Model Review: Corporate Income/Net Receipts Tax Microsimulation Model

Date	April 12, 2021
Contact	Research and Fiscal Analysis Division (RFA) Analyst: Preston Brashers; prestonb@dor.wa.gov; (360) 534-1473 Manager: Valerie Torres; valeriet@dor.wa.gov; (360) 534-1521
Model Purpose	Estimate the potential revenue impacts of Washington implementing a corporate income/net receipts tax, including: • Tax rates needed to achieve selected revenue targets; • Tax rates needed to replace the revenues from certain existing taxes; and • Revenues generated from the tax in the 2017-19 biennium if it had been implemented as described in Gates (2002) study.[1] The corporate microsimulation model will provide greater flexibility than the previously developed model for the CINR tax, which used a macro approach.
Data Sources	The key data sources include: • 2016-18 tax year Internal Revenue Service (IRS) microdata for federal business tax returns;[2] ○ Form 1120 (C-Corps); and • Washington State Department of Revenue (DOR) Excise Tax[3] Data.
Requirements Model Used to Fulfill	Refer to "Model Review: Corporate Income/Net Receipts Tax (Macro Model)."[4]

[1] Hereafter, Gates (2002) study refers to: Gates, W.H. (2002): Tax alternatives for Washington State. Washington State Tax Structure Study Committee. (https://dor.wa.gov/about/statistics-reports/tax-structure-final-report).

[2] Federal business tax return data is limited to companies with Washington nexus.

[3] Primarily business and occupation (B&O) tax data.

[4] https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/Misc/TechAdvisoryGroup/ModelReviewCorpIncomeNetReceiptsTaxMacroModel.pdf

Table of Contents

Recap of Macro Model and Overview of Key Findings

Recap of Macro Model

As summarized in the Tax Structure Work Group (TSWG) preliminary report, the corporate income/net receipts (CINR) tax model that was previously developed used a macro approach (the CINR macro model) because microdata for the 2018 U.S. tax year was, at the time, unavailable. Furthermore, since the U.S. corporate tax structure underwent major changes with the passage of the Tax Cuts and Jobs Act (TCJA) on December 22, 2017, the 2017 microdata was less reliable as a base for predicting subsequent years' tax bases.

The CINR macro model first estimated aggregate U.S. taxable income for 2017-2019 and then estimated the share of such federal taxable income that would be apportioned to Washington.[5] To estimate 2017-2019 federal taxable income, the CINR macro model primarily relied on:

- 2016 IRS Statistics of Income (SOI) Form 1120 aggregate line item data
    - Grown by quarter using Bureau of Economic Analysis (BEA) before-tax corporate profit statistic, and
- Adjusted to account for TCJA effects using the Joint Committee on Taxation's (JCT) estimates of the budget impacts of each individual TCJA reform.

In all tax years except for U.S. tax year 2018, the CINR macro model yielded predictions of federal corporate taxes that aligned well with actual collections reported by the U.S. Treasury. For 2018, the CINR macro model overestimated U.S. corporate tax revenues compared to actual.

What explains 2018 collections falling below the model's estimates? Data reported by the U.S. Treasury showed that in the U.S. fiscal years (FY) 2017, 2018, and 2019, corporate tax collections were $292.7 billion, $201.7 billion, and $224.6 billion, respectively. The reduction in the corporate tax rate from 35 percent to 21 percent accounts for much of the collections decline in tax year 2018. The model captured this. JCT estimates also projected significant new corporate income tax revenue in 2018 from a transition tax known as a deemed repatriation tax.[6] The CINR macro model accounted for the JCT's estimates of deemed repatriation, but did revenues from deemed repatriations not materialize to the extent JCT expected in 2018? Alternatively, was taxable income down in 2018 relative to expectations?[7] Neither explanation now appears to be the main cause of the discrepancy between predicted corporate taxes in the CINR macro model and actual U.S. collections in 2018.

Overview of Key Findings

Corporate income tax microdata, broken down by taxpayers' filing quarter, suggest that the CINR macro model's reconciliation with actual collections data should have accounted for year-end tax planning in late 2017. Anticipating a substantial drop in marginal tax rates between 2017 and 2018, in late 2017 taxpayers had an incentive to defer income or accelerate deductions in 2017 to reduce their overall tax burden. Since the

[5] The apportionment steps are not relevant for the current discussion.
[6] This is a tax on previously untaxed foreign profits earned between 1986 and 2017.
[7] To reconcile the CINR macro model with actual collections, it was assumed that 50 percent of the unexplained amount was from a misestimate of taxable income and the other 50 percent was from a misestimate of deemed repatriation or other factors outside of taxable income.

fourth quarter (Q4) of 2017 falls in U.S. FY 2018,[8] most of the effect of 2017 tax planning shows up in the FY 2018 collections data.

If taxpayers with a Q4 2017 fiscal year end deferred taxable income and had a transitory reduction of taxable income in 2017, their Q4 2018 tax filing should show a transitory *increase* in taxable income as companies allow previously deferred taxable income to "catch up." Strikingly, the taxable income of Q4 filers was *down* 24 percent between 2016 and 2017, but *up* 67 percent between 2016 and 2018. This is cause for concern if considering the unadjusted 2018 microdata as a base for forecasting subsequent years' tax bases. This discussion paper ultimately proposes an approach to adjust for such transitory elements in the 2018 data.

First, this paper begins by summarizing the data and briefly describing the construction of the model. Then, it provides a basic framework for considering tax-planning incentives in 2017 and 2018. Next, it shows the effect of tax planning in the data and shows how this tax planning insight helps reconcile the findings of the CINR microsimulation model and the CINR macro model. Next, it provides a tentative summary of the 2016-2018 microdata and basic model findings for these years. Next, it proposes a methodology for modeling future data, including an adjustment for the transitory elements present in the 2018 data because of tax planning. Finally, it concludes by raising other potential issues and questions.

Data and Model Construction

About the Data

The primary microdata sets used for the CINR microsimulation model are:

- IRS microdata for federal business tax returns of companies identified as having Washington nexus from
  - Form 1120 (C-Corps)
- DOR excise tax data

IRS microdata

The IRS microdata for corporations is currently available through the FY 2018 tax filing. The IRS provides DOR with the BMF-BRTF table, which contains most line items from page 1 of Form 1120 and limited information from additional forms and schedules.

Because we use two separate extract years to form our datasets, summary statistics from our data may differ noticeably from statistics produced with a different data extraction method. Importantly, the IRS Statistics of Income division uses other methods to form single-tax year datasets. For more details on the source data, refer to "Model Review: Business Value Added Tax or Margins Tax Model," (the VAT/MT Model Review Document).[9]

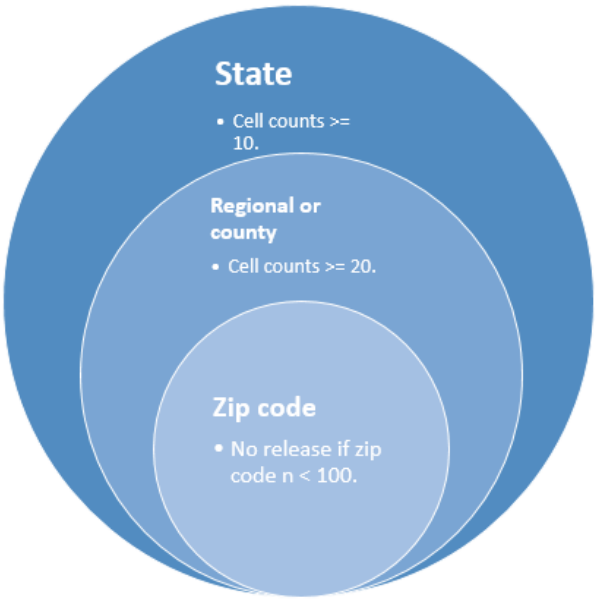
IRS Disclosure Rules: To maintain the confidentiality of taxpayer information, the IRS imposes strict requirements regarding the release of information obtained from these datasets. IRS guidance states "tabulations that would pertain to specifically identified taxpayers or that would tend to identify a particular

[8] U.S. FY 2018 began October 1, 2017 and ended September 30, 2018.
[9] https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/Misc/TechAdvisoryGroup/Model-Review-Value-Added-Tax-Margins-Tax.pdf

taxpayer, either directly or indirectly, may not be released."[10] To comply with this requirement, we do the following:

- Release only tables with cell counts that exceed IRS minimums (Figure 1).
- Avoid disclosure of summary statistics that pertain to a single taxpayer (e.g. median, minimum, and maximum).
- Avoid releasing table cells displaying a sum or other statistic in which a single taxpayer's share of the total is 80 percent or more.

Figure 1: IRS disclosure requirements



For additional details on IRS disclosure rules, refer to the VAT/MT Model Review Document.

Department of Revenue Data

DOR excise tax data includes information on the tax bases and tax payments of businesses and others paying Washington taxes. Major excise taxes include the B&O tax, sales and use tax, and the public utility tax (PUT).

Excise tax tables report the amounts of gross receipts, taxable income, and tax due. Other tables list deductions and credits. Finally, detailed taxpayer information, such as FEIN, NAICS, and account opening dates, is presented in other tables. DOR's RFA division produces these datasets and regularly tests their validity.

IRS microdata provides taxpayers' total federal income and deductions, while DOR's gross income and taxable income data relate only to the taxpayers' Washington-apportioned income. For the CINR microsimulation model, to estimate corporations' Washington apportionment under a CINR tax, we relied on the ratio of:

- B&O gross income[11] less B&O deductions for out-of-state sales and out-of-state freight, divided by
- IRS gross receipts.

For additional details on DOR data, refer to the VAT/MT Model Review Document.

Model Construction

The model construction largely follows the initial steps described in the VAT/MT Model Review Document with a few differences.[12] This section briefly summarizes those steps and highlights a few differences compared to the VAT/MT model. For additional details, refer to the VAT/MT Model Review Document.

[10] Internal Revenue Service (2016). Publication 1075: Tax information security guidelines for federal, state and local agencies. (https://www.irs.gov/pub/irs-pdf/p1075.pdf).
[11] Includes PUT tax where applicable.
[12] https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/Misc/TechAdvisoryGroup/Model-Review-Value-Added-Tax-Margins-Tax.pdf

IRS Microdata

We collected the IRS variables shown in ***Table 1*** for taxpayers with Washington nexus filing a Form 1120, in tax years 2016-2018.

Table 1: Variables from Form 1120

Identifiers/General	Income	Deductions / Costs
• FEIN • Name Variable(s) • Tax Year • Fiscal Month • City • Address • Zip Code • State • Consolidation • Parent Name/FEIN • NAICS	• Gross Receipts/Sales • Net Receipts (Gross Receipts Less Returns) • Dividends • Interest Income • Gross Royalties • Net Gain – Form 4797 • Other Income • Total Income	• Cost of Goods Sold • Compensation of Officers • Salaries & Wages • Repairs & Maintenance • Bad Debt • Interest Deductions • Net Depreciation • Depletion • Advertising Expenses • Pension/Profit Sharing/ Employee Benefits • Other Deductions • Total Deductions

Department of Revenue B&O Data

We used 2015-2018 DOR B&O data to match taxpayers' Washington-apportioned B&O gross income (minus out-of-state sales and out-of-state freight deductions) to gross receipts in the IRS microdata. Note, the key B&O quantitative variable used to determine apportionment in this model is gross receipts (less out-of-state), whereas the key B&O quantitative variable in the VAT/MT model was taxable income. An underlying assumption in the VAT/MT models was that those taxes would simply layer on additional deductions over the top of the existing B&O tax base. Therefore, B&O taxable income was the relevant starting point for the tax base. That is not the case for the CINR tax. Following Gates (2002) as well as other states' precedents, the likely starting point of a CINR tax base is IRS Form 1120 taxable income (Line 30), with apportionment applied. B&O gross income (less out-of-state deductions) and IRS gross receipts are the broadest, most easily comparable measures of in-state vs. out-of-state sales. The ratio of the two measures reasonably approximates

Washington apportionment under a destination-based CINR tax. The variables B&O variables used for matching to IRS microdata (identifiers) and the quantitative variables are summarized in ***Table 2***.

Table 2: Department of Revenue variables for matching Washington-apportioned gross receipts to IRS microdata (quarterly data, 2015-2018)

Taxpayer Identifier / General	Quantitative Variables
• Washington Account ID • FEIN • Name Variable(s) • Address • City • County • Zip Code • State • NAICS • Customer Type (e.g., corporation, individual, municipality, non-profit)	• Gross Income • Deduction for Out-of-State Sales • Deduction for Out-of-State Freight [We summed across all B&O and PUT line codes for a given taxpayer in a given quarter.]

To ensure matching with the 2016-2018 IRS microdata (which may have a fiscal year end in any month of the tax year), we pulled B&O data for each quarter in calendar year 2015 and 2018.

Matching Process

We matched taxpayer records between the IRS microdata and the B&O tax data using the same process described in Step 2 of the VAT/MT Model Review Document. That matching process occurred in three iterations:

- First, we matched B&O and IRS records by FEIN, where possible;
- Then, we matched B&O and IRS records of the large B&O accounts, including subsidiaries where possible, based on company names and matching address information;[13]
- Then by applying a broader name matching process to seek additional matches among all remaining unmatched records. This step ignored minor differences in names (e.g., "THE", "INC" vs "INCORPORATED") and assumed unique matches were positive matches.

In addition, we dealt with unmatched taxpayers in a similar manner as in the VAT/MT Review Document. Essentially, in this step, we matched "leftover" B&O gross income to "leftover" IRS gross receipts within geographic/industry groups, with the same apportionment percentage assumed for each taxpayer within a group.

[13] This relied on public information of parent-subsidiary relationships.

Refer to the VAT/MT Model Review Document for details on the matching process.

Calculation of Apportionment and Washington Taxable Income

B&O Gross Income (less out-of-state sales and out-of-state freight) is used to calculate and assign apportionment percentages to the IRS microdata. We calculated the apportionment percentage of each taxpayer based on the ratio of their B&O gross income to their IRS gross receipts.[14]

Equation 1: Washington Apportionment

$$WA\_Apportion\% = \frac{B\&O\_Gross\_Income\,(Except\ Out\ of\ State)}{IRS\_Gross\_Receipts}$$

We used this apportionment percentage to scale down the taxpayer's federal tax return data to represent the portion of the federal return that is attributable to Washington.

We calculated taxable income, following Form 1120, as:

$$Taxable\_Income_{Wa} = WA\_Apportion\% \times (Total_{Income_{1120}} - Total_{Deductions_{1120}} - NOLs_{1120} - Special\_Deductions_{1120})$$

Where:

- Total Income = Gross Receipts – Returns & Allowances – COGS + Dividends + Interest Income + Gross Rent + Gross Royalties + Capital Gains + Net Gain 4797 + Other Income
- Total Deductions = Compensation of Officers + Salaries & Wages + Repairs & Maintenance + Bad Debt + Rents + Taxes & Licenses + Interest Deductions + Charitable Contributions + Depreciation + Depletion + Advertising + Pension Plans + Benefits Plans + Other Deductions

Tax Planning Framework

Taxpayers may engage in year-end tax planning if they can anticipate a future reduction (or increase) in a tax and if they have the means to shift taxable activity from a high-tax period to a low-tax period. Taxpayers can more easily shift taxable activity between periods under certain types of taxes.

Under a corporate income tax, corporations can shift taxable income between periods relatively easily. Consider a corporation with $100 million of gross receipts and $95 million of deductible expenses. Such a company has $5 million of taxable income under a corporate income tax. Anticipating a tax cut the next year, suppose the company identifies $1 million of income that it can defer until the following year. Although the company only deferred 1 percent of its annual gross receipts, it reduced its taxable income in the high-tax year

[14] In a few instances, the computed Washington apportionment percentage is greater than 100%. Such a case is not impossible, but to avoid unintentionally magnifying extreme outliers' results, we capped Washington apportionment at 100%. To the extent this creates bias, it would reduce our estimates of Washington income.

by 20 percent. Contrast that with a gross receipts tax, where deferring $1 million of income would only reduce the company's taxable income by 1 percent. Under a corporate income tax, taxpayers may also accelerate deductions (e.g., moving forward capital investments, year-end bonuses, or charitable contributions) to take advantage of more favorable future taxes.

Information and time are also important factors in whether and to what extent taxpayers engage in tax planning. The more certain taxpayers are of a future tax change and the more time they have to react, the more apt they are to engage in tax planning. TCJA provided corporations with a year-end tax planning opportunity in 2017. However, given the timing of the tax reform debate, information and uncertainty likely limited the extent of many corporations' responses.

The Tax Cuts and Jobs Act

On December 22, 2017, President Trump signed TCJA into law, with the most sweeping changes to U.S. corporate taxes since at least 1986. TCJA reduced the top U.S. corporate income tax rate from 35 percent to a flat 21 percent beginning in 2018 and shifted the U.S. from a worldwide corporate tax system toward a primarily territorial system. Although candidate Trump had campaigned on a proposed corporate tax cut (to 15 percent), significant uncertainty had remained through much of 2017 about whether a tax cut would pass and go into effect before 2018, and if it did, what exactly it would entail.

Table 3: Timeline of events leading to passage of Tax Cuts and Jobs Act

Event	Date
Candidate Trump proposes cutting corporate marginal tax rate to 15%.[15]	September 14, 2016
Donald Trump elected president; Republican party wins House and Senate.	November 8, 2016
Trump Administration releases goals of tax reform, including 15% marginal rate, deemed repatriation tax.[16]	April 26, 2017
Tax reform hearing.[17]	May 18, 2017
Republican leadership releases joint statement on tax reform.[18]	July 27, 2017
Republican leadership releases framework for tax reform.[19]	September 27, 2017
House releases draft of TCJA.[20, 21]	November 2, 2017
Senate releases draft proposal (*with 2019* effective date for reduction in corporate rate).[22]	November 9, 2017
House passes TCJA[23,24]	November 16, 2017
Congressional conference committee releases its final report outlining the compromised version of TCJA.[25]	December 18, 2017
Senate passes compromised version of TCJA. [26]	December 19, 2017
President Trump signs TCJA into law.[27]	December 22, 2017
Most provisions of TCJA go into effect.	January 1, 2018

Between Trump's election in November 2016 and August 2017, information about the shape and likelihood of tax reform slowly trickled in. Then, on September 27, 2017, Republican leadership released a broad framework on tax reform that included many elements of the final package: a reduction of the corporate tax rate to 20 percent (later increased to 21 percent); bonus depreciation, interest deduction limitation; deemed repatriation; and non-taxation of foreign dividends. Then, on November 2, 2017, Republicans in the House

[15] Donald Trump press release. "Tax Reform That Will Make America Great Again." https://assets.donaldjtrump.com/trump-tax-reform.pdf
[16] Journal of Accountancy. "Trump's Tax Reform Priorities Unveiled," April 26, 2017. https://www.journalofaccountancy.com/news/2017/apr/trump-tax-priorities-tax-reform-201716547.html.
[17] Tax Foundation. "Takeaways from Initial House Ways and Means Tax Reform Hearing," May 19, 2017.
[18] "Joint Statement on Tax Reform," July 27, 2017. https://gop-waysandmeans.house.gov/joint-statement-tax-reform/.
[19] "United Framework for Fixing Our Broken Tax Code," September 27, 2017. https://www.treasury.gov/press-center/press-releases/Documents/Tax-Framework.pdf.
[20] https://www.congress.gov/bill/115th-congress/house-bill/1/actions.
[21] Joint Committee on Taxation. "Description of H.R. 1, the 'Tax Cuts and Jobs Act," November 3, 2017.
[22] Deloitte. "United States Tax Alert: The International Tax Provisions of the Tax Cuts and Jobs Act – Latest Developments," November 13, 2017.
[23] https://www.congress.gov/bill/115th-congress/house-bill/1/actions.
[24] Tax Foundation. "The House Takes a Big Step Forward on Tax Reform," November 16, 2017.
[25] https://docs.house.gov/billsthisweek/20171218/CRPT-115HRPT-466.pdf?.
[26] https://www.congress.gov/bill/115th-congress/house-bill/1/actions.
[27] https://www.congress.gov/bill/115th-congress/house-bill/1/actions.

released a draft of TCJA that filled in many of the details. The bill then rapidly moved through committee, to the floor of the House and Senate, and then to the President's desk the following month.

Regarding corporate taxation, the November 2, 2017 draft bill closely resembled the version ultimately signed into law. Table 4 compares the November 2 draft with the final TCJA law.

Table 4: Tax Cuts and Jobs Act. Comparison of final TCJA law with 2017 law the initial November 2, 2017 House draft version.

Provision	2017 Law	November 2, 2017 House Draft[28,29,30]	Final TCJA
Corporate tax rate (top)	35%	20%	21%
Tax on deemed repatriation	-	12% or 5%	15.5% or 8%
Business interest deduction limitation	-	30% of adjusted taxable income	30% of adjusted taxable income
Deduction for dividends from foreign corps.	-	✓	✓
Modification of NOL deductions	-	Restricted to 90% of taxable income	Restricted to 80% of taxable income
Anti-abuse rules	-	Alternative anti-abuse rules[31]	Base Erosion Anti-Abuse Tax
Taxation of global intangible low-taxed income	-	✓, 50% inclusion	✓, with 50% deduction
Bonus depreciation	-	✓	✓

Significant uncertainty remained, however, until the final days and weeks of 2017. For example, the initial Senate version of TCJA, released on November 9, 2017, would have reduced the corporate tax rate in 2019 instead of 2018. Had that version become law, the incentive for year-end tax planning would have been pushed back to 2018. Despite some uncertainty, the flow of information over the last three quarters of 2017 generally gave corporations more and more reason to expect a tax cut in 2018. Since corporate tax filers in Q4 2017 were privy to more information and had more time to react to such information than Q3 2017 filers, the expected tax planning response of Q4 filers is higher. Likewise, the expected response of Q3 2017 filers is higher than the expected response of Q2 2017 filers.

Many taxpayers could also anticipate a tax rate reduction between their 2018 and 2019 tax years. Non-calendar year taxpayers did not experience a one-time decrease in their tax rate from 35 percent to 21 percent. Instead, if part of a business's tax year was prior to December 31, 2017 and part was after, the taxpayer faced a blended rate in the 2018 tax year. The blended rate depended on the number of days in the taxpayer's tax year that fell before and after December 31.

[28] Tax Foundation. "Updated Details and Analysis of the 2017 House Tax Cuts and Jobs Act," November 3, 2017.
[29] Joint Committee on Taxation. "Description of H.R. 1, the 'Tax Cuts and Jobs Act," November 3, 2017.
[30] Deloitte. "United States Tax Alert: The International Tax Provisions of the Tax Cuts and Jobs Act – Latest Developments," November 13, 2017.
[31] Changed to Base Erosion Anti-Abuse Tax in Senate version.

Table 5: Top marginal tax rate of corporations on selected fiscal year end dates

Example Fiscal Year End	Quarter	2016	2017	2018	2019
February 15	Q1	35%	35%	33.3%	21%
May 15	Q2	35%	35%	29.8%	21%
August 15	Q3	35%	35%	26.3%	21%
December 31	Q4	35%	35%	21%	21%

Table 5 illustrates that Q1 2018 taxpayers had a large incentive to engage in tax planning. A taxpayer with a February 15 fiscal year end faced a 12.3 percentage point higher marginal tax rate in 2018 than in 2019. In addition, tax filers with a Q1 2018 fiscal year end did not face the same informational and timing constraints as Q4 2017 taxpayers. This arguably made Q1 2018 taxpayers *more* likely to engage in fiscal year-end tax planning than their Q4 2017 counterparts. Similarly, Q2 2018 and Q3 2018 taxpayers could also anticipate a tax cut between 2018 and 2019, albeit somewhat smaller.

Both the size of the tax cuts faced and the dissemination of information about the tax cuts have the same effect. The incentive to engage in tax planning increased over the course of 2017 (likely peaking in Q4 2017 or Q1 2018) before tapering off in 2018. In December 2018, the tax rate reached its floor, leaving most Q4 2018 taxpayer with no incentive to continue deferring income or accelerating deductions.

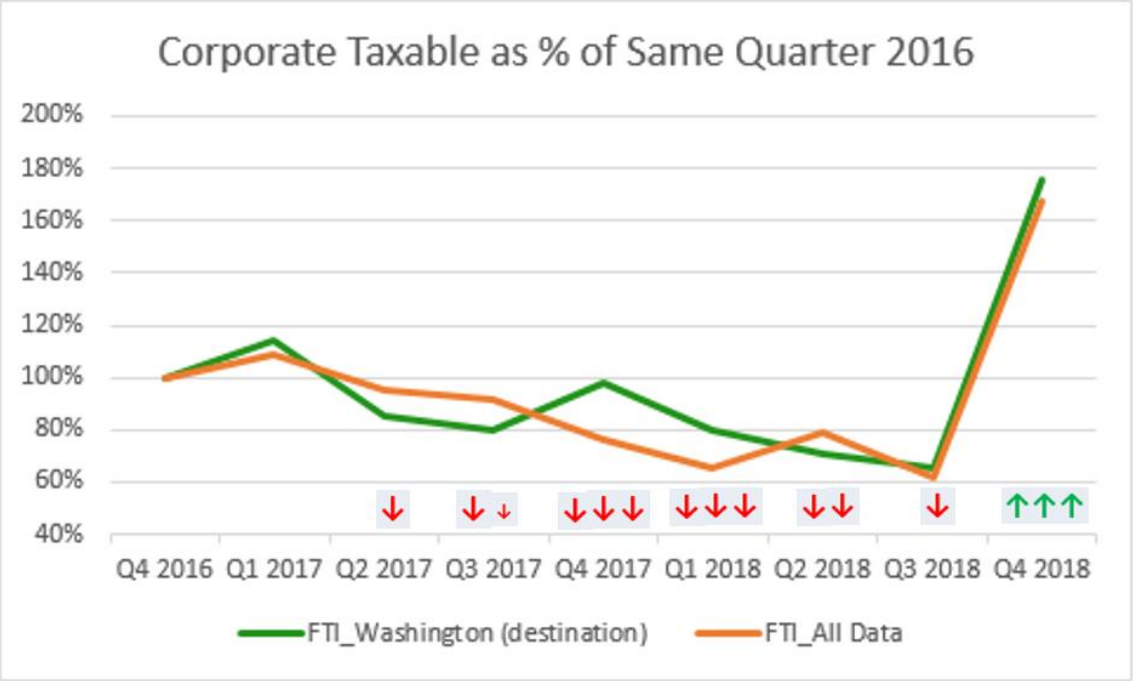
Table 6: Incentive to shift taxable income, by quarter and fiscal year end

Information & Timing – Incentive to Shift Taxable Income			
Tax Filing Quarter	2016	2017	2018
Q1	-	-	↓↓
Q2	-	↓	↓↓
Q3	-	↓	↓↓
Q4	-	↓↓	↑↑
Size of Future Tax Cut – Incentive to Shift Taxable Income			
Tax Filing Quarter	2016	2017	2018
Q1	-	-	↓↓
Q2	-	↓	↓
Q3	-	↓↓	↓
Q4	-	↓↓	↑↑
Combined Incentive to Shift Taxable Income			
Tax Filing Quarter	2016	2017	2018
Q1	-	-	↓↓↓
Q2	-	↓	↓↓
Q3	-	↓↓	↓
Q4	-	↓↓↓	↑↑↑

Tax Planning in the Data

When the corporate microdata is disaggregated by quarter, the trend in taxable income is highly suggestive that tax planning occurred between the second quarter of 2017 and the third quarter of 2018. Figure 2 shows the aggregate amount of taxable income for corporate taxpayers, indexed to aggregate taxable income for the same quarter of 2016. The orange line represents full data, not adjusted for the portion of taxable income that is apportioned to Washington. The green line represents the same for the constructed measure of taxable income apportioned to Washington.

Figure 2: Taxable income by quarter, indexed to 2016 levels for the same quarter



Rather than gradually increasing, the taxable income data (especially the broader measure shown in orange) closely follows the trend suggested by Table 6 (the only exception is in Q3 2018, which falls below the index for Q2 2018).

The apparent effect of tax planning showing up in the 2018 data makes it potentially problematic to use the unadjusted 2018 micro data to predict the corporate tax base in subsequent years. This issue is addressed in the section, *Methodology for Extending Model to 2019 and* Beyond. First, the section below provides some basic summary statistics for the 2016-2018 data, and compares the findings with the CINR macro model.

Data Summary (2016-18) and Comparison with CINR Macro Model

Table 7 provides tentative, high-level summary statistics for the 2016-2018 tax years. These estimates are subject to change as the model continues to be refined. Since the table presents results by year, it masks some of the volatility between quarters shown in Figure 3. The microsimulation model tentatively shows Washington taxable income was lower in 2017 ($20 billion) and higher in 2018 ($31 billion) than the CINR macro model estimated. Overall, the summary statistics (tentatively) do not suggest a dramatically different result than the

CINR model, except in terms of timing.[32] The apparent misalignment of the timing of the data in the CINR macro model likely stems from:

1. Use of U.S. fiscal year data that does not distinguish between, for example Q4 of 2018 and Q1 - Q3 of 2019 data;
2. A failure to account for tax planning; and/or
3. Tax collections exceeding or falling short of tax due in a given period.[33]

Table 7: Tentative preliminary summary statistics, corporate microsimulation model ($ billions), 2016-2018[34]

Washington Amount (Destination-based apport.)	2016	2017	2018
Net Receipts	299	277	368
Cost of Goods Sold	205	189	247
Gross Profit	95	88	121
Other Income[35]	36	33	51
Total Income	131	121	172
Total Deductions	108	99	130
NOLs & Special Deductions	2	2	11
Taxable Income	**21**	**20**	**31**
(***2017-19*** fiscal biennium) CINR Macro Model Taxable Income: **57**			

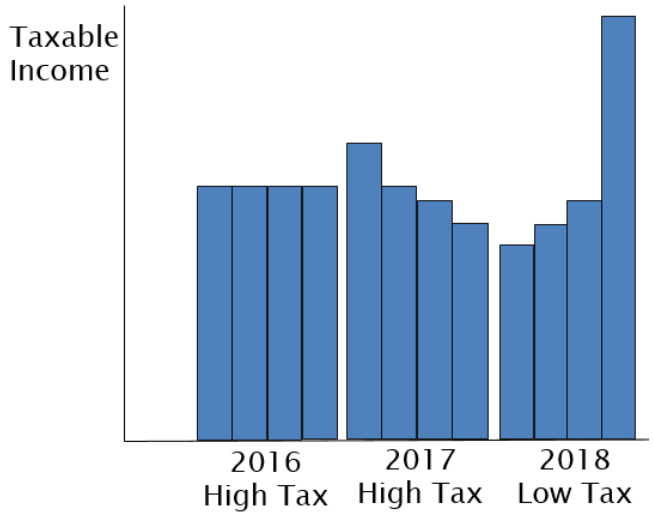
The 2016-2018 results apparently include some transitory effects from tax planning. The section below discusses the identification of these transitory effects to help forecast results for 2019 and beyond. Note that even if such effects are not permanent, they are real. Therefore, the results for 2016-2018 will not be adjusted or changed on their account.

Methodology for Extending Model to 2019 and Beyond

As was shown in Figure 2, corporate taxable income was far from steady from quarter to quarter between 2016 and 2018. Transitory effects of tax planning related to the TCJA tax cuts appear to explain much of this result. If the corporate microsimulation model will use existing data as a base to project future years' data, the presence of transitory effects in the data is potentially problematic (if not accounted for). How can the data be adjusted to project the tax base going forward? This section describe a proposed method to do so.

[32] Preliminary results for 2019 are not yet available, so a direct comparison of the results of the two models for the 2017-2019 fiscal biennium is not yet possible.
[33] Taxpayers may have made any number of decisions
[34] Source: IRS federal taxpayer information, aggregated across Washington corporate taxpayers.
[35] Other Income in this table includes the following Form 1120 income line items: Dividends, Interest Income, Gross Rent, Gross Royalties, Capital Gains, Net Gain 4797, and Other Income.

Figure 3: Stylized depiction of transitory changes to taxable income by quarter (not to scale and ignores permanent differences between quarters)

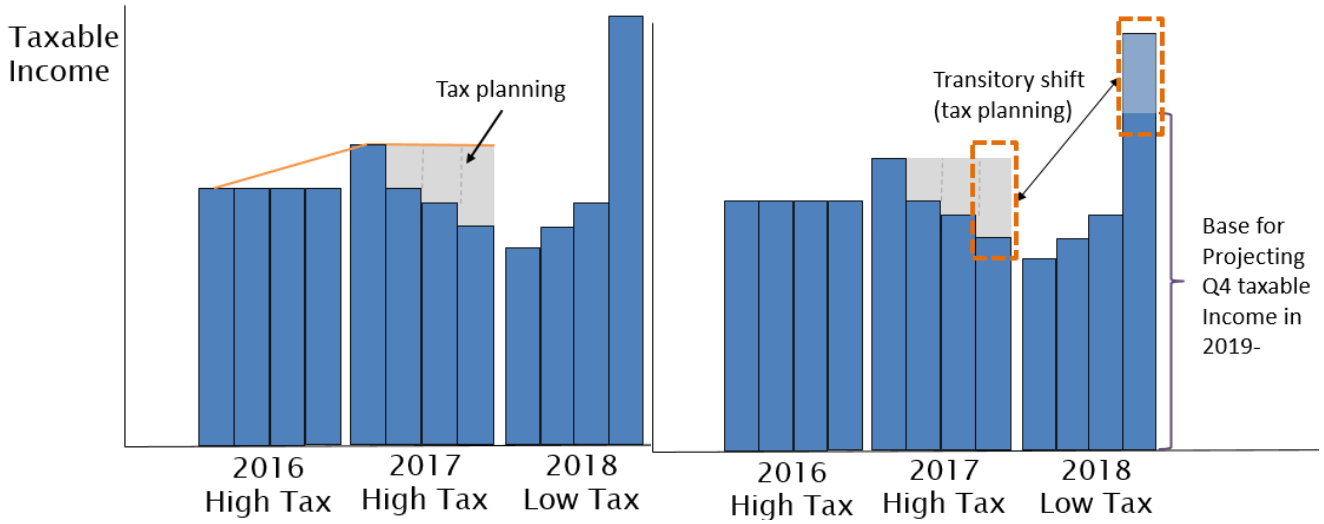


Consider the stylized depiction of the taxable income data in Figure 3. This figure is not to scale and it ignores permanent differences in taxable income across quarters (about 76 percent of taxable income is from corporations with Q4 fiscal year ends.) However, the figure highlights the key themes of the taxable income data in Figure 2. Specifically, it shows the negative growth trend in aggregate taxable income after Q1 2017, some leveling off or slight recovery in mid-2018, followed by a large jump in Q4 2018.

The first step in adjusting this data involves estimating the (negative) transitory element present in the Q4 2017 taxable income. As shown in Figure 4A, this transitory factor can be estimated by assuming the year-over-year (YOY) growth from Q1 2016 to Q1 2017 is the same as the YOY growth from Q4 2016 to Q4 2017 *would have been if not for tax planning*. Inherent is the assumption that tax planning for TCJA was not a major factor affecting Q1 2017 corporate taxpayers' taxable income. This seems reasonable, given that even if Q1 taxpayers could accurately predict the passage of TCJA, they generally only saw about a 1 - 2 percentage point decline in their tax rates between the 2017 tax year and the 2018 tax year. Moreover, there was no dramatic change in general economic conditions between Q1 2017 and Q4 2017. Based on preliminary data, this step then implies that everything below 8.5 percent YOY growth in Q4 2017 is a transitory effect attributable to tax planning. [36]

[36] To determine the size of the adjustments to account for transitory effects, I rely on the full data rather than the data constructed based on estimated Washington apportionment.

Figure 4A (left): Use Q1 2016 - Q1 2017 to identify transitory piece of Q2-Q4 2017 taxable income
Figure 4B (right): Identify transitory piece of Q4 2018 and treat remainder as base for projecting future taxable income



The step illustrated in Figure 4B relies on the assumption that the negative impact of tax planning on taxable income in Q4 of 2017 is offset by an equal and opposite positive impact on taxable income in Q4 of 2018. This reflects taxpayers realizing previously deferred income and having fewer deductions available to claim if they accelerated deductions in Q4 2017. Disregarding the transitory taxable income in Q4 2018 (depicted inside the dashed orange rectangle) leaves the base "permanent taxable income" that can be used to project Q4 taxpayers' taxable income in 2019 and beyond.

The negative transitory effect on taxable income of Q1 - Q3 taxpayers' tax planning (occurring over the two years 2017 and 2018 in the case of Q2 and Q3 taxpayers) appears to be at least as large as the negative transitory effect in Q4 2017. Therefore, a positive transitory effect is foreseeable in Q1-Q3 of 2019 that is at least comparable in size to the positive transitory effect seen in Q4 of 2018.[37] The dashed orange rectangle in Figure 5A shows that the proposed methodology assumes that the transitory effect in Q1-Q3 of 2019 is the same size as the Q4 2018 transitory effect. Ignoring for the moment 2018-2019 YOY growth, Figure 5A illustrates that "permanent taxable income" in Q1-Q3 of 2019 is also assumed to have grown since 2016 at the same rate as the permanent taxable income for Q4 taxpayers between 2016 and 2018.

[37] Notably, Q1-Q3 taxpayers only comprise about 24 percent of taxable income. Insofar as there is uncertainty about the size of the transitory impact on taxable income for these taxpayers, it affects a relatively small portion of the data.

Figure 5A (left): Use Q4 2016 - Q4 2018 aggregate taxable income growth to identify growth from Q1-Q3 2016 to Q1-Q3 2019
Figure 5B (right): Factor in 2018-2019 growth using Bureau of Economic Analysis's before-tax corporate profit statistic

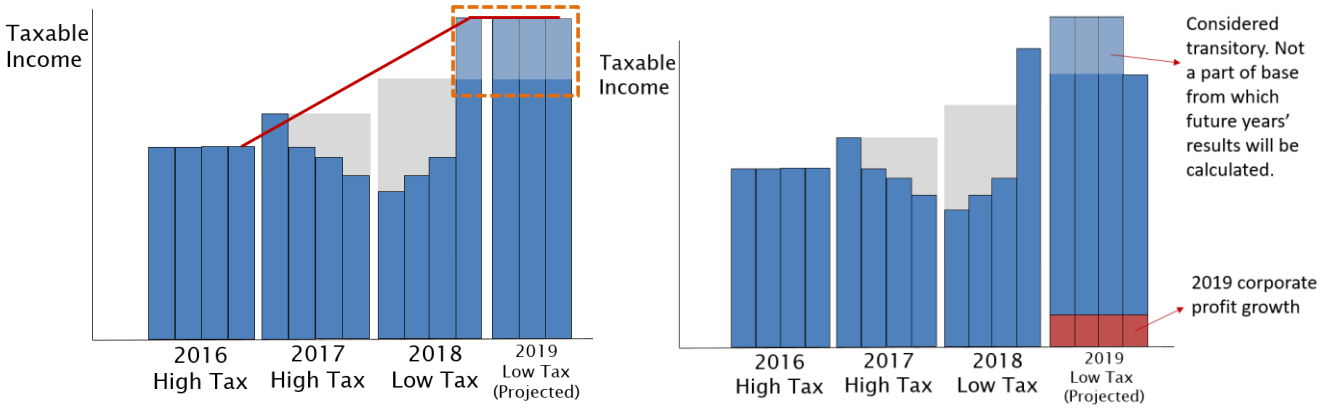


Figure 5B simply illustrates the inclusion of the BEA's 2019 before-tax corporate profit[38] growth (relative to 2018) in the construction of the 2019 tax base. Similarly, the BEA before-tax corporate profit growth statistic and forecast will be used to project the growth of the corporate tax base through 2025. In addition, we will use the JCT estimates of the evolving impacts of the TCJA reforms to make adjustments to account for certain provisions where the impact on taxable income is expected to be different post-2018 than in tax year 2018. For example, TCJA changes to bonus depreciation, NOL deductions, the interest deduction limitation, and amortization of R&D expenses are a few provisions where the budget impact differs significantly by year.

We will calculate future quarterly growth in taxable income described above based on aggregate data. We will then apply the adjustment at the micro level as an equal across-the-board increase (or decrease) in all taxpayers' taxable income categories.[39]

Other Issues

State-Specific Growth Adjustments

The BEA's before-tax corporate profit statistic is a national measure. **Is there a similar Washington-specific measure with forecasts available? If not, should the BEA before-tax corporate profit statistic be adjusted in some manner to account for differences in expected growth of Washington corporate income compared to national corporate income?**

Impacts of COVID and Stimulus Packages

Just as the events of 2017-2018 presented complications for projecting corporate taxes in future years, the events of 2020 and early 2021 present their own significant challenges. The COVID-19 pandemic and the associated governmental responses (including both restrictions and fiscal responses) had incomparable impacts on many businesses. **Is the BEA's before-tax corporate profit statistic a reasonable proxy to capture**

[38] Bureau of Economic Analysis statistic.
[39] A possible refinement of this method would adjust various line items differently, depending on whether tax planning is applicable.

changes in taxable income occurring or forecast in 2020 and 2021, in light of these extraordinary circumstances?

US FY 2021 IRS corporate tax collections is available. This information could serve as a sanity check to ensure the reasonableness of the CINR microsimulation model's results. However, given widely varying changes across geographies and industries in 2020 and 2021, it is not clear that a comparison with would be very meaningful.

Possibility of Corporate Tax Increase

Corporate tax increases are a possibility with a Joe Biden Presidency and Democratic control of the House and Senate. President Biden has spoken of a partial rollback of TCJA, with a proposed top marginal rate of 28 percent, among other changes. With no Democrat votes to spare in the Senate and only a few in the House, it is by no means certain. If a corporate tax increase passes, we will likely need to adapt the model according to federal budget impact estimates. Given a high level of subjectivity and uncertainty about future tax planning, we would not intend to adjust the model for any tax planning that may occur because of such proposals.

Impact of Tax Planning on Value Added Tax/Margins Tax Models

The tax planning effect discussed in this paper also affects the VAT and margins tax models. By its nature, taxable income under a VAT or margins tax is less sensitive to year-end federal corporate tax planning than CINR taxable income is. Nonetheless, adjustments to the future tax bases in the VAT/margins tax models are also warranted (time permitting).

Appendix A: References

Deloitte (November 2017). *United States Tax Alert: The International Tax Provisions of the Tax Cuts and Jobs Act – Latest Developments*.

Donald Trump Press Release (September 2016). *Tax Reform That Will Make America Great Again.* https://assets.donaldjtrump.com/trump-tax-reform.pdf.

Gates, W.H. (2002): *Tax alternatives for Washington State*. Washington State Tax Structure Study Committee. (https://dor.wa.gov/about/statistics-reports/tax-structure-final-report).

Internal Revenue Service (2017-2020): *Business Master File (BMF) and Business Return Transaction File (BRTF) Extracts Specification Book: Extract Year (EY) 2017-2020*.

Internal Revenue Service (2019): *Internal Revenue Service Data Book 2019.* Publication 55b. https://www.irs.gov/pub/irs-pdf/p55b.pdf.

IRS Statistics of Income Division (November 2019). *SOI Tax Stats. Corporation Income Tax Returns. Returns of Active Corporations: Table 3.3: Selected Balance Sheet, Income Statement, and Tax Items, by Size of Business Receipts – 2015.* https://www.irs.gov/statistics/soi-tax-stats-corporation-complete-report.

IRS Statistics of Income Division (2015). *SOI Tax Stats. Corporation Income Tax Returns, Line Item Estimates (2008-2015). Publication 16.* https://www.irs.gov/statistics/soi-tax-stats-corporation-income-tax-returns-line-item-estimates.

Joint Committee on Taxation (November 2017). *Description of H.R. 1, the 'Tax Cuts and Jobs Act, November 3, 2 017.*

Journal of Accountancy (April 2017). *Trump's Tax Reform Priorities Unveiled*. https://www.journalofaccountancy.com/news/2017/apr/trump-tax-priorities-tax-reform-201716547.html.

Tax Foundation. (November 2017). *The House Takes a Big Step Forward on Tax Reform*.

Tax Foundation. (November 2017). *Updated Details and Analysis of the 2017 House Tax Cuts and Jobs Act*.

Tax Foundation. (May 2017). *Takeaways from Initial House Ways and Means Tax Reform Hearing*.

U.S. Congress. *Actions on House Resolution 1, 115th Congress*. https://www.congress.gov/bill/115th-congress/house-bill/1/actions.

U.S. House of Representatives. (December 2017). *Tax Cuts and Jobs Act*, *Conference Report*. https://docs.house.gov/billsthisweek/20171218/CRPT-115HRPT-466.pdf?.

U.S. House of Representatives, Ways and Means Committee. (July 2017). *Joint Statement on Tax Reform*. https://gop-waysandmeans.house.gov/joint-statement-tax-reform/.

U.S. Department of Treasury. (September 2017). *United Framework for Fixing Our Broken Tax Code*. https://www.treasury.gov/press-center/press-releases/Documents/Tax-Framework.pdf.

Washington State Legislature (2018): *House Tax Structure Work Group Final Report.* House report (2018). https://app.leg.wa.gov/committeeschedules/Home/Document/186393.