

***EFFECTS OF A FEDERAL VALUE-ADDED TAX ON STATE AND LOCAL
GOVERNMENT BUDGETS***

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**APPENDIX A: DERIVATION OF THE NARROW AND COMPREHENSIVE VAT
BASES FROM NIPA**

The derivation of the narrow VAT base from NIPA tables for 2012 is documented in Table A-1. The narrow base starts with NIPA consumption of \$11.1 trillion, but then excludes¹ all government health expenditures (\$1.2 trillion), all private health expenditures (\$2.4 trillion), all education spending (\$0.3 trillion), all spending on behalf of households by nonprofit institutions (\$0.4 trillion), imputed rent of owner-occupied housing (\$1.1 trillion), tenant rents (\$0.4 trillion), food consumed at home (\$0.7 trillion), financial services provided without payment (\$0.3 trillion), state and local sales taxes on retail sales (\$0.2 trillion; see derivation below) and some miscellaneous items (less than \$0.1 trillion, shown in “other adjustments” in Table A-1). With these exclusions and a 15 percent reduction in the tax base for a small business exemption and noncompliance (\$0.8 trillion), the narrow VAT base would have been \$4.3 trillion in 2012, 39 percent of consumption and 27 percent of GDP.

The derivation of the comprehensive VAT base from NIPA tables for 2012 is documented in Table A-2. The comprehensive base also starts with NIPA consumption of \$11.1 trillion, but makes a net housing adjustment of -1.1 trillion due to the exclusion of all rents (-\$1.6 trillion) and the inclusion of sales of new housing and improvements to existing housing (\$0.4 trillion). For ease of administration, we assume that expenditures in the United States by

¹ Excluded items would generally be zero rated. Note that exports are zero rated under both VAT bases. For the narrow base, business sales to governments and nonprofits — except sales to be used in commercial activities that are included in the VAT base — would also be zero rated. See the discussion in the paper of the comprehensive base for how housing rents would be excluded.

foreigners for nondurables — including the cost of travel departing from the United States — would be included in the base — i.e., foreigners would not receive any rebate on such spending — and that overseas expenditures by U.S. citizens and residents would not be taxed — a net adjustment of -\$32 billion.² Finally, we subtract state and local general sales taxes on final (retail) sales of \$0.2 trillion from the VAT base. This leaves \$9.8 trillion of household consumption in the base.

We include in the comprehensive VAT base government spending — as measured in NIPA — for compensation of general government employees, purchases of intermediate goods, and gross investment spending (less own-account investment and sales to other sectors).³ For the federal government, this spending was \$1.0 trillion in 2012, while for state and local governments it was \$1.7 trillion.

With these adjustments and a reduction in the tax base for a small business exemption and noncompliance (\$1.3 trillion),⁴ the comprehensive VAT base would have been \$11.2 trillion in 2012, 102 percent of consumption and nearly 70 percent of GDP.

The derivation from NIPA Table 3.5 (“taxes on production and imports”) of the amount of state and local sales taxes included in final and intermediate sales for the comprehensive VAT base, and the remainder of such taxes — which we treat as unit taxes levied at stages prior to sales at retail or to governments under both VAT bases — is shown in Table A-3. For the narrow VAT base, we assumed that 10 percent of the retail level of sales taxes is levied on goods and services excluded from the VAT base.

² This is one of the “other adjustments” in Table A-1.

³ Subtraction of own-account investment and sales to other sectors is necessary to avoid double counting.

⁴ This adjustment is 15 percent of consumption included in the base, except for government health spending — for which we assume there would be no VAT noncompliance.

Table A-1

Derivation of the Narrow VAT Base from NIPA Tables for 2012

Item (NIPA Table/Line(s))	Level (\$Billions)	Percent of Consumption	Percent of GDP
NIPA consumption (2.5.5/1)	11,083.1	100.0	68.6
<i>Less:</i> Government health expenditures (3.16/28)	1,173.7	10.6	7.3
<i>Less:</i> Private health expenditures (2.5.5/37+112 - 3.16/28)	1,250.7	11.3	7.7
<i>Less:</i> Education spending (2.5.5/95)	265.2	2.4	1.6
<i>Less:</i> Religious and nonprofit expenditures (2.5.5/120+132)	436.0	3.9	2.7
<i>Less:</i> Imputed rent on owner-occupied housing (2.5.5/21+22 - 7.12/154)	1,138.8	10.3	7.0
<i>Less:</i> Rental of tenant-occupied housing (2.5.5/20+23)	430.7	3.9	2.7
<i>Less:</i> Food consumed at home (2.5.5/4+6)	732.5	6.6	4.5
<i>Less:</i> Financial services provided without payment (2.5.5/107 + 7.12/178)	291.8	2.6	1.8
<i>Less:</i> State and local general sales taxes on final sales ¹	163.3	1.5	1.0
<i>Less:</i> Other adjustments (2.5.5/56+128)	64.0	0.6	0.4
<i>Equals:</i> Consumption in narrow VAT base	5,299.7	47.8	32.8
<i>Less:</i> Adjustment for small business exemption and noncompliance ²	795.0	7.2	4.9
<i>Equals:</i> Effective narrow VAT base	4,341.4	39.2	26.9
<u>ADDENDUM:</u>			
Gross domestic product (GDP)	16,163.2	145.8	100.0

Source: U. S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts (NIPA), and authors' estimates.

¹ Estimated by authors as 90% of the amount derived in Table A-3 for the comprehensive base.

² Estimated by authors as 15% of consumption in the narrow VAT base.

Table A-2

Derivation of the Comprehensive VAT Base from NIPA Tables for 2012

Item (NIPA Table/Line(s))	Level (\$Billions)	Percent of Consumption	Percent of GDP
NIPA consumption (2.5.5/1)	11,083.1	100.0	68.6
<i>Less:</i> Imputed rent on owner-occupied housing (2.5.5/21+22 - 7.12/154)	1,138.8	10.3	7.0
<i>Less:</i> Rental of tenant-occupied housing (2.5.5/20+23)	430.7	3.9	2.7
<i>Plus:</i> New housing and improvements to existing housing (5.3.5/20)	442.3	4.0	2.7
<i>Equals:</i> Net housing adjustment	-1,127.2	-10.2	-7.0
<i>Less:</i> Net foreign travel and expenditures abroad by U.S. residents (2.5.5/128)	-32.4	-0.3	-0.2
<i>Less:</i> State and local general sales taxes on final sales ¹	181.4	1.6	1.1
<i>Equals:</i> Consumption incomprehensive VAT base	9,806.9	88.5	60.7
<i>Plus:</i> Federal purchases of goods and services ² (3.10.5/17-21-22 + 3.9.5/11)	623.3	5.6	3.9
<i>Plus:</i> Federal employee compensation ³ (3.10.5/15)	411.1	3.7	2.5
<i>Equals:</i> Federal spending in the VAT base	1,034.4	9.3	6.4
<i>Plus:</i> State and local purchases of goods and services ² (3.10.5/52-56-57 + 3.9.5/35)	518.2	4.7	3.2
<i>Plus:</i> State and local employee compensation ³ (3.10.5/50)	1,180.7	10.7	7.3
<i>Equals:</i> State and local spending in the VAT base	1,698.9	15.3	10.5
<i>Less:</i> Adjustment for small business exemption and noncompliance	1,295.0	11.7	8.0
<i>Equals:</i> Effective comprehensive VAT base	11,245.2	101.5	69.6
<u>ADDENDUM:</u>			
Gross domestic product (GDP)	16,163.2	145.8	100.0

Source: U. S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts (NIPA), and authors' estimates.

¹ See Table A-3 for derivation.

² Excludes purchases for activities provided for a fee or charge and included in NIPA consumption.

³ Excludes employee compensation to produce goods and services provided for a fee or charge and included in NIPA consumption.

Table A-3

Derivation of the Amount of Sales Taxes Levied on Final Consumption
in the Comprehensive VAT Base from NIPA Table 3.5 for 2012

Item (NIPA Table 3.5 Line(s))	Total (\$Billions)	Amount Allocated to:		
		Consumption		
		Final	Pre- Retail	Government
General sales taxes (19 and 27) ¹	319.7	166.6	153.1	0.0
Public utilities sales taxes (23 and 28) ¹	28.5	14.8	13.7	0.0
All other (2+18-19-23+26-27-28) ²	248.8	0.0	223.9	24.9
Totals	597.0	181.4	390.7	24.9

Source: U. S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts (NIPA), and authors' estimates.

¹ Based on estimates in Philips, et al. (2013), total general and public utility sales taxes are allocated 52.1% to final consumption and 47.9% to intermediate sales for the comprehensive VAT base. For the narrow VAT base, the same allocation is applied to 90% of the total of these taxes to account for some nonoverlap between bases.

² We assume all other taxes on product and imports are unit taxes levied at stages prior to final consumption sales (90%) and sales to governments (10%) under both VAT bases.