



*"Working together to
fund Washington's future"*

Value Added Tax - Margins Tax Model

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Presentation Preview



Background

Assignment

Estimate the potential revenue impacts of Washington implementing:

- A subtraction method value added tax (VAT);¹ or
- A margins tax.²

Identify for 2017-19 fiscal biennium:

- Tax rates to replace business and occupation (B&O) tax revenues;
 - Revenues generated if implemented as described in Gates (2002);³
 - Tax paid as share of total business revenue for various business activities.
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[1]: As recommended in Gates, W.H. (2002). *Tax Alternatives for Washington State*. Washington State Tax Structure Study Committee. (Hereafter, “Gates (2002)”).

[2]: Washington State Legislature (2018). *House Tax Structure Work Group Final Report*. (Hereafter, “House Report (2018)”).

[3]: Applies to Subtraction method VAT only.

Background

VATs and Margins Taxes - Examples in the U.S. and Around the World

Credit-Invoice Method VAT: Most common form internationally. Sales are taxed at each stage of production, but credits for VAT already paid.

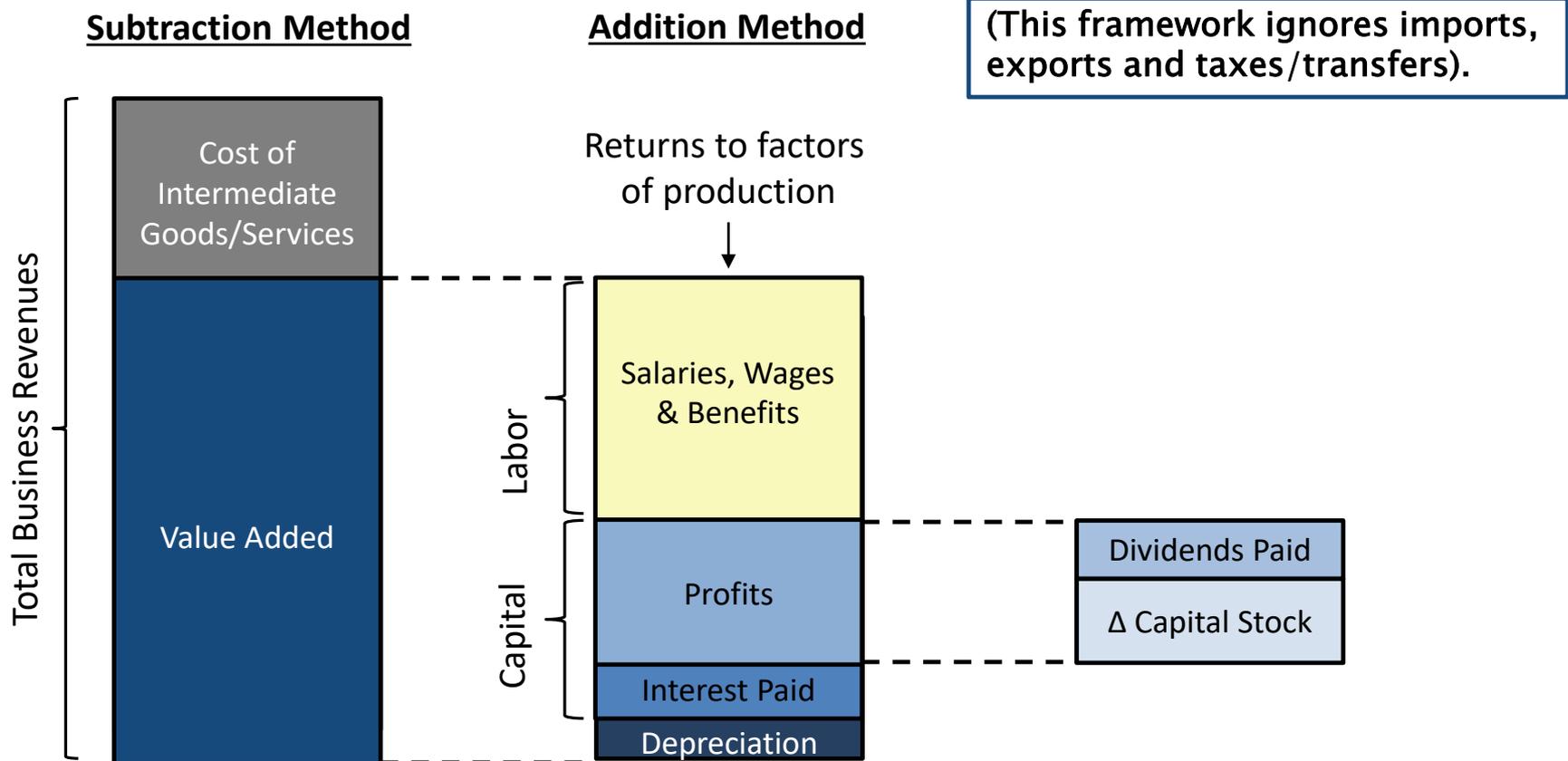
Subtraction Method VAT: Japan imposes “Consumption Tax” on business receipts with a deduction for the cost of intermediate goods and service, computed based on annual accounts.

Addition Method VAT: New Hampshire imposes tax on: (i) profits, (ii) compensation, (iii) interest paid or accrued, (iv) dividends paid.

Margins Tax: Texas imposes “Franchise Tax” on business receipts with a deduction for the largest of: (i) cost of goods sold (COGS), (ii) compensation, (iii) 30% of revenue, or (iv) \$1 million.

Theory

VAT Theoretical Framework



Background

Similarity of VAT tax bases

The tax base under a credit-invoice method VAT, addition method VAT, and subtraction method VAT are similar, though calculated differently.

Common differences between VAT tax bases include treatment of:

- Out-of-state sales/purchases (origin-based vs. destination-based);
- Capital expenditures/depreciation;
- Interest income;
- Real estate sales/rentals; and
- Essential consumer goods

There may also be a trade-off between administrative ease and levels of compliance.

Proposals and Assumptions

Gates (2002) Subtraction Method VAT Proposal

Gates (2002) proposed a subtraction method VAT to replace the B&O tax. The proposed VAT had the following features:

| | |
|--|---|
| Tax Incidence: | All businesses with nexus in Washington |
| Rate & Yield: | 2.2% VAT (for revenue neutrality in CY 2005) |
| Tax Base: | Gross receipts less cost of intermediate goods & services |
| Imports of Intermediate Goods/Services: | Fully deductible |
| Exports: | Gross receipts multiplied by apportionment ratio |
| Exemptions: | None assumed in calculation of 2.2% tax rate |
| Treatment of Capital Expenditures/Depreciation: | Not excluded from tax base, could be mechanism to increase competitiveness |

Proposals and Assumptions

Gates (2002) Subtraction Method VAT Assumptions

In General: Where it provides clear guidance, we follow Gates (2002) in modelling the subtraction method VAT. We also consider VAT theory and the current structure of B&O tax.

Possible Exemptions: Municipalities, tribal governments, nonprofit corporations, and associations?

Income Inclusions: All categories of income that are taxable under B&O are taxable under VAT, subject to allowable deductions.

Proposals and Assumptions

Gates (2002) Subtraction Method VAT Assumptions

Deductions: Additional deductions (relative to B&O) are modelled using line items on IRS Forms 1120, 1120S, 1065:

- **COGS (line 2)** (excluding cost of labor & Δ Inventory);
- **Rents? (line 16);**
- **Advertising (line 22);**
- **Interest Expenses? (line 18);** and
- **Other Deductions (line 26)**

Apportionment: Single-factor (Sales) apportionment, following current B&O tax.

Proposals and Assumptions

House Report (2018) Margins Tax Proposal

The House Report (2018) suggested a margins tax as a possible replacement to the B&O tax.

As described in the House Report (2018), the margins tax allows businesses to claim the most beneficial deduction of:

- COGS;
- Total compensation;
- Flat amount; or
- Fixed share of revenue

Although not directly stated in the House Report (2018), this is the same general structure as the Texas Franchise Tax.

Proposals and Assumptions

House Report (2018) Margins Tax Assumptions

Possible Exemptions: Municipalities, tribal governments, nonprofit corporations, and associations?

Income Inclusions: All categories of income that are taxable under B&O are taxable under the margins tax, subject to allowable deductions.

Apportionment: Single-factor (sales) apportionment, following current B&O tax.

Proposals and Assumptions

House Report (2018) Margins Tax Assumptions

Deductions: Following the Texas Franchise Tax, we assume that taxpayers claim the most beneficial deduction of:¹

| | |
|--------------------------------|--|
| COGS: | Cost of Goods Sold (line 2) |
| Total Compensation: | Compensation of Officers (line 12) + Salaries/Wages (line 13) + Cost of Labor (line 2, Form 1125-A) |
| Fixed Amount: | \$1,000,000 |
| Fixed Share of Revenue: | 30% of total income |

Deduction Calculation: Deductions are determined before apportionment, then reduced based on Washington apportionment percentage.

[1]: Unless otherwise state, the line items in the table are based on Form 1120. (Some line items differ for Form 1065.)

Proposals and Assumptions

Technical Advisory Group Question 1

Nonprofits may be subject to taxation under the B&O tax. Is it appropriate/practical to include these entities in the tax base for a VAT/margins tax? Are there other types of entities that are taxable under the B&O that we should model as nontaxable under a VAT/margins tax?

Data

2017 IRS Microdata – Federal Business Tax Returns

Primary Forms: Form 1120 (C-Corps), 1120S (S-Corps), 1065 (Partnerships)

Returns Available: IRS tax records as of September 2019 (relatively complete for Tax Year 2017)

Taxpayer Filing Information: Records include information primarily from Page 1 of IRS tax forms. In addition to income and deduction line items, records include:

- Federal Employer Identification Number (FEIN);
- Name & address variables;
- Fiscal month & tax year;
- Consolidation indicator;
- Parent name/FEIN; and
- NAICS

Data

2016 - 2017 Department of Revenue Excise Tax Data (“B&O Data”)

Estimate Taxpayers’ Income Apportionable to Washington:

$$\text{WA Apportionment \%} = \frac{\text{B\&O Taxable Income}}{\text{Adjusted Federal Income (IRS)}}$$

(where Adjusted Federal Income is Total Income + COGS – Bad Debt)

Identifiers: ID variables, Name, Address, NAICS, Customer Type

Timing: Quarterly accounts in 2016 and 2017 calendar years to ensure best possible match with 2017 tax years in IRS data.

Proposals and Assumptions

Technical Advisory Group Question 2

We plan to add back COGS and subtract bad debt from IRS total income to improve comparability with B&O taxable income. **What other adjustments to IRS total income will improve comparability with B&O taxable income? How can we calculate these?**

Approach

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 3. Calculate corporations and partnerships' 2017 VAT tax base
 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
 5. Impute data for sole proprietors
 6. Project growth in tax bases after 2017
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
 9. Report results
-

Step 1: Clean Data

Nine Steps

- 1. Clean IRS Microdata and B&O data**
 2. Match taxpayers in IRS and B&O data
 3. Calculate corporations and partnerships' 2017 VAT tax base
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Step 1: Clean Data¹

IRS Microdata

| FEIN | Name, Address | NAICS | Fiscal Year End | Consolidated? | Income Items | Deduction Items | Form |
|---------|---------------|-------|-----------------|---------------|------------------------------------|------------------------------|------|
| 0000001 | XX | XX | Dec 2017 | Consolidated | Receipts, Rents Royalties, ... | COGS, Wages, Deprec, Other | 1065 |
| 0000002 | XX | XX | Jun 2017 | Unconsolid. | Receipts, Other, ..., Total Income | COGS, Wages, Benefit, Advert | 1120 |

B&O Data

| FEIN | WA ID | Name, Address | NAICS | Taxable Income Q1 2016 | ... | Taxable Income Q4 2017 | Customer Type |
|---------|-------|---------------|-------|------------------------|-----|------------------------|---------------|
| 0000001 | A | XX | XX | \$XX | ... | \$XX | Partnership |
| 0000002 | B | XX | XX | \$XX | ... | \$XX | Corp |
| 0000003 | C | XX | XX | \$XX | ... | \$XX | LLC |

[1]: Variables listed in tables are not exhaustive.

Step 2: Match Taxpayers in IRS and B&O Data

Nine Steps

1. Clean IRS Microdata and B&O data
- 2. Match taxpayers in IRS and B&O data**
3. Calculate corporations and partnerships' 2017 VAT tax base
4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
5. Impute data for sole proprietors
6. Project growth in tax bases after 2017
7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
9. Report results

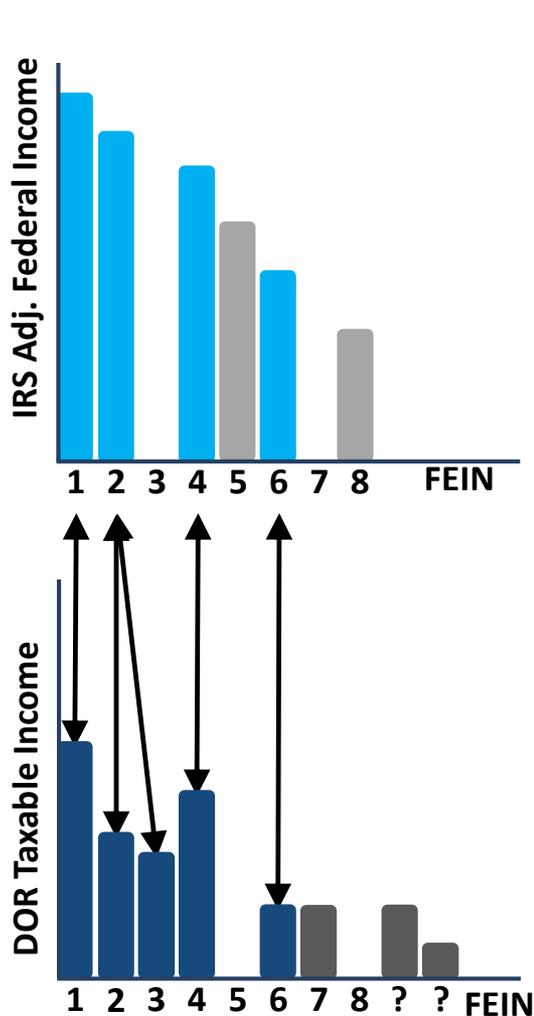
Step 2: Match Taxpayers in IRS and B&O Data

We will match taxpayers' IRS records to B&O tax data to determine the portion of federal tax returns that are apportionable to Washington.

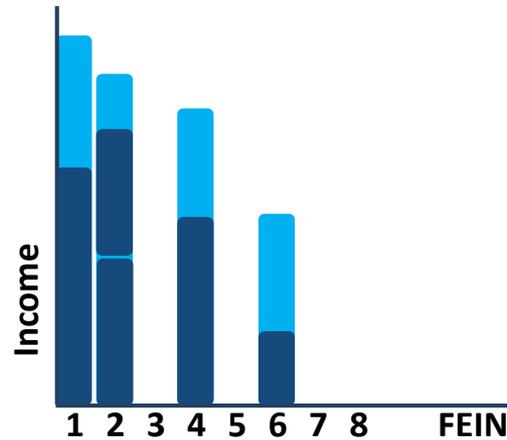
The matching process is not straightforward. The result of the matching process will include:

- 1-to-1 matches of unconsolidated taxpayers
- 1-to-many matches of unconsolidated taxpayers
- Unmatched taxpayers

Step 2: Match Taxpayers in IRS and B&O Data

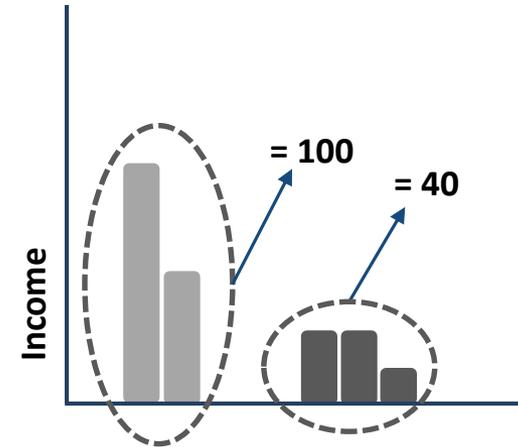


Matched Taxpayers



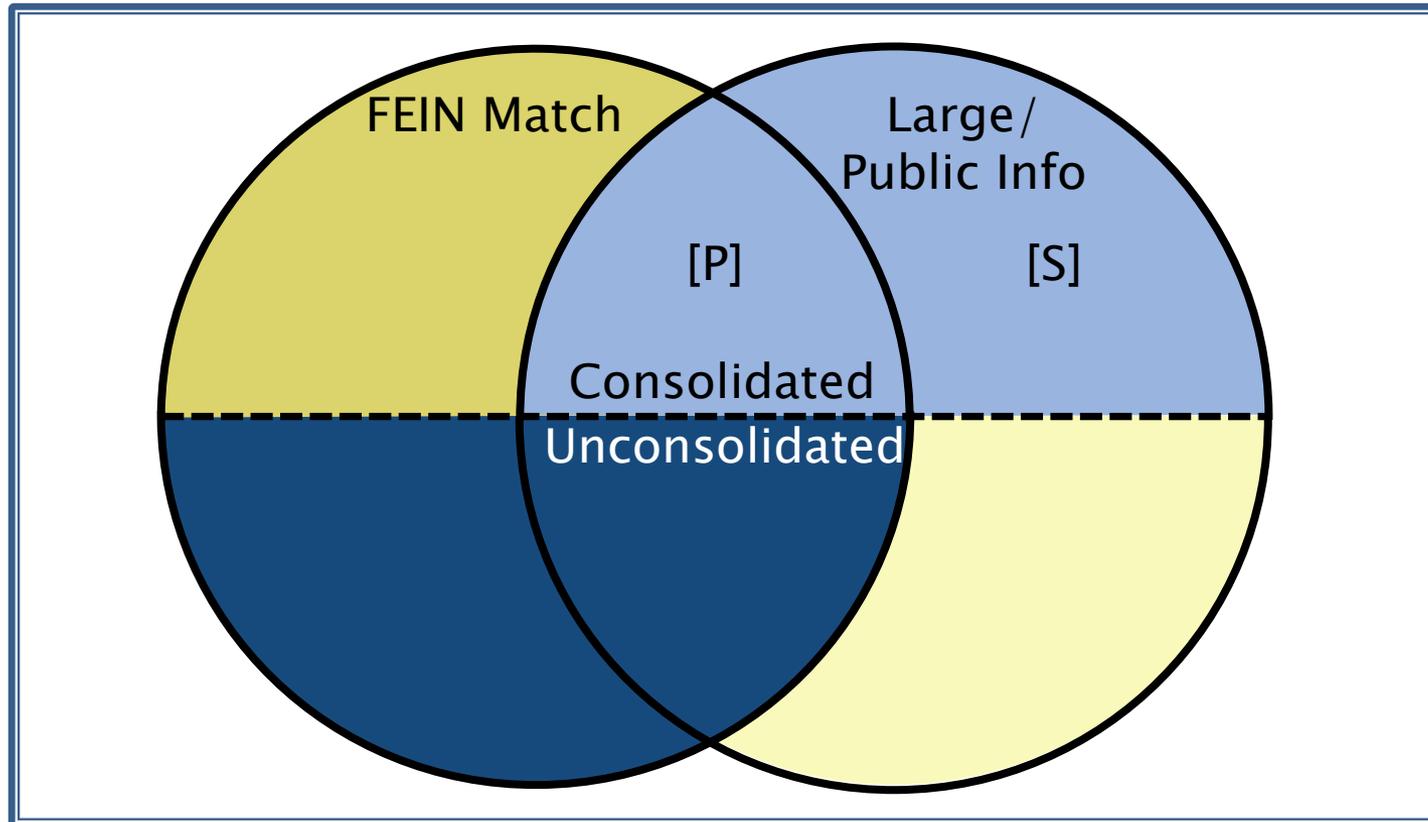
The dark blue shaded portions represent the percent of each matched taxpayer's total IRS income (and deductions) that is apportionable to Washington.

Unmatched Taxpayers



Within a category of unmatched taxpayers, each taxpayer will have the same apportionment percent (i.e., 40%), based on the ratio of unmatched B&O taxable income to unmatched IRS adjusted federal income.

Step 2: Match Taxpayers in IRS and B&O Data



 Match affiliates on name if possible

 Straightforward 1:1 match

 Unmatched

 Consolidate [S] up to [P], use public info

 Match on name/public info

Step 2: Match Taxpayers in IRS and B&O Data

We plan to divide the unmatched accounts for calendar year 2017 into three categories: (i) Washington; (ii) Oregon and Idaho; or (iii) Other.

For taxpayers in each category, we will assign a single Washington apportionment percentage, based on the ratio of total unmatched B&O adjusted federal income to total unmatched adjusted federal income.

Technical Advisory Group Question 3

Should we group by additional variables, bearing in mind, for example, that the IRS and DOR data may assign the same taxpayer to different NAICS codes?

Step 3: Calculate VAT Tax Base

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 - 3. Calculate corporations and partnerships' 2017 VAT tax base**
 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
 5. Impute data for sole proprietors
 6. Project growth in tax bases after 2017
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
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 9. Report results
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Step 3: Calculate VAT Tax Base

Adjustments to IRS Microdata to Arrive at Total Value Add¹

Total Value Add = Adj. Federal Income – Cost of Intermediate Goods & Services

(Total Value Add is company-wide, not Washington-specific.)

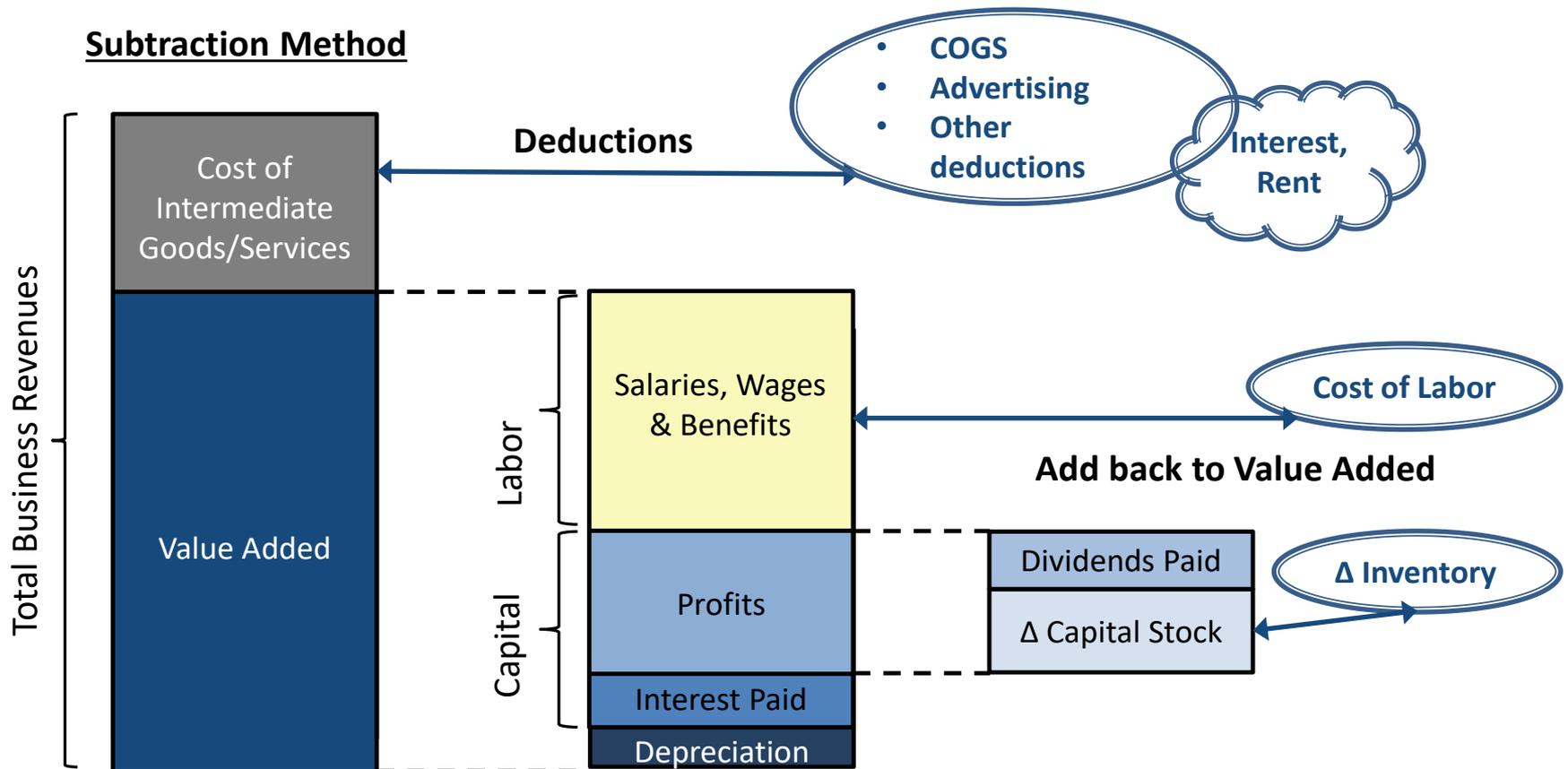
Cost of Intermediate Goods & Services =

COGS – Cost of Labor – Δ Inventory + Advertising + Other Deductions
[+ Rent, Interest Expenses?]

[1]: Adjusted Federal Income is equal to Total Income (IRS Line 11) plus Cost of Goods Sold (line 2), with other adjustments to make it correspond to B&O Taxable Income.

Step 3: Calculate VAT Tax Base

Adjustments to IRS Microdata to Arrive at Value Added Tax Base



Step 3: Calculate VAT Tax Base

Apportionment / Determination of Washington VAT Tax Base

We will apply our estimates of taxpayers' Washington apportionment percentages from Step 2 to estimate each taxpayer's Washington-apportioned value added that is subject to VAT tax:

$$\text{WA VAT Tax Base} = \text{WA Apportionment \%} \times \text{Total Value Add}$$

Step 4: Calculate Margins Tax Base

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 3. Calculate corporations and partnerships' 2017 VAT tax base
 - 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base**
 5. Impute data for sole proprietors
 6. Project growth in tax bases after 2017
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
 9. Report results
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Step 4: Calculate Margins Tax Base

Margins Tax Deduction

= Max(COGS, Compensation, \$1,000,000, 30% Total Income)

| | |
|--------------------------------|--|
| COGS: | Cost of Goods Sold (line 2) |
| Total Compensation: | Compensation of Officers (line 12) + Salaries/Wages (line 13) + Cost of Labor (line 2, Form 1125-A) |
| Fixed Amount: | \$1,000,000 |
| Fixed Share of Revenue: | 30% of adjusted federal income |

We will apply our estimates of taxpayers' Washington apportionment percentages from Step 2 to estimate each taxpayer's Washington-apportioned value added that is subject to margins tax:

WA Margins Tax Base =

WA Apportionment % × (Adj. Federal Income – Margins Tax Deductions)

Step 5: Impute Data for Sole Proprietors

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 3. Calculate corporations and partnerships' 2017 VAT tax base
 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
 - 5. Impute data for sole proprietors**
 6. Project growth in tax bases after 2017
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
 9. Report results
-

Step 5: Impute Data for Sole Proprietors

Sole proprietors pay B&O taxes, but are not on Forms 1120/1065.

Before matching IRS microdata to B&O data in Step 2, we remove individuals/sole proprietors from the B&O data.

In Step 5, we will match individuals/sole proprietors to partnerships in B&O data, based on nearest taxable income within address categories:

- Washington;
- Oregon/Idaho; or
- Other

We will impute to the matched individual, the matched partnership's:

- Apportionment percentage and
- Deductions as a percent of total income.

Step 6: Project Growth in Tax Bases Post-2017

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 3. Calculation corporations and partnerships' 2017 VAT tax base
 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
 5. Impute data for sole proprietors
 - 6. Project growth in tax bases after 2017**
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
 9. Report results
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Step 6: Project Growth in Tax Bases Post-2017

Projecting 2018 and 2019 VAT Tax Base

For 2018 and 2019:

$$\text{VAT Tax Base}_{\text{Wa},t} = \text{VAT Tax Base}_{\text{Wa},2017} \times \frac{\text{GDP}_{\text{Wa},t}}{\text{GDP}_{\text{Wa},2017}}$$

We will use the Bureau of Economic Analysis (BEA)'s estimates of Washington GDP.

Step 6: Project Growth in Tax Bases Post-2017

Projecting 2018 and 2019 Margins Tax Base

We will assign any growth in B&O taxable income to “new” and “existing” taxpayers (new/existing as of 2017)

We will first impute “new” taxpayers for 2018/2019, based on:

- The net increase in number active B&O taxpayers since 2017;
- Average income and deduction amounts among “new” 2017 B&O taxpayers; and
- Washington GDP, relative to 2017 (as inflation factor)

We will allocate any leftover increase in total B&O taxable income to “existing” 2017 taxpayers, in proportion to their 2017 taxable income.

We assume taxpayers’ deductions remain constant as a percent of income.

Step 6: Project Growth in Tax Bases Post-2017

Technical Advisory Group Question 4

How can we refine our approach to more accurately project the 2018 and 2019 VAT tax base and margins tax base?

Step 7: Calculate Revenue-Neutral Tax Rates

Nine Steps

1. Clean IRS Microdata and B&O data
2. Match taxpayers in IRS and B&O data
3. Calculate corporations and partnerships' 2017 VAT tax base
4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
5. Impute data for sole proprietors
6. Project growth in tax bases after 2017
- 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues**
8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
9. Report results

Step 7: Calculate Revenue-Neutral Tax Rates

We will calculate:

- The tax rates necessary to replace the B&O revenues raised in the 2017-2019 fiscal biennium with a subtraction method VAT or margins tax; and
- The amount of revenues raised by a subtraction method VAT with a 2.2% tax rate (following Gates (2002))

We will estimate and remove the portion of the 2017-2019 calendar year tax bases relating to:

- First two quarters of 2017; or
- Last two quarters of 2019

For subtraction method VAT, quarterly breakdown based on BEA estimates of Washington GDP.

For margins tax, quarterly breakdown based on total amount of B&O taxable income.

Step 8: Calculate Tax Incidence by Business Activity

Nine Steps

1. Clean IRS Microdata and B&O data
2. Match taxpayers in IRS and B&O data
3. Calculate corporations and partnerships' 2017 VAT tax base
4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
5. Impute data for sole proprietors
6. Project growth in tax bases after 2017
7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
- 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue**
9. Report results

Step 8: Calculate Tax Incidence by Business Activity

We will calculate tax as a percentage of total business revenue under a subtraction method VAT or margins tax, broken down by:

NAICS Sector

| | | | | |
|---------------------------------|---|-------------------------------|---------------------------------|-----------------------|
| Agriculture, Forestry | Mining, Oil | Utilities | Construction | Manufacturing |
| Wholesale Trade | Retail Trade | Transportation | Information | Finance & Insurance |
| Real Estate and Rental/Leasing | Professional, Scientific Technical Services | Management of Companies | Administrative & Support, Waste | Educational Services |
| Health care & Social Assistance | Arts, Entertainment & Recreation | Accommodation & Food Services | Other Services | Public Administration |

Amount of Business Revenue

| | | | | | | |
|------------|-------------------------|---------------------------|----------------------------|-----------------------------|------------------------------|----------------|
| <\$250,000 | \$250,000 - \$1,000,000 | \$1,000,000 - \$2,500,000 | \$2,500,000 - \$10,000,000 | \$10,000,000 - \$50,000,000 | \$50,000,000 - \$250,000,000 | >\$250,000,000 |
|------------|-------------------------|---------------------------|----------------------------|-----------------------------|------------------------------|----------------|

Step 8: Calculate Tax Incidence by Business Activity

Technical Advisory Group Question 5

Are there any additional categories of taxpayers (or alternative groupings of existing categories) for which we should calculate tax paid as a percentage of total revenue?

Report Results

Nine Steps

1. Clean IRS Microdata and B&O data
 2. Match taxpayers in IRS and B&O data
 3. Calculate corporations and partnerships' 2017 VAT tax base
 4. Set margins tax parameters and calculate corporations and partnerships' 2017 margins tax base
 5. Impute data for sole proprietors
 6. Project growth in tax bases after 2017
 7. Calculate revenue-neutral tax rates for subtraction method VAT or margins tax to replace B&O revenues
 8. Calculate 2017 tax as a percentage of total business revenue by NAICS and total revenue
 - 9. Report results**
-

Step 9: Report Results

2017-19 VAT Revenues with Gates (2002) Parameters

We will estimate and report the amount of revenue raised during the 2017-2019 fiscal biennium under a subtraction method VAT with a 2.2% tax rate:

| Fiscal Period | Revenue: Current B&O Tax | Subtraction Method VAT (2.2% Rate) |
|--------------------------------|--------------------------|------------------------------------|
| Q3 2017 | | |
| Q4 2017 | | |
| Q1 2018 | | |
| Q2 2018 | | |
| Fiscal 2018 | | |
| Q3 2018 | | |
| Q4 2018 | | |
| Q1 2019 | | |
| Q2 2019 | | |
| Fiscal 2019 | | |
| Fiscal 2017-19 Biennium | | |

Step 9: Report Results

Revenue Neutral Tax Rates: Subtraction Method VAT or Margins Tax

We will estimate and report the tax rates needed to replace the revenues raised by the B&O tax during the 2017-2019 fiscal biennium, for a subtraction method VAT or margins tax:

| Fiscal Period | B&O Tax Rate(s) | Revenue Neutral Rate: Subtraction Method VAT | Revenue Neutral Rate: Margins Tax |
|-------------------------|-----------------|--|--------------------------------------|
| Fiscal 2017-19 Biennium | | | |

Step 9: Report Results

Tax Paid as a Share of Business Revenue

We will estimate and report the tax paid as a share of total Washington business revenue for various business activities:

| Business Category | Tax Paid as % of Business Revenue: B&O Tax (Department Data) | Tax Paid as % of Business Revenue: B&O Tax (IRS Data) | Tax Paid as % of Business Revenue: Subtraction Method VAT | Tax Paid as % of Business Revenue: Margins Tax |
|---------------------------|--|---|---|---|
| Agriculture, forestry. | | | | |
| Mining | | | | |
| | | | | |
| Public Administration | | | | |
| All Industries | | | | |
| Under \$250k | | | | |
| \$250k - \$1m | | | | |
| | | | | |
| Over \$250m | | | | |
| All Income Amounts | | | | |

Discussion

Technical Advisory Group Question 6

Are there additional details we should report in our results that would significantly improve:

- **The ability to validate the model;**
- **The usefulness of the results to policymakers**

Discussion

Technical Advisory Group Question 7

Are there other features of a VAT or business margins tax that we should consider modelling in our analysis?

Discussion

Technical Advisory Group Question 8

For all analyses, we welcome suggestions relating to data sources, methods, and references.

Questions for us?