reality, some parts of the economy will likely grow faster than others. Of particular concern is the future path of income inequality. If income continues to become more concentrated in the hands of a few in future years—as it has over the last several decades—most revenue reforms proposed in this report will generate more revenue than estimated here. On the other hand, if future economic growth is more widely shared, the revenue yield may be lower than expected. However, more widely shared growth may increase revenue from other sources, such as higher sales tax revenue if faster wage growth improves working families' purchasing power.

^x Note that, as indicated in Table A-8, this calculation is performed using calendar years rather than fiscal years. While the *level* of personal income in 2020 and 2030 would be slightly lower if the calculation instead used fiscal years, it is assumed here that the *percentage change* during the period is essentially unaffected by a six-month shift in the period's start and end dates.

^{xi} Phineas Baxandall, Dan Smith, Tom Van Heeke, and Benjamin Davis, "Closing the Billion Dollar Loophole: How States Are Reclaiming Revenue Lost to Offshore Tax Havens," U.S. PIRG, 2014,

<https://uspirg.org/sites/pirg/files/reports/Closing%20the%20Billion%20Dollar%20Loophole%20Web%20vUS%20041414.pdf>

^{xii} Fiscal year 2012 and 2019 corporate income tax revenue data are from Appendix B of the state fiscal digest,

<https://dbm.maryland.gov/budget/Pages/operbudget/historical-operbud-docs.aspx>

Note that these are estimates as of the time the General Assembly adopted the state budget. Published data on actual all-funds corporate income tax revenue do not exist.

^{xiii} IRS Statistics of Income Historic Table 2, <https://www.irs.gov/statistics/soi-tax-stats-historic-table-2>

^{xiv} IRS Statistics of Income Integrated Business Data Table 2, <https://www.irs.gov/statistics/soi-tax-stats-integrated-business-data>

See endnote xvi for discussion of the validity of these data.

^{xv} Nationwide, these errors cancel out, since all income improperly added to one state is improperly subtracted from another.

^{xvi} The pass-through landscape has undoubtedly changed since 2003. However, more recent (though less detailed) IRS data suggest that the 2003 data are reasonable for the purpose of this estimate. From 2003 to 2010, the share of corporations (including both C-corporations and S-corporations) with at least \$1 million in gross receipts increased slightly, from 18.2 percent to 18.4 percent. During the same period, S-corporations increased from 61.9 percent of all corporations to 72.0 percent. From 2003 to 2015, the share of partnerships with at least \$1 million in receipts increased from 7.3 percent to 8.7 percent. Data on corporations are not available for 2015. While not directly comparable, these data suggest that relatively large businesses have likely represented a stable or increasing share of pass-through entities since 2003.

IRS Statistics of Income Historic Table 12, <https://www.irs.gov/statistics/soi-tax-stats-historic-table-12>

^{xvii} While this is almost certainly false, it is likely that relatively few companies with under \$10 million in business receipts have more than \$1 million in profits. These companies have average profits of only \$33,000. This assumption biases downward the revenue estimate presented here.

^{xviii} The District of Columbia levies an unincorporated business franchise tax on most S-corporations, partnerships, and sole proprietorships. The current tax rate is 8.25 percent of net income. This tax was used to estimate the yield rate because it is a nearby example of a state or local tax on the net income of pass-through businesses.

Tax revenue data is from the District of Columbia Office of the Chief Financial Officer, Annual Operating Budget and Capital Plan Archives, <https://cfo.dc.gov/node/292242>

Pass-through income of District residents is from IRS Statistics of Income Historic Table 2, <https://www.irs.gov/statistics/soi-tax-stats-historic-table-2>

^{xix} "Maryland Tax Expenditures Report: Fiscal Year 2018," Maryland Department of Budget and Management, 2017,

<https://dbm.maryland.gov/budget/Documents/operbudget/FiscalYear2018Tax%20ExpenditureReport.pdf>

^{xx} Maryland Board of Revenue Estimates, 2018.

^{xxi} Michael Mazerov, "States Should Embrace 21st Century Economy by Extending Sales Taxes to Digital Goods and Services," Center on Budget and Policy Priorities, 2012, <https://www.cbpp.org/sites/default/files/atoms/files/12-13-12sfp.pdf>

^{xxii} Adam Liptak, Ben Casselman, and Julie Creswell, "Supreme Court Widens Reach of Sales Tax for Online Retailers," *The New York Times*, June 21, 2018, <https://www.nytimes.com/2018/06/21/us/politics/supreme-court-sales-taxes-internet-merchants.html>

^{xxiii} Fiscal year 2011 and 2019 sales tax revenue data are from Appendix B of the state fiscal digest,

<https://dbm.maryland.gov/budget/Pages/operbudget/historical-operbud-docs.aspx>

Note: Base expansion revenue estimates for 2011 and 2019 are for calendar years, not fiscal years. It is assumed that the growth rate from CY 2011 to CY 2019 is essentially equal to the growth rate from FY 2011 to FY 2019.

^{xxiv} IRS Statistics of Income Historic Table 2, <https://www.irs.gov/statistics/soi-tax-stats-historic-table-2>