BOARD OF EQUALIZATION
REVENUE ESTIMATE

ELECTRONIC COMMERCE AND MAIL ORDER SALES

Summary

Table 1 summarizes California electronic commerce and mail order use tax revenue estimates for fiscal years 2016-17 through 2018-19. Staff estimates that total revenue losses related to remote sellers for both businesses and household consumers were about $1.453 billion in fiscal year 2016-17. These estimates expected to grow in the future as electronic commerce continues to increase. Over the past three years U.S. business-to-consumer remote sales have averaged annual growth of 11.9 percent per year.

These revenue losses are spread among approximately 12.7 million households and 4.0 million businesses. Unpaid use tax liabilities in 2016-17 average $60 per year for each California household, associated with about $718 in taxable purchases per household. California businesses average $171 per year in unpaid use tax liabilities.

Table 1
Fiscal Year Forecasts of Use Tax Revenue Losses
(Millions of Dollars)

	Fiscal Year 2016-17	2017-18	2018-19
Business to Consumer (B-to-C)	$769	$860	$963
Business to Business (B-to-B)	$685	$706	$728
Total Use Tax Noncompliance Revenues	$1,453	$1,566	$1,691
Total Use Tax Revenue Losses by Funding Jurisdiction			
State	$697	$751	$811
Local	$756	$814	$879
Total State and Local Use Tax Revenue Losses	$1,453	$1,566	$1,691

Note: Totals may not add because of rounding.

Introduction

Updated Estimates. This is an update of staff's 2013 electronic commerce and mail order use tax gap estimates. The "tax gap" is defined as the difference between what taxpayers owe and what they voluntarily pay. These estimates of sales made by out-of-state companies reflect updated and revised data, changes in business practices, law changes, and regulation changes since August 2013. To revise the estimates, staff reviewed Business Tax and Fee Department data and information released by the U.S. Census Bureau and other sources, including industry sources.

Background, Methodology, and Assumptions

(1) Background Sources and Data Assumptions

The methodology used to derive these estimates is the same as what staff used in previous revenue estimates. There are two major markets for electronic commerce: business-to-consumer (B-to-C) and business-to-business (B-to-B). Each market has its own separate data sources and critical assumptions. Based on historical information, staff will assume all mail order sales are B-to-C. The data sources and methodology are summarized here.

(2) Business-to-Consumer (B-to-C)

Data and Methodology. Staff used the exact same data and methodology to determine taxable remote sales and the percentage of those sales made by firms registered in California that staff used in calculating the estimated amount of use tax due for the "Lookup Table" for calendar year 2016 specified in Regulation 1685.5. Table 2 summarizes the relevant calculations made in Regulation 1685.5.

(A) *Specific Data Sources.* Staff defines remote sales as electronic or traditional mail order sales. Staff's basic data source is the U.S. Census Bureau. The Census Bureau publishes sales estimates for North American Industrial Classification System (NAICS) Industry 4541, "Electronic Shopping and Mail Order Houses," (ESMOH) monthly, annually and every five years in various reports.[1] This industry data consists of retailers whose primary business (or a separate subsidiary) is mail order or electronic commerce sales. Based on another Census Bureau publication, staff added a Census Bureau estimate of e-commerce sales from companies that make some sales from websites, but have no separate website subsidiaries.

(B) Taxable Portion of Remote B-to-C Sales. Remote sales data from the *2012 Economic Census* for NAICS Industry 4541 include detailed product categories and sales volumes. Based on this product list, staff estimates that about 30.5 percent of U.S. remote sales were exempt in 2012 under the California Sales and Use Tax Law. These percentages apply to all remote sales; there are no separate product data for electronic and mail order sales. Staff assumes that these national product category percentages of remote sales also apply to California. This premise implies that 69.5 percent of remote sales are taxable to California purchasers.

(C) Compliance and Noncompliance Percentage Assumptions. For revenue estimation, staff assumes that all retailers registered with the Board of Equalization (BOE) (firms with California nexus) are remitting the sales and use tax they owe. Staff further assumes that all household use tax payments were remitted on income tax forms.

Regulation 1685.5 specifies that 77 percent of remote sales to California households were made from retailers with California nexus. This percentage includes registrations made in response to AB 155 (*Statutes of 2011*).

(D) Forecast Assumptions. Forecasts for 2017 through 2019 growth assume the growth rate of ESMOH for past three calendar years. This average growth rate was 11.9 percent.

[1] Every five years the U.S. Census Bureau surveys businesses. The most recent census year was 2012.

Table 2 **Calculations to Determine Regulation 1685.5 Use Tax Table Percentage for 2017 (2016 Data)**	
U.S. Personal Income (Billions of Dollars) 1/	$16,006
U.S. Spending at Electronic Shopping and Mail Order Houses (Billions of Dollars)2/	$491
Additional Estimated Remote Sales From Other Retailers (2009 data, U.S. Census Bureau, E-Stats, Billions of Dollars)	$10
Total Estimated Remote Sales	$501
Taxable Percentage3/	69.5%
Estimated Taxable Remote Sales	$348.662
Percent of Income Spent on Electronic and Mail Order Purchases	2.2%
Average Percentage of California Purchases From Out-of-State Vendors Without Nexus 4/	23%
Average State and Local Sales and Use Tax Rate 5/	8.21%
Use Tax Table Percentage	0.041%

Sources:
1/ U.S. Bureau of Economic Analysis, "Table 2.1," http://www.bea.gov.
2/ U.S. Census Bureau, "Monthly Retail Trade Report," http://www.census.gov/retail.
3/ U.S. Census Bureau, *2007 Economic Census, Product Lines, http://www.census.gov/econ/census07/.*
4/ Regulation 1685.5.
5/ Board of Equalization, Research and Statistics Section.

Tables 2 and 3 show how these assumptions and data combine to result in a revenue estimate for calendar year 2016. The shaded line in Table 2 (Estimated Taxable Remote Sales) indicates that this figure provides a starting point for the calculations made in Table 3. Staff assumes that all calendar year liabilities for 2016 ($769 million) would be paid in the fiscal year 2016-17. Table 4 shows forecasts of revenues for the following two fiscal years.

(3) Business-to-Business (B-to-B)

(A) Data Sources and Definitions
The data available for estimating B-to-B revenues are less certain than that for B-to-C revenues.[2] Staff based B-to-B revenue estimates on data from the Merchant Wholesale Trade Sales Survey published by the U.S. Census Bureau.[3] Unlike the B-to-C data, staff is not aware of any Census Bureau estimates that include traditional mail order sales to businesses. Staff assumes that B-to-B electronic commerce sales include traditional mail order sales from one business to another business.

[2] U.S. Census Bureau e-commerce data are collected in several separate surveys. These surveys use different measures of economic activity (shipments, sales and revenues). The Census Bureau notes that these measures “should be interpreted with caution.” There is potential for double counting of sales if the data are interpreted incorrectly. Furthermore, staff do not know with certainty how much of the total B-to-B sales and use tax obligation has already been paid by businesses.

[3] *2014 E-Commerce Multi-sector Report,* U.S. Census Bureau, web site:
http://www.census.gov/econ/estats/2012_e-stats_report.pdf

Table 3
Estimate of Business to Consumer Use Tax Noncompliance in Calendar Year 2016

	Millions of Dollars in 2016
Estimated U.S. Taxable Remote Sales (Regulation 1685.5, Table 1)	$348,662
California Share (U.S. Census Bureau, 12 Percent of U.S. Population)	$41,839
Remote Sales From Unregistered Companies (23%, Regulation 1685.5)	$9,623
Implied Taxable Sales Reported on Personal Income Tax Forms (Source: Franchise Tax Board, Assume Statewide Average Tax Rate of 8.21%)	$260
Implied Noncompliant Remote Sales (Sales Not Reported)	$9,363
Revenues at a Statewide Average Tax Rate of 8.21%	$769

Table 4
Fiscal Year Forecasts of Business to Consumer (B-to-C) Use Tax Noncompliance (Millions of Dollars)

2016-17	2017-18	2018-19
$769	$860	$963

(B) Adjustments

Vehicle Sales Adjustments and Industry Exemptions. Staff excluded transportation equipment purchases from staff's estimates because most vehicles are registered with the Department of Motor Vehicles and sales and use tax compliance is generally very high as a result. Some industries have exemptions or partial exemptions that reduce their use tax liabilities. Staff adjusted for industry exemptions, including the use tax exemption for insurance and the partial farm equipment sales and use tax exemption for agriculture.

Staff adjusted for vehicle sales and these specific industry exemptions because staff found data sources that could reasonably estimate the exemptions. To staff's knowledge, no data exists to adjust similarly for online purchases. Therefore, staff assumed that the overall purchase data relationships matched the online data relationships. Data sources for these adjustments are the U.S. Census Bureau, BOE data, and the U.S. Bureau of Economic Analysis (BEA).[4]

Adjustment for Legislation. Assembly Bill 93 (as amended by Senate Bill 90) created partial sales and use tax exemptions for manufacturing and biotechnology equipment that took effect July 1, 2014. Staff adjusted for the impacts of this legislation using BOE Business Tax and Fee Department data.

California Share of U.S. Sales. Staff excluded the California portion of sales by estimating the California share of all U.S. companies that are registered with BOE. Staff used an estimate of 13 percent for the California share of U.S. B-to-B sales, which is slightly higher than our population share of the nation (12 percent) to reflect the California share of U.S. gross domestic product.

[4] Sources: *2015 Annual Capital Expenditures Survey,* U.S. Census Bureau; Table 5.5.5 and "Industry Tables," U.S. Bureau of Economic Analysis.

(C) Exempt Sales. Sales data tabulated by the Census Bureau include both final sales and sales of intermediate goods used as inputs in the production process. Staff assumes that 60 percent of sales are exempt, either because final goods sold are exempt or because the sales are for resale or intermediate goods used in production. If 60 percent of sales are exempt, this implies that the remaining 40 percent of sales are taxable under California law.

(D) Compliance by Businesses. These estimates reflect all taxable business purchases made without regard to whether sales or use tax has been paid. Businesses can pay sales and use tax to registered companies at the time of purchase. Alternatively, purchasers can pay use tax either directly to BOE or on their individual income tax returns. Overall compliance rates are unknown.

Through one means or another staff believes that registered sales and use tax is paid on 90 percent of California taxable B-to-B electronic commerce sales. The Illinois Department of Revenue estimates that businesses pay 90 percent of their sales and use tax liabilities.[5] This compliance percentage also is consistent with data from the U.S. General Accountability Office (GAO), which assumed a range of 50 to 95 percent compliance rates for taxable B-to-B purchases excluding cars.[6] Staff believes that California is likely to have far better compliance than most states because of both size (which implies more business purchases from firms with nexus) and a long tradition of relatively strong tax administration. Ninety percent compliance implies that the remaining 10 percent of taxes due are not paid.

(E) Forecast Assumptions. The most recent B-to-B e-commerce data are available for 2014. Census Bureau and BEA data indicate that the vast majority of business spending for final consumption is for capital equipment items. Staff estimated B-to-B e-commerce for 2017 through 2019 using the growth rates of capital equipment spending from the February 2017 *IHS Global Insight* Forecast.[7]

Table 5 shows how these assumptions and data combine to impact revenue estimates for each year. The data in the table are documented with line number references. Staff assumes that all calendar year liabilities are paid in the fiscal year ending July 1 of the following year. Staff first estimates baseline revenues. Next, staff adjusts them by subtracting estimated use tax to be paid by businesses because of the BOE Tax Gap Program and AB 93. With these adjustments, staff estimates fiscal year 2016-17 revenues to be $685 million.

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[5] "A New Method for Estimating Illinois's E-Commerce Losses," Andy Chupick and Natalie Davila, *Tax Analysts Special Report,* February 16, 2009.

[6] *Sales Taxes: Electronic Commerce Growth Presents Challenges; Revenue Losses Are Uncertain*, U.S. General Accounting Office, June, 2000. Car sales are often excluded in such analyses because with vehicle registration requirements, tax compliance rates for car purchases are assumed to be close to 100 percent.

[7] *IHS Global Insight* is a well-known economic forecasting company that produces detailed monthly forecasts of the U.S. economy. The Research and Statistics Division, along with the Department of Finance and state agencies of many other states, subscribes to *Global Insight* forecasts.

Table 5
Business to Business (B2B) Sales and Revenues
(Millions of Dollars Unless Otherwise Noted)

		Calendar Years					
		Actual	Estimated	Estimated	Forecast		
Line No.		**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
1	Merchant Wholesale Trade Sales (MWTS) E-commerce	2,127,755	2,220,623	2,162,820	2,225,220	2,289,421	2,357,000
2	Percent Change	5.3%	4.4%	-2.6%	2.9%	2.9%	5.9%
	Adjustments:						
3	Transportation equipment	140,521	146,654	142,836	146,957	155,660	155,870
4	Partial exemption for agricultural equipment	8,605	8,980	8,747	8,999	9,259	9,532
5	Insurance equipment	4,466	4,661	4,540	4,671	4,948	4,954
6	U.S. E-commerce Adjusted for Industry Exemptions (Line 1 - Line 3 - Line 4 - Line 5)	1,974,163	2,060,328	2,006,697	2,064,593	2,119,554	2,186,644
7	California share of U.S. Gross Domestic Product	13%	13%	13%	13%	13%	13%
8	Exclude Estimated Sales Made by CA Businesses (Line 6 x Line 7)	256,641	267,843	260,871	268,397	275,542	284,264
9	California-Adjusted U.S. Remote Sales (Line 6 - Line 8)	1,717,522	1,792,485	1,745,826	1,796,196	1,844,012	1,902,380
10	Estimated Share of Taxable Sales	40%	40%	40%	40%	40%	40%
11	California-Taxable U.S. Remote Sales (Line 7 x Line 9 x Line 10)	89,311	93,209	90,783	93,402	95,889	98,924
12	Baseline Noncompliance Rate	10%	10%	10%	10%	10%	10%
13	Revenue Loss Tax Base (Line 11 x Line 12)	8,931	9,321	9,078	9,340	9,589	9,892
14	Tax Rate (Average Annual Rate for Calendar Year)	8.42%	8.42%	8.42%	8.21%	8.21%	8.21%
			Fiscal Years				
			2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
15	Estimated CA-adjusted baseline revenues (Line 13 x Line 14)		$768	$775	$756	$777	$800
16	Revenue Adjustments:						
17	BOE Tax Gap Program		16	16	16	16	16
18	Manufacturing Exemption (AB 93), Electronic Portion		38	47	55	55	55
19	***Estimated Revenues Losses (Line 15 - Line 17 - Line 18)***		***$714***	***$712***	***$685***	***$706***	***$728***

Preparation

Joe Fitz of the Research and Statistics Section prepared this revenue estimate. For additional information, please contact Mr. Fitz at 1-916-323-3802.

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