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Expert Report

I have been retained by the Office of the Colorado Attorney General, Counsel to the Defendant, Barbara Brohl, Executive Director of the Colorado Department of Revenue, to present my opinions on the following matters:

(1) The costs experienced by vendors doing business in Colorado from complying with their state and local sales tax responsibilities as well as offsets to these costs that they receive under the sales and use tax system.
(2) Service and enforcement activities that Colorado and other states have employed to promote compliance with the use tax and the extent to which these efforts have been successful.
(3) The likely impact that the "transactional notice", "annual purchase summary", and "customer information report" provisions under CCR Regulation 39-21-112.3.5 would have on compliance with the sales and use tax system in Colorado.

The compensation that I am receiving for my services in writing this report is $200 per hour. My rate for testimony at trial or by deposition is $300 per hour. I have not testified at trial or by deposition in any other cases within the preceding four years.

In forming my opinion, I considered a number of reports, articles, papers, and data sources. These information sources are listed in Appendix A.

My c.v. is provided in Appendix B.

Summary of Main Findings

My main findings are as follows:

1. The estimated overall net cost to vendors doing business in Colorado from complying with their state and local retail sales tax responsibilities (after subtracting vendor service fees and cash flow benefits) ranges from $171 million in 2011 to $162 million in 2013.

2. Average estimated net sales tax compliance costs vary by business size:
    a. $153 for vendors with gross sales under $150,000 in 2013.
    b. $2,348 for vendors with $150,000 to $1 million in gross sales in 2013.
    c. $3,729 for vendors with $1 million to $10 million in gross sales in 2013.
    d. $11,395 for vendors with over $10 million in gross sales in 2013.
    e. $1,287 overall across vendors of all sizes.

3. For newly licensed vendors carrying out their Colorado state and local sales tax responsibilities for the first time, the average overall compliance costs are likely to be higher (perhaps several times larger than the above estimates) as a result of start-up costs.

4. Across vendors of all sizes, estimated net sales tax compliance costs represented 0.0688% of gross sales in 2013.

5. Colorado and other states have been experiencing a significant and growing leakage of sales and use tax revenue due to unpaid tax liabilities on remote sales. Use tax compliance among household consumers is extremely low: on the order of 0% to 5%.

6. Efforts by Colorado and other states to improve use tax compliance on remote purchases by households have focused on educating consumers about the tax and making it easier for them to comply.

7. Overall, such efforts appear to have resulted in modest marginal improvements in use tax compliance in some states (albeit, sometimes only temporary ones); however, even after all of these efforts, use tax compliance among households remains extremely poor overall.

8. An important reason for weak compliance with the use tax is the general lack of third-party reporting of remote consumer purchases. In tax situations where there is an absence of third-party information reporting provisions (such as is the case for the use tax presently), tax compliance tends to be poor. In contrast, in situations where third-party reporting provisions are present, compliance tends to be very good. Further, in situations where third-party reporting provisions have been newly implemented, compliance tends to improve.

9. I anticipate that the third-party information reporting regime that would be created through the “transactional notice”, “annual purchase summary”, and “customer information report” provisions of Regulation 39-21-112.3.5 would greatly enhance Colorado’s ability to protect its sales and use tax revenue base from the significant and growing leakage it has been experiencing from untaxed remote consumer purchases.

The remainder of this report is broken into two parts. Part I presents my methodology and findings regarding the costs to vendors doing business in Colorado from complying with their state and local sales and use tax responsibilities. Part II presents my assessment of service and enforcement activities employed by Colorado and other states to improve compliance with the use tax, the extent to which they have been successful, and the likely impact if the three provisions under CCR Regulation 39-21-112.3.5 were to be implemented.

PART I: COSTS EXPERIENCED BY VENDORS DOING BUSINESS IN COLORADO FROM COMPLYING WITH STATE AND LOCAL RETAIL SALES TAXES

Introduction

Research on tax compliance costs generally relies on a cost concept comparable to the following description provided by Cedric Sandford:

> "…tax compliance costs are the costs incurred by taxpayers in meeting the requirements laid on them by the tax law and the revenue authorities. They are costs over and above the actual payment of tax and over and above any distortion costs inherent in the nature of the tax; costs which would disappear if the tax was abolished.…For businesses they include the costs of collecting, remitting and accounting for tax on the products and profits of the business … and also the costs of acquiring and updating the knowledge to enable this work to be done, including knowledge of legal obligations and penalties."[1]

Such costs include investments to acquire sufficient knowledge to meet obligations, the time required to fulfill obligations, tax-related expenditures on software, programming, and data storage, tax-related fees of experts and advisors, and costs associated with tax audits and appeals.

It is common to refer to measures of compliance costs based on the above description as "gross compliance costs" as taxpayers sometimes experience offsets to these costs. In the case of the retail sales tax, two relevant offsets are cash flow benefits and vendor service fees. Cash flow benefits arise when vendors have the use of tax revenues for a period before they must be remitted to tax authorities. Vendor service fees (also known as vendor discounts) represent the portion of sales tax collections that vendors are allowed to keep in exchange for timely remittal to the tax authority. The concept of "net compliance costs" is defined as gross compliance costs less total offsets.

Slemrod provides a review of past studies of sales tax compliance costs.[2] Among 24 studies conducted prior to 1984, he reports that the median estimated cost was 4.4 percent of taxes

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[1] Sandford, Cedric. 1995. "The Rise and Rise of Tax Compliance Costs", in Tax Compliance Costs: Measurement and Policy, edited by Cedric Sandford, 1-11. Bath, U.K.: Fiscal Publications in association with the Institute for Fiscal Studies.

[2] Slemrod, Joel. 2006. "The (Compliance) Cost of Taxing Business", Working Paper, University of Michigan, Revised April 25. http://webuser.bus.umich.edu/jslemrod/pdf/cost_of_taxing_business.pdf. See also the literature review provided in the PricewaterhouseCoopers (2006) study referenced in footnote 7.

collected. He also summarizes the findings of a 1993 *Tax Administration News* survey, which combined the results of several studies done after 1990. The findings indicate that vendors doing business in Colorado had an estimated average compliance cost of $4.52 per $100 of sales tax collected. Notably, this was 42 percent higher than the nationwide average estimate of $3.18 per $100 collected. It is not surprising that Colorado was found to have substantially higher compliance costs than other states. The sales tax system in Colorado is highly decentralized and unusually complex. A report by the Colorado Center for Tax Policy describes the system as follows:

> "The sales tax appears simple to the consumer who pays it. But it is a complex patchwork of rates levied in over 300 individual jurisdictions, each added to the 2.9% state sales tax depending on the location of sale. This increases complexity for businesses operating in multiple jurisdictions and influences local growth decisions. As Appendix A shows, determining all the different possible sales tax rates in Colorado is quite complicated!
> The local government rate varies from zero to 5.75% depending upon the jurisdiction. Portions of the tax paid may go to the city, the county, and various special districts as well as to state government."[3]

Furthermore, a report by the Colorado Department of Revenue (DOR) indicates that, when overlapping boundaries are taken into account, there are over 700 different geographic areas in Colorado with different sales tax rates and bases.[4] According to this report, the DOR administers sales and use taxes for some 152 statutory municipalities and 51 statutory counties. In addition, it also administers taxes for special taxing jurisdictions, including the Regional Transportation District, the Scientific and Cultural Facilities District, eight Local Improvement Districts, three Mass Transit Districts, five Rural Transportation Authorities, the Multi-Jurisdictional Housing Authority, the Public Safety Improvement District, and two Metropolitan Districts. These jurisdictions can choose whether to opt-in to any of 11 different state sales tax exemptions, with the result that both tax rates and the taxability of various items differ across these jurisdictions.

Colorado is one of only 6 states with home rule jurisdictions that can levy their own sales taxes. According to DOR publication DR 1002, 71 sales and use tax systems are separately

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[3] Greenwood, Daphne T. and Tom Brown. Undated. "An Overview of Colorado's State and Local Tax Structures," Center for Colorado Policy Studies, University of Colorado, Colorado Springs. http://www.uccs.edu/Documents/ccps/tax%20policy/Tax%20Overview%20Article.PDF

[4] Colorado Department of Revenue. 2013. "Uniform Sales and Use Tax Base Across the State: Recommendations to the General Assembly to Establish a Revenue-Neutral Sales and Use Tax Base Throughout the State, Required by HB13-1288", December. http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251925278231&ssbinary=true.

administered by home rule jurisdictions in Colorado in addition to the system administered by the state.[5] These jurisdictions have autonomy over the choice of tax base and tax rates. Vendors operating in such jurisdictions must comply with the local government collection, remittance, and filing requirements as well as the separate state requirements. These home rule jurisdictions also administer their own sales and use tax audits.

More recently, the Washington State Department of Revenue (WDOR) performed a study in 1998 of the compliance costs of retailers with the state and local retail sales tax in Washington State.[6] The estimated gross compliance cost averaged 6.47 percent of tax revenue for small retailers (annual gross sales of $150,000 to $400,000), 3.35 percent for medium retailers (annual gross sales of $400,000 to $1.5 million) and 0.97 percent for large retailers (annual gross sales exceeding $1.5 million). As is typical of tax compliance cost studies, these results indicate that compliance costs are highly regressive, meaning that the compliance cost per dollar of taxes collected is greater for smaller retailers.

Several years after the WDOR study, PricewaterhouseCoopers (PwC) conducted a national study of retail sales tax compliance costs. A report on the findings of this study is publicly available and has been widely cited. [7] It provides national estimates of the sales tax compliance costs of retailers in 2003. Across all of the 46 states (plus the District of Columbia) that have state and/or local sales tax regimes, gross compliance costs are estimated to represent 3.09 percent of sales taxes collected (similar to the *Tax Administration News* survey results discussed above) and 0.19 percent of taxable sales. The report also breaks down the estimates for 3 retail sales size classes: $150,000 to $1 million, $1 million to $10 million, and over $10 million. Like other studies, the results indicate that compliance costs are markedly regressive, with compliance costs as a share of either sales taxes collected or taxable sales that are more than six times higher for the smallest retailer size class than for the largest.

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[5] Colorado Department of Revenue. 2014. "Colorado Sales/Use Tax Rates," Publication DR 1002, Taxpayer Service Division, March 12. www.colorado.gov/cms/forms/dor-tax/dr1002.pdf

[6] Washington State Department of Revenue. 1998. "Retailers' Cost of Collecting and Remitting Sales Tax", December. http://dor.wa.gov/docs/reports/Retailers_Cost_Study/retailstudy.doc

[7] PricewaterhouseCoopers. 2006. "Retail Sales Tax Compliance Costs: A National Estimate, Volume 1: Main Report", Prepared for the Joint Cost of Collection Study, April 7. http://www.streamlinedsalestax.org/uploads/downloads/JCCS_Part_I__Final_Report_Vol_I_20060407.pdf

Estimation of Colorado Gross Sales Tax Compliance Costs

To estimate the compliance costs of vendors doing business in Colorado with respect to their state and local sales tax responsibilities, I begin by applying the publicly available estimates from the PwC study on compliance costs as a share of taxable sales by sales size class to estimates of taxable sales in Colorado. I rely on the estimates of costs as a share of taxable sales rather than costs as a share of taxes collected, because the latter measure is quite sensitive to the level of tax rates; it is not clear to me that the rate of sales taxation in a state is strongly linked to compliance costs.[8]

My approach yields a conservative estimate of the overall compliance cost that vendors doing business in Colorado would bear if they operated under a sales tax regime of average complexity. This estimate is conservative for two main reasons. First, the PwC study excluded vendors with gross revenue under $150,000. In my analysis, I have assumed that the overall compliance cost for such vendors per dollar of taxable sales is the same as was estimated for vendors with between $150,000 and $1 million in gross sales. Given the consistent finding in the literature that tax compliance costs are regressive, this approach will tend to understate the compliance costs for these small Colorado vendors. Second, PwC reports that its survey was restricted to retail businesses.[9] Despite its name, the retail sales tax is not collected exclusively by retailers. I would anticipate that non-retail businesses that collect the tax, such as wholesalers and manufacturers, would tend to experience a relatively high compliance burden per dollar of taxable sales. Since many of the sales of such businesses are not taxable, the businesses spend significant resources verifying and documenting tax exempt sales.[10] Given the relatively high incidence of tax exempt

[8] However, variations in tax rates across jurisdictions or changes in rates over time certainly have the potential to impact compliance costs.

[9] Specifically, the survey was administered to businesses from the following Standard Industrial Classification (SIC) retail trade codes: 52 through 57 and 59; eating and drinking places (SIC code 58) were excluded.

[10] Consider, for instance, the rather onerous requirements to identify, verify, and document purchases for resale. According to the Colorado DOR guidelines provided at http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251915901309&ssbinary=true:

"Purchases by a retailer who resells the goods as part of the retailer's regular business activity are not taxable to the retailer, but are taxable when the retailer resells the goods to the consumer. The retailer must pay sales taxes on purchases if the retailer intends to use the goods before they are resold. The buyer does not have the option of later paying consumer use tax on purchases for business or personal use.

The seller must take reasonable measures to verify that the sales tax account number provided by the buyer is valid. The seller should establish an account for buyers who purchase items for resale. The seller must record the sales tax account number and check that the license is not expired. The seller can also verify the sales tax account at www.Colorado.gov/RevenueOnline. If the buyer has a business outside Colorado and does not have a business location in Colorado, the seller may accept the license number from the buyer's home state, but should also record the license number and check for an expiration date if available. (See, General Information Letter (GIL) 07-028 for more information.)

It is the seller's responsibility to collect sales tax in questionable situations. For example, if the buyer is purchasing office supplies and the buyer's business does not sell office supplies, the seller should collect the sales tax and not permit use of the buyer's resale tax account number to purchase tax-free.

sales, I would expect that the overall burden of such businesses per taxable sale would be relatively high in comparison with retailers that typically collect tax on a relatively high proportion of their overall sales.

As noted previously, Colorado has a more complex state and local sales tax structure than a typical state. In the PwC report, the 46 states (plus the District of Columbia) with state and/or local sales tax regimes have been bundled into 8 distinct groups[11] based on the presence or absence of the following 5 sales tax features that contribute to the complexity of a tax system:

- Presence of a local sales tax;
- Destination-based rather than origin-based tax;
- Absence of uniform tax rates among local jurisdictions;
- Absence of state/local tax base uniformity; and
- Presence of local jurisdictions that administer their own sales tax.

Because its state and local sales tax system includes all 5 of these complexity features, Colorado is one of only 6 states assigned the very top complexity category (the other states are Alabama, Alaska, Arizona, Idaho, and Louisiana). In my earlier summary of the findings of past sales tax compliance studies, I noted that that the compliance cost of the Colorado sales tax system was estimated to be 42 percent higher than the national average in a 1993 *Tax Administration News* survey.[12] This estimate strikes me as plausible. However, in the interest of developing a conservative estimate, I have chosen to treat Colorado's state and local sales tax system as though its compliance costs are just 30 percent higher than a typical U.S. state and local sales tax system. My estimate of gross sales tax compliance costs by sales size class for vendors doing business in Colorado is therefore obtained by multiplying the above estimate of compliance costs under a sales tax regime of average complexity by 1.30.

I have applied my methodology for estimating gross compliance costs by sales size class to the following three filing period years: 2011, 2012, and 2013. For businesses licensed to collect sales

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If a buyer has a "direct pay permit" from the Colorado Department of Revenue, the seller is required to obtain a copy of the direct pay permit and keep it on file. The purchases must be paid for directly from the qualified buyer's (the business) funds, not the funds of an individual."

[11] Delaware, Montana, New Hampshire, and Oregon were assigned to a separate category for states with no sales tax at any level of government.

[12] It is also noteworthy that, from October 7, 2010 until October 7, 2012 , the Streamlined Sales and Use Agreement (SSUTA) had a vendor compensation provision that set a minimum compensation rate that was 50% higher (0.75% of taxes remitted rather than 0.50%) for states like Colorado that require sellers to report by local jurisdiction. Furthermore, the Joint Collection Cost Study identified states, such as Colorado, in which the local base differs from the state base and in which local governments administer their sales tax directly, as being more complex than others. However, the SSUTA requires a uniform state and local tax base and state-level administration of all local taxes, so those attributes were not considered when setting the rate of vendor compensation.

tax, the filing period year corresponds to their fiscal year. Four sales size classes are defined on the basis of gross sales:

- Under $150,000;
- $150,000 to $1 million;
- $1 million to $10 million; and
- Over $10 million.

The results are summarized in Table 1 below.

Table 1: Gross Compliance Cost Estimates for Colorado Retail Sales Taxes by Sales Size Class

A	B	C	D	E	F
Filing Period Year	Gross Sales Class ($1,000s)	Gross Compliance Cost Under a Typical Sales Tax System	Average Gross Compliance Cost Under a Typical Sales Tax System Per Account	Gross Compliance Cost Under the Colorado Sales Tax System (Column C times 1.30)	Average Gross Compliance Cost Under Colorado Sales Tax System Per Account
2011	Under 150	$10,507,225	$119	$13,659,393	$155
	150-1,000	$54,835,755	$1,944	$71,286,482	$2,528
	1,000-10,000	$50,738,400	$3,778	$65,959,920	$4,912
	Over 10,000	$61,010,280	$23,991	$79,313,363	$31,189
	All classes	$177,091,660	$1,338	$230,219,158	$1,740
2012	Under 150	$10,197,700	$119	$13,257,009	$155
	150-1,000	$55,562,859	$1,979	$72,231,717	$2,572
	1,000-10,000	$53,486,309	$3,822	$69,532,202	$4,969
	Over 10,000	$65,175,882	$24,374	$84,728,646	$31,686
	All classes	$184,422,750	$1,414	$239,749,575	$1,838
2013	Under 150	$10,557,083	$130	$13,724,207	$169
	150-1,000	$56,574,024	$2,029	$73,546,232	$2,637
	1,000-10,000	$56,604,603	$3,945	$73,585,984	$5,128
	Over 10,000	$69,954,492	$25,737	$90,940,840	$33,459
	All classes	$193,690,202	$1,535	$251,797,263	$1,995

As shown in Column E of the table, the aggregate estimated gross compliance cost for the state and local Colorado retail sales tax ranges from approximately $230 million in 2011 to $252 million in 2013. This translates into an average gross compliance cost per state sales tax account (Column F) ranging from $1,740 to $1,995. A sales tax account corresponds to a business customer, not the individual branches or stores of the business. So, for instance, Safeway has one account even though it has many individual stores throughout the state. Therefore, these average cost estimates reflect the average gross compliance costs per business customer. Average estimated gross compliance costs per account rise with the size of the business. For instance, in 2013, the estimated average cost ranges from $169 for the under $150,000 size class to $33,459 for the over $10 million size class.

Estimation of Offsets and Net Compliance Costs

Two key offsets to Colorado gross sales tax compliance costs are vendor service fees and cash flow benefits. I estimate the former by combining statistics on actual vendor service fees for state and local taxes administered by the DOR with an estimate of home rule jurisdiction vendor service fees. The home rule jurisdiction vendor service fees are estimated by applying a weighted average of vendor service fee rates in each jurisdiction (using state sales tax revenue in each jurisdiction as weights) to a Census-based estimate of home rule jurisdiction tax revenues. To estimate cash flow benefits, I apply the prime interest rate to estimates of the dollar-weighted average number of days between collection and remittance of taxes by sales size class from the PwC report. By subtracting my estimates of cash flow benefits and vendor service fees, I arrive at an estimate of the overall net compliance cost for each sales size class. My estimates of net sales tax compliance costs are summarized in Table 2 below.

Table 2: Estimates of Gross Compliance Costs, Offsets, and Net Compliance Costs of Colorado Retail Sales Taxes by Sales Size Class

A	B	C	D	E	F	G
Filing Period Year	Gross Sales Class ($1,000s)	Gross Compliance Cost Under Colorado Sales Tax System	Vendor Service Fees	Cash Flow Benefits	Net Compliance Cost Under Colorado Sales Tax System (Column B minus the sum of Columns C and D)	Average Net Compliance Cost Under Colorado Sales Tax System Per Account
2011	Under 150	$13,659,393	$978,421	$103,864	$12,577,108	$143
	150-1,000	$71,286,482	$5,482,992	$541,262	$65,262,228	$2,314
	1,000-10,000	$65,959,920	$12,377,429	$1,159,475	$52,423,015	$3,904
	Over 10,000	$79,313,363	$36,281,375	$2,303,578	$40,728,411	$16,016
	All classes	$230,219,158	$55,120,217	$4,108,179	$170,990,762	$1,292
2012	Under 150	$13,257,009	$1,215,994	$100,835	$11,940,180	$139
	150-1,000	$72,231,717	$7,446,570	$547,193	$64,237,954	$2,288
	1,000-10,000	$69,532,202	$17,864,654	$1,213,762	$50,453,786	$3,606
	Over 10,000	$84,728,646	$53,769,041	$2,440,823	$28,518,782	$10,665
	All classes	$239,749,575	$80,296,259	$4,302,614	$155,150,702	$1,189
2013	Under 150	$13,724,207	$1,197,916	$103,245	$12,423,046	$153
	150-1,000	$73,546,232	$7,529,228	$551,574	$65,465,430	$2,348
	1,000-10,000	$73,585,984	$18,809,314	$1,270,807	$53,505,863	$3,729
	Over 10,000	$90,940,840	$57,378,774	$2,589,104	$30,972,961	$11,395
	All classes	$251,797,263	$84,915,232	$4,514,730	$162,367,300	$1,287

My estimates indicate that vendor service fees (Column D) and cash flow benefits (Column E) only partially offset gross compliance costs (Column C). Moreover, they offset a higher share of the costs of very large businesses, owing to the regressivity of compliance costs, the uniform vendor service fee rate across sales size categories, and the lack of a cap on vendor services fees, both at the state level and also in most jurisdictions that permit such a fee. Aggregate net compliance costs over the three years (Column F) range from $155 million to $171 million, implying average net costs per business customer (Column G) of $1,189 to $1,292 per state sales tax account.

Table 3 presents net compliance costs as a share of gross sales by sales size class. Overall, for vendors across all size classes, net compliance costs range from 0.0797% to 0.0688% of gross sales over the three filing period years. A regressive pattern of compliance costs is evident in that net costs represent a greater share of gross sales for smaller vendors than larger ones.

Table 3: Net Compliance Costs as a Share of Gross Sales by Sales Size Class

A	B	C
Filing Period Year	Gross Sales Class ($1,000s)	Net Compliance Costs as a Share of Gross Sales Under Colorado Sales Tax System
2011	Under 150	0.6312%
	150-1,000	0.5394%
	1,000-10,000	0.1389%
	Over 10,000	0.0250%
	All classes	0.0797%
2012	Under 150	0.5948%
	150-1,000	0.5276%
	1,000-10,000	0.1289%
	Over 10,000	0.0166%
	All classes	0.0688%
2013	Under 150	0.6397%
	150-1,000	0.5373%
	1,000-10,000	0.1331%
	Over 10,000	0.0170%
	All classes	0.0688%

A more detailed discussion of my estimation methodology is provided in Appendix A.

Start-up Sales Tax Compliance Costs

During the 2012 filing period year, 16,714 of the 130,458 vendors licensed to collect the Colorado state sales tax were newly licensed. Vendors that are newly licensed for the sales tax will generally experience additional costs beyond those incurred by existing licensed vendors. In the tax compliance cost literature, these additional costs are commonly referred to as "start-up" compliance costs. Start-up compliance costs refer to those one-time or temporary costs incurred by businesses in preparing to comply with new tax requirements for the first time, above and beyond the annual recurring costs of compliance. They include expenditures on initial research and training efforts as well as tax compliance-related investments in outside assistance, software, and equipment.

Research on the size of start-up compliance costs is limited; however, existing research indicates that these costs can be substantial and may well represent a multiple of recurring compliance costs. For instance, Rametse and Pope review the literature on the start-up and ongoing compliance costs associated with the Australian goods and services tax, which took effect in July 2000.[13] They report two key findings. First, like ongoing compliance costs, start-up compliance costs are highly regressive. Second, estimated start-up compliance costs for small businesses are about six times higher than estimated ongoing compliance costs. While it is difficult to draw any firm conclusions from the limited available evidence, businesses that are newly licensed to collect Colorado state and local sales taxes are likely to experience compliance costs that are several times larger than the average cost estimates for businesses in their size class in Table 2 above.

[13] Rametse, Nthati and Jeff Pope. 2005. "Business Startup Compliance Costs: Policy Perspectives", *Journal of the Australasian Tax Teachers Association*, Vol. 1 No. 3. http://www.asb.unsw.edu.au/schools/taxationandbusinesslaw/atta/attajournal/Documents/5_RametsePope_JATTA_vol1_no3.pdf

PART II: SERVICE AND ENFORCEMENT ACTIVITIES EMPLOYED BY COLORADO AND OTHER STATES TO IMPROVE USE TAX COMPLIANCE; LIKELY IMPACT OF THE THREE PROVISIONS UNDER CCR REGULATION 39-21-112.3.5

Introduction

Electronic commerce (e-commerce) in the United States has mushroomed from $952 billion in 1999 to over $4.1 trillion in 2011.[14] [15] This represents a compound annual growth rate of 12.9% over this period, compared to only about 4.6% for traditional commerce.[16] Owing to this rapid rate of growth, electronic commerce accounted for 15.8% of all commerce in the retail, wholesale, manufacturing, and selected service sectors in 2011, compared to just 7% in 1999.[17]

The rapid expansion of e-commerce has posed significant challenges for state and local sales and use tax systems. While states tend to have very high levels of sales tax compliance with respect to sales by "brick and mortar" stores within their jurisdictions, compliance with sales and use taxes on remote purchases is weak, especially so in the case of household purchases. In the case of brick and mortar stores, compliance is greatly facilitated by collection of the sales tax by retailers at the point of sale and supported by service and compliance activities by the tax authorities. For example, estimates based on random audits by the Washington State Department of Revenue indicate that registered retailers properly collected and remitted 99% of all sales taxes that were due in calendar year 2006.[18] Similarly, estimates by the Minnesota Department of Revenue indicate a very high degree of compliance (95.9%) among Minnesota retailers in calendar year 2004.[19]

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[14] E-commerce sales in 1999 were computed as the sum of the 1999 figures for E-commerce reported in Census *2000 E-Commerce Multi-Sector Data Tables* (Released March 18, 2002) for manufacturing shipments, sales by wholesale merchants, retail trade sales, and selected service revenues. http://www.census.gov//econ/estats/2000/all2000tables.html

[15] E-commerce sales in 2011 were computed as the sum of the 2011 figures for E-commerce reported in Census *2011 E-Commerce Multi-Sector Data Tables* (Released May 23, 2013) for manufacturing shipments, sales by wholesale merchants, excluding manufacturers' sales branches and offices, retail trade sales, and selected service revenues.

[16] The figures for traditional commerce in 1999 and 2011 were computed using the same Census data sources referred to in footnotes 14 and 15. Traditional commerce was derived as the difference between the figures presented in the tables for Total Commerce and E-commerce.

[17] These figures were computed by dividing overall E-commerce across these trade categories by Total Commerce across these same categories using the data sources referred to in footnotes 14 and 15..

[18] Washington State Department of Revenue. 2010. "Department of Revenue Compliance Study", August 20. http://dor.wa.gov/Docs/Reports/Compliance_Study/compliance_study_2010.pdf

[19] Hoheisel, Rob. 2008. "Minnesota Consumption Tax Model and Sales Tax Gap", presentation at Federation of Tax Administrators Revenue Estimating and Tax Research Conference, Portland, Maine, September 15. http://www.taxadmin.org/fta/meet/08rev_est/papers/hoheisel2.pdf

Vendors located outside of a given state are generally not required to collect and remit sales taxes on remote purchases by residents of that state if they do not have a physical presence within the state. When remote vendors do not collect taxes on their sales to residents in another state, the state must rely on the residents themselves to report and pay use tax on their remote purchases. In the case of businesses, compliance with the use tax appears to be fairly high, but not as high as compliance with the sales tax. For instance, while the Washington Department of Revenue random audit study indicates an estimated 99% percent compliance rate for the sales tax, the estimated compliance rate of registered businesses with the use tax is just 77%. After consulting with state officials and other experts, the U.S. Government Accountability Office (GAO) assumed that use tax compliance among business purchasers ranged from 50% to 95% in a 2000 study of the challenges of taxing electronic commerce.[20]

In the case of household consumers, use tax compliance is exceptionally poor. The GAO study noted a wide consensus of opinion among state officials and other experts that use tax compliance by individual purchasers was extremely low—on the order of 0 to 5%. The one exception is that use tax compliance for motor vehicle purchases was considered extremely high (nearly 100%), owing to state requirements to pay the tax as a condition of vehicle registration.[21] The views that the state officials and other experts who were consulted in the GAO study expressed about extremely poor compliance with the use tax among individuals are consistent with estimates by Chupick and Davila that only 1.4% of state use taxes owed by Illinois households for their online retail purchases (excluding motor vehicles) was actually paid.[22]

Only a very small share of households across the nation report any use tax at all, even though a substantial share are likely to owe use taxes on their remote purchases. In a study for the Minnesota House of Representatives, Manzi collected statistics on household use tax reporting from 22 of the 25 states that collected use taxes on the income tax return in tax year 2009.[23] The percentage of returns reporting use tax ranged from 0.2% in Rhode Island to 9.8% in Maine. The median percentage of returns reporting the tax across the 22 states was extremely low (under 1%).

[20] U.S. Government Accountability Office. 2000. "Sales Taxes: Electronic Commerce Growth Presents Challenges; Revenue Losses Are Uncertain, Report to Congressional Requesters, GAO/GCD/OCE-00-165, June. http://www.gao.gov/new.items/g600165.pdf

[21] The California Board of Equalization excludes motor vehicle sales from its use gap estimation approach owing to a very high perceived rate of compliance: California Board of Equalization. 2013. "Revenue Estimate: Electronic Commerce and Mail Order Sales", revised August. http://www.boe.ca.gov/legdiv/pdf/e-commerce-08-21-13F.pdf. The study by Chupick and Davila for the Illinois Department of Revenue (see footnote 22 below) also assumes very high compliance with use taxes on motor vehicles.

[22] Chupick, Andy and Natalie Davila. 2009. "A New Method for Estimating Illinois' E-commerce Losses", Illinois Department of Revenue, February. http://tax.illinois.gov/aboutidor/taxresearch/internetsalestaxlosses.pdf

[23] Manzi, Nina. 2012. "Use Tax Collection on Income Tax Returns in Other States", Policy Brief, Minnesota House of Representatives, updated April. http://www.house.leg.state.mn.us/hrd/pubs/usetax.pdf

These very low rates of use tax reporting contrast with rather high levels of participation in remote shopping. A multichannel shopping survey by PricewaterhouseCoopers estimates that 67% of U.S. consumers shopped online in 2011.[24] More recently, a 2013 Media Audit study estimates that 70% of all U.S. consumers shopped online in the past year, while 29% made 12 or more purchases.[25] A 2014 Walker Sands Communications study reports that fewer than 1% of U.S. consumers have never shopped online, 62% do so every month, and 94% do so at least 4 times a year.[26] Even allowing for the facts that some remote vendors do collect sales and use taxes and a portion of remote retail purchases are not taxable, a median use tax filing rate of 1% is astoundingly low.

In Colorado, households currently report use taxes on a form separate from their income tax return, although I understand that they will be able to report use taxes on their income tax return beginning with their tax year 2014 returns. For tax year 2012, use tax returns were filed by only 2,075 Colorado households. When taken as a ratio to the number of resident state individual income tax return filings that year, this amounts to less than one-tenth of one percent of all filings. The Walker Sands Communications study indicates that 95% of respondents across the U.S. made an Amazon purchase in the past year. Amazon does not collect Colorado sales or use tax on purchases by Colorado residents. Internet Retailer summarizes findings from an eDataSource study which show that 42.9% of purchases from Amazon.com in June 2012 were for consumer electronics and computers; 14.6% for books; 8.8% for apparel, shoes, and jewelry; 9.0% for grocery, health, and beauty items; 5.9% for movies, music, and games; 4.0% for sports; 3.6% for toys, kids, and baby items; and 3.1% for office products.[27] While some of these purchases would not be subject to the Colorado sales and use tax (for instance, grocery products are largely exempt), most would be taxable. Thus, on the basis of Amazon purchases alone, it appears that compliance with use tax filing and reporting requirements is extremely poor among Colorado households.

Together the rapid growth in e-commerce, an inability to require remote vendors without nexus to collect sales taxes, and weak use tax compliance (particularly among household consumers) have contributed to a growing sales and use tax gap problem. In his November 5, 2010 expert report, Professor William F. Fox estimated that the Colorado sales and use tax gap from e-

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[24] PricewaterhouseCoopers. 2012. “Understanding How US Online Shoppers are Reshaping the Retail Experience. http://www.pwc.com/en_US/us/retail-consumer/publications/assets/pwc-us-multichannel-shopping-survey.pdf

[25] Media Audit. 2013. *The Media Audit FYI* e-newsletter, November. http://view.exacttarget.com/?j=fe5817727d63077b7112&m=fef91672736d07&ls=fde71c75726d007c72127975&l=fe6415767660057e7010&s=fe2c157273620378751676&jb=ffcf14&ju=fe2c17797461057b771577

[26] Walker Sands Communications. 2014. “Reinventing Retail: What Businesses Need to Know for 2014: Walker Sands’ 2014 Future of Retail Study”. http://www.walkersands.com/futureofretail

[27] Internet Retailer. 2012. “Amazon.com Sales by Category.” http://www.internetretailer.com/trends/e-retailers/amazoncom-sales-by-category/

commerce sales alone[28] (i.e., the difference between the state and local sales and use taxes actually owed on these sales and the amount of tax that was paid) would increase from $130.7 million in 2010 to $172.7 million in 2012.[29] This growing problem is not limited to Colorado, however. For instance, Chupick and Davila estimate that there was an increase in unpaid Illinois state sales and use taxes from $103 million in 2005 to $169 million in 2010. At the national level, Bruce, Fox, and Luna estimate aggregate growth in the sales and use tax gap across all state and local jurisdictions from $7.2 billion in 2007 to $11.4 billion in 2012.[30]

Limited Tools Available to Improve Household Use Tax Compliance

Currently, states have limited tools for improving use tax compliance among household consumers. Indeed, many view it as a purely voluntary tax. For instance, in an interview about household reporting of the use tax, Oklahoma Tax Commission spokesperson Paula Ross reportedly stated: "It's definitely a very unenforceable tax, there's no doubt about that."[31] Similarly, a report by the Idaho Tax Commission on the tax gap in that state indicates:

> "There is still a portion of this net tax gap that deserves special consideration, and that is the growing portion of unpaid sales/use tax from interstate e-commerce and mail-order transactions. The best estimate available for Idaho is that $30 million of tax revenue (owed under current Idaho Code) is lost each year this way. A very small number of taxpayers make an effort to pay the sales/use tax for these transactions, but enforcement is not economically feasible."[32]

In her article, Manzi explains the situation as follows:

[28] As noted in the report by Professor Fox, the estimates do not address the portion of the use tax gap that results from other forms of remote commerce, such as telephone and mail order sales. While e-commerce is a large and fast-growing segment of remote commerce, it currently represents only about 56% of all sales in the electronic shopping and mail-order house retail sector (NAICS code 4951). Since Colorado loses revenue on taxes that go uncollected on these other forms of remote commerce as well, the overall Colorado sales and use tax gap from remote commerce is likely to be significantly larger than the gap associated with e-commerce alone.

[29] Fox, William F. 2010. "Statement of Opinions and Methodology Offered", November 5.

[30] Bruce, Donald, William F. Fox, and LeAnn Luna. 2009. "State and Local Government Sales Tax Revenue Losses from Electronic Commerce. University of Tennessee Working Paper, April 13. http://cber.utk.edu/ecomm/ecom0409.pdf

[31] Wertz, Joe. 2011. "Most Oklahoma Filers Don't Pay `Unenforceable' Use Tax," NPR State Impact, December 14. http://stateimpact.npr.org/oklahoma/2011/12/14/most-oklahoma-tax-filers-don%E2%80%99t-pay-unenforceable-use-tax/

[32] Idaho Tax Commission. 2009. "Idaho's Tax Gap, 2009. "Estimating Idaho's Tax Gap and Developing Strategies to Reduce It", November 17. http://tax.idaho.gov/reports/EPB00658_11-17-2009.pdf

> "States have historically viewed the use tax on individuals as impractical to enforce—the tax typically involves small amounts owed on a large number of transactions for which the individual has not kept records, and the costs of collection could easily exceed the revenues collected."

Figures provided in the Manzi article support these claims. The average household use tax payment by filers across the 22 states she investigated was approximately $71. Faced with millions of potential households with modest average (but cumulatively significant) tax liabilities and very limited information available concerning remote consumer purchases by specific households, use tax enforcement is not a practical option in most cases. Rather, state revenue agencies have tended to focus on ways to educate consumers about their use tax obligations and make it easier for them to comply. As discussed below, such efforts have led to some modest improvements in use tax compliance, but use tax compliance overall remains extremely poor.

Two key approaches states have employed to improve use tax compliance among household consumers include: (1) allowing consumers to report the use tax on their individual income tax returns; and (2) information campaigns and amnesties.

Reporting of Use Tax on Income Tax Returns

At the time of the Manzi study, 25 states provided for taxpayers to report use tax obligations on the individual income tax return. Another seven, including Colorado, provided information about the use tax in the individual income tax booklet. Manzi reports that some states that added a line item for reporting use tax on the income tax return reported significant increases in collections. Specifically, she reports that:

> "Collections in Louisiana, Massachusetts, and Michigan all increased substantially in the year following implementation of use tax reporting on the income tax return; Louisiana and Michigan had previously included information on the use tax in their income tax booklets, while Massachusetts did not."

Allowing the use tax to be reported on the income tax return is hardly a panacea, however. For instance, consider consumer use tax collections in Michigan. In tax year 1999, the first year use tax reporting was allowed on the state individual income tax return, $2.9 million in use tax was reported, compared to $240,000 in the previous year. In tax year 2000, approximately $3.1 million in use tax was reported. While $3.1 million in revenue collections was an improvement over $240,000, the Michigan Department of Treasury estimated that this represented only about 1.5 percent of the household consumer sales and use tax liability that went uncollected in 2000 due to remote sales. By tax year 2010, 104,700 out of 4.5 million individual income tax filers (2.35% of all filers) reported a total of $5.2 million in use tax. This was estimated to represent only about 1.3% of the sales and use tax liability that went uncollected in that year due to remote sales. So, even with the reporting of use tax on the Michigan individual income tax return, the state estimates that only an extremely small fraction of all use tax liabilities have been reported and paid by household consumers between 2000 and 2010. Meanwhile, the state's estimated household consumer sales and use tax gap on remote transactions has risen from $207 million ($3.1 million/0.015) in tax year 2000 to $400 million ($4.5 million/0.013) in 2010.

The purpose of the Manzi study was to estimate the potential revenue gains and costs associated with alternative policy changes surrounding the Minnesota use tax, including allowing use tax to be reported on Minnesota individual income tax returns and repealing the state's de minimis exemption for the tax. Based on the review of experiences of other states and past administrative estimates from the Minnesota Department of Revenue, she concluded that simply allowing reporting of use taxes on the income tax return would not be likely to collect much additional revenue and that, furthermore, these revenue gains would be offset by the additional administrative costs. To date, Minnesota still does not permit reporting of use tax on the state's individual income tax return.

The Manzi study also reports that some states have attempted to encourage more voluntary reporting of use tax liabilities on income tax returns by requiring taxpayers to explicitly record a zero on the use tax line item if they have no tax liability. A comparison of use tax reporting among states with and without this provision indicates mixed results from such a strategy. Apparently, states with the provision had a lower incidence of use tax reporting but a somewhat higher average use tax amount reported among those who did record a non-zero amount.

Another strategy that some states have used to encourage more voluntary reporting of use tax on income tax returns is to provide a lookup table. In such states, most taxpayers are permitted to base their report of use tax liability on the estimated use tax amount shown on the lookup table corresponding to their income level.[33] Manzi reports that states with a lookup table have a higher average incidence of use tax reporting (3.1%) than states that do not (0.6%). Although one should be cautious about inferring causality, this may be an indication that lookup tables have the potential to modestly improve compliance in some states.

[33] Taxpayers who have made large individual remote purchases are required in many of these states to account for such purchases separately.

Information Campaigns and Amnesties

Some states have attempted information campaigns, such as media advertisements or the mailing of educational letters to selected taxpayers about the use tax. Several states have also held amnesties in an effort to collect unpaid taxes and promote use tax reporting. The evidence shows that such efforts can have modest, but often also temporary, positive effects on compliance. For instance, Manzi reports that Maine implemented a fairly comprehensive use tax compliance campaign from July to December 2006, which included television commercials, letters to individuals and business owners, and an amnesty that permitted interest-free payment of past unreported use tax liabilities. Among Maine residents with positive adjusted gross income, a study by Gunter indicates that use tax reporting increased from about 10% in 2005 to 13% in 2006.[34] By 2010, however, the use tax reporting rate had fallen back down to just below its 2005 value of 10%. Although an increase in lookup table estimates of tax liability over this time period may be partially responsible for this decline, it seems reasonable to conclude that the compliance program had a limited and largely temporary impact on taxpayer compliance.

In 2012, Maine implemented a similar use tax compliance program that again included an informational campaign and an amnesty. Reportedly, this second compliance program failed to raise much revenue, which suggests that repeated use of strategies such as tax amnesties may not be very effective.[35]

The DOR undertook several measures in late 2013 to publicize and educate Colorado taxpayers about their use tax reporting requirements.[36] A preliminary comparison of use tax filings among households between January 1 and April 15 in 2013 (prior to these efforts) and use tax filings among households during the same period in 2014 (following these efforts) show a modest increase in filings (from 450 to 526). Although one should be cautious about inferring causality, this may be an indication that the DOR's publicity efforts had a small positive impact on use tax compliance.

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[34] Gunter, David. "Who Pays Maine Use Tax?," presentation at 2012 Federation of Tax Administrators Revenue Estimation & Tax Research Conference, Providence, RI, October 22. http://www.taxadmin.org/fta/meet/12rev_est/pres/gunter.pdf

[35] Porter, Tom. 2012. "Maine Tax Amnesty Initiative Fails to Deliver Expected Revenues", Maine Public Broadcasting Network, November 29. http://www.mpbn.net/News/MPBNNews/tabid/1159/ctl/ViewItem/mid/3762/ItemId/24924/Default.aspx

[36] Serna, Daria. 2013. Affidavit, December 6.

Effectiveness of Third-Party Information Reporting

An important reason that compliance with the use tax is weak is that remote consumer purchases are generally not subject to third-party information reporting. Tax compliance tends to be much better under tax systems that include third-party reporting. There are several reasons for this. First, the receipt of a third-party information report helps to clarify reporting requirements. Second, the report reduces the need for the taxpayer to retain, gather, and tally how much should be reported from individual receipts (such as pay stubs or monthly banking statements), thereby lowering the burden associated with compliance. Further, knowledge that the tax authority has received the same third-party information provides a strong incentive for taxpayers to comply.

The Internal Revenue Service (IRS) has found that tax compliance is far greater when reported amounts are subject to third-party information reporting and/or withholding. The IRS defines the net misreporting amount for an income item as the ratio of the net amount by which income has been underreported to the amount that should have been reported. For income sources that are subject to very substantial third-party information reporting and withholding (such as wages and salaries), the IRS estimates a net misreporting percentage of 1%. For income sources that are subject to substantial third-party information reporting, but little or no withholding (such as interest, dividends, pensions and annuities, unemployment compensation, and Social Security benefits), the IRS estimates a net misreporting percentage of 8%. For income sources subject to some third-party information reporting (such as deductions, exemptions, income from partnerships and S-Corporations, and capital gains), the IRS estimates a net misreporting percentage of 11%. Finally, for income sources subject to little or no third-party information reporting (such as self-employment income, rental income, and royalties), the IRS estimates a much larger net misreporting percentage of 56%.

These findings tell a clear story. In situations where there is an absence of third-party information reporting provisions (such as is the case for the use tax presently), tax compliance tends to be poor. In contrast, in situations where third-party reporting provisions are present, compliance tends to be very good. Further, in situations where third-party reporting provisions have been newly implemented, compliance tends to improve.[37] These findings are supported by evidence from other countries as well.[38] [39]

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[37] See, for example: Long, Susan and Judyth Swingden. 1991. "Third Party Information Reporting and Compliance," in *IRS 1990 Research Conference Report: How Do We Affect Taxpayer Behavior? The Case for Positive Incentives, Assistance or Enforcement,"* Document 7302, Washington, D.C.: Department of the Treasury, Internal Revenue Service, March.

[38] Organization for Economic Cooperation and Development. 2009. "Information Note: Withholding & Information Reporting Regimes for Small/Medium-Sized Businesses & Self-Employed Taxpayers," Forum on Tax Administration: Compliance Sub-Group, Centre for Tax Policy and Administration, August. http://www.oecd.org/tax/administration/48449751.pdf

[39] Kleven, Henrik Jacobsen et al., "Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark", *Econometrica*, Vol. 79, No. 3, 651-692.

One of the reasons that third-party information reporting is so successful in promoting tax compliance is that both the tax authority and the taxpayer receive the same information relating to what should be reported on the tax return, and they each know that the other party has this information. A striking example of how this can improve compliance concerns the reporting of dependents on federal individual income tax returns. For many years, the IRS suspected that a substantial number of taxpayers had been claiming exemptions for dependents who either did not exist or who did not qualify. Eventually legislation was passed so that, beginning in tax year 1987, taxpayers were required to report the social security number for any dependent claimed as an exemption who was over the age of five. Between tax years 1986 and 1987, the number of exemption allowances claimed by taxpayers dropped by some seven million. This simple change resulted in an immediate reduction in noncompliance that generated approximately $2.9 billion in additional tax revenue in a single year.[40] Like third-party information reporting requirements, this provision ensured that the tax agency and the taxpayer were privy to the same information (in this case, the validity of the dependent's social security number) regarding what was legitimate to claim on the tax return.

Third-party information reporting also facilitates compliance activities by the tax authority. For instance, the IRS employs information matching programs to identify cases where there are significant discrepancies between amounts reported on tax returns and amounts shown on third-party information reports. Through these programs, the IRS pursues millions of cases involving underreporting of income as well as the failure to file tax returns.[41]

As discussed below, CCR Regulation 39-21-112.3.5 would introduce a third-party information reporting regime for purchases of Colorado residents from out-of-state vendors. My opinion regarding the likely impact of this regime on use tax compliance is informed by the effectiveness of third-party reporting in these other tax contexts.

Likely Impact of CCR Regulation 39-21-112.3.5 on Use Tax Compliance

CCR Regulation 39-21-112.3.5 includes three key provisions meant to improve the collectability of use taxes:

(1) "Transactional Notice": A requirement that all non-resident retailers notify their Colorado buyers that the buyers may be liable for a sales or use tax on the purchase, and that Colorado law requires the buyer to file a Colorado sales or use tax return declaring the purchase;

[40] For further details on this example, refer to: Slemrod, Joel and Jon Bakija. 1996. *Taxing Ourselves: A Citizen's Guide to the Great Debate Over Tax Reform.* Cambridge, MA: the MIT Press.
[41] U.S. Government Accountability Office. 2007. "Tax Administration: Costs and Uses of Third-Party Information Returns," Report to the Committee on Finance, U.S. Senate, GAO-08-266, November.

(2) "Annual Purchase Summary": A requirement that all non-resident retailers must send each of their Colorado buyers, by first class mail, an annual purchase summary by January 31 of each year showing the total amount of purchases the Colorado buyer made from that non-resident retailer, including, if available, the dates and amounts of each purchase. This annual report must also remind the Colorado buyer that he is liable for Colorado sales or use tax and must file a Colorado sales or use tax return; and

(3) "Customer Information Report": A requirement that all non-resident retailers must file a customer information report with the Colorado Department of Revenue showing, for each resident Colorado purchaser, the total amount of purchases from the retailer during the preceding calendar year.

Non-resident retailers with less than $100,000 in gross annual sales to Colorado residents are exempt from these requirements. In addition, the annual purchase summary is not required for customers who make purchases with a non-resident retailer of less than $500 annually.

I will first share my views of the likely impact of each provision on use tax compliance if it were applied in isolation. My focus will be on the impact on use tax payments among households (rather than businesses) that make remote purchases. As discussed previously in some detail, the collection of use tax payments from households is an especially vexing problem for tax administrations; with the limited tools presently available to them, the revenue departments in Colorado and other states are simply unable to achieve a reasonable degree of compliance with the tax. As a consequence, the states have experienced a significant and growing leakage of sales and use tax revenue due to unpaid liabilities on remote sales. As noted above, only a fraction of one percent of all residents actually pay the use tax each year in Colorado, even though a majority shop online, in many cases through vendors such as Amazon who do not collect the Colorado sales tax. It is therefore especially important to assess whether these provisions are likely to enable the state to collect a more significant share of use taxes that are due on remote purchases by resident households.

Following my discussion of the likely impact of each provision on use tax compliance among households, I offer some comments about their potential impact on use tax reporting by businesses. As discussed previously, use tax compliance tends to far better overall among businesses than individuals, but still well below compliance with the retail sales tax. I will therefore offer my opinion regarding the potential for the provisions to help close the use tax gap among those businesses that are hard to tax given the existing administrative tools available to the DOR.

My discussion of the likely impact of each provision on use tax compliance if it were applied in isolation is followed by a discussion of the likely impact if the provisions were applied in combination.

Transactional Notice Provision

While most consumers are familiar with the sales tax, far fewer are familiar with the use tax. For instance, in a 2012 Harris Interactive survey of California taxpayers, 79% reported being very or extremely familiar with the sales tax; however, only 25% reported having the same degree of familiarity with the use tax.[42] Understanding one's use tax responsibilities is clearly a necessary condition for compliance. I anticipate that the transactional notice required by the first provision of the regulation would help to familiarize Colorado residents with their responsibilities with regard to remote purchases. In some ways, such a notice would be similar to the informational campaigns I have reviewed previously. However, the two notable differences are: (1) Consumers would be repeatedly exposed to the transactional notice each time they made an online purchase; and (2) Consumers would receive this exposure in a context that is likely to be more salient for learning about their tax obligations (specifically, in the context of engaging in a potentially taxable transaction). Research by Chetty indicates that taxpayers tend to be more responsive to tax information when they find the information salient.[43] I anticipate that this targeted and repeated exposure is likely to be more effective at informing taxpayers of their use tax obligations than less targeted and non-repeated exposures, such as a one-time viewing of an informational advertisement or receiving a tax brochure. If implemented in isolation, I anticipate that this provision would have a modest positive impact on use tax compliance among Colorado households.

Annual Purchase Summary

Like the transactional notice provision, the receipt of an annual purchase summary would help to raise awareness of one's use tax responsibilities, which is a necessary condition for achieving compliance. Another important factor is the time and effort needed to comply with one's use tax obligations. Like other information reports received from third parties (wage statements, interest statements, etc.), the annual purchase summary would reduce the recipient's burden with respect to determining how much use tax to report. Rather than having to search for records of each potentially taxable purchase over the course of the year, the recipient would receive a convenient purchase summary from any non-resident retailers with which they had significant transactions. The annual purchase summary would therefore not only help Colorado consumers to recognize that they might have a use tax reporting obligation; it would also reduce their burden in complying with this obligation by reducing the record keeping, record gathering, and computational efforts necessary for compliance. I anticipate that this provision would have a a

[42] Harris Interactive. 2012. "Attitudes Toward Use Tax", presentation to the California Board of Equalization, May 11.

[43] Chetty, Raj. 2010. "Salience and Taxation: Evidence and Policy Implications," Presentation at the 40th Annual Spring Symposium of the National Tax Association, Washington, D.C., May 13-14.

more substantial positive impact on use tax compliance than the transactional notice provision if used in isolation. In particular, it would tend to promote compliance by taxpayers who would like to meet their tax obligations, but who presently either are not aware of them or find them too onerous. The annual purchase summary provision should not only promote a higher incidence of use tax reporting, but also (by clarifying the overall level of expenditure for the year) promote greater accuracy in the reported amount of tax.

Customer Information Report

As noted earlier in this report, a major difficulty in administering the use tax on remote household purchases is that there are extremely limited options for cost-effective enforcement. An important element in achieving a high degree of "voluntary compliance" with a tax is backing up the system of voluntary reporting with an effective enforcement program. When this is not feasible, voluntary compliance tends to suffer. I anticipate that the receipt by the Colorado Department of Revenue (DOR) of customer information reports would significantly improve the ability of the Department to promote and enforce compliance with the use tax.

Just as the IRS is able to match third-party reports against information reported by federal taxpayers, the DOR would be able to match customer information reports against information reported on use tax returns. This would enable it to cost-efficiently target its compliance activities towards those Colorado residents with potentially large unpaid use tax obligations; these compliance activities would presumably include targeted interventions in the forms of both education and enforcement. The presence of the customer information reports would also serve as critical evidence of unreported taxable transactions; evidence that is generally unavailable to the DOR currently.

Even more important than the direct revenue obtained through such compliance activities would be the indirect revenue generated by increases in the voluntary reporting of use tax obligations. This indirect revenue effect would have two sources. First, many consumers would respond to the increased risk of enforcement created by the customer information reports by compliantly filing and reporting their use tax obligations. Second, taxpayers targeted by use tax compliance activities in one year would tend to improve their compliance behavior in subsequent years. As discussed previously, tax items that are subject to third-party information reporting have been found to be associated with high levels of voluntary compliance.

As discussed earlier in this report, states have been able to achieve some modest (albeit in certain cases, temporary) improvements in use tax compliance by making it easier for taxpayers to report their obligations (such as allowing use tax reporting on income tax returns and introducing lookup tables for estimating tax liability) and by increasing awareness of the tax (such as through information campaigns and tax amnesties). However, despite these efforts, compliance remains extremely poor and revenue leakage through unpaid taxes on remote sales continues to be significant and growing problem. In my opinion, the customer information report provision would enable improvements in use tax compliance that would significantly exceed what has or what might be achieved from all of these other efforts combined.

I anticipate that this provision would give the DOR a credible and cost-effective enforcement tool that would serve as a means to transform the use tax for household consumers from a largely neglected tax obligation into a more meaningful revenue source. While the precise degree of compliance this provision would enable is uncertain, I believe that a large share of consumers with substantial remote purchases would ultimately pay the tax as well as a more moderate share of consumers with less substantial remote purchases. Since use tax liabilities fall disproportionately among those with substantial remote purchases, this would translate into a significant share of aggregate use tax liability.

Implications of the Provisions for Business Compliance with the Use Tax

So far, the focus of my discussion has been on the implications of the three provisions for the use tax as it applies to household consumers. In the case of businesses, I have noted previously that use tax compliance is fairly high, although not as high as sales tax compliance. While audits and other compliance activities do help to promote and maintain use tax compliance among businesses, I anticipate that each of the provisions would provide the DOR with additional tools to address some of the remaining gaps in compliance.

The revenue departments in California[44] and South Dakota[45] have identified a lack of awareness of use tax obligations with respect to untaxed purchases from out-of-state vendors as a common business use tax compliance problem. Just as discussed previously with respect to households, I anticipate that the transactional notice provision would help to familiarize businesses with their use tax responsibilities with respect to such purchases.

Another common business use tax compliance problem identified by these revenue departments is the failure to maintain adequate use tax records. The receipt of annual purchase summaries should help to reduce the informational, organizational, and cost barriers to use tax compliance, especially among businesses with record-keeping deficiencies.

I anticipate that receipt of customer information reports by the DOR would improve its capacity to target its business use tax compliance resources. First, such reports might be used to cost-effectively identify non-registered or nonfiling businesses with potentially significant use tax obligations. Second, the reports would provide important documentation of unreported taxable purchases.

[44] California Board of Equalization. 2010. "Avoiding Common Sales and Use Tax Problems", January 5. http://www.boe.ca.gov/info/pdf/V.2_SUTD_Pitfalls_1-5-10.pdf
[45] South Dakota Department of Revenue. 2014. "Top 10 Errors in Audits".

So, while use tax compliance among businesses overall is already fairly high, I expect that each of the provisions would provide the DOR and business taxpayers with additional tools to cost-effectively address some areas where there are gaps in compliance.

Impact of the Provisions if Implemented in Combination

I believe that there would be some important synergies associated with implementation of the three provisions in combination. Together, I anticipate that they would enable a sea-change in use tax compliance, particularly with regard to the taxation of remote household purchases.

Through the transactional notices and annual purchase summaries, taxpayers would be informed and reminded of their use tax obligations. Further, the purchase summaries would alleviate much of the burden of retaining and gathering receipts from their remote transactions throughout the year, thereby making it less costly and more convenient to comply.

Together, then, the transactional notice and annual purchase provisions address the fundamental barriers that continue to make use compliance difficult for consumers, thereby facilitating compliance among those who want to meet their tax obligations. However, these provisions do not provide the DOR with any new tools to address those taxpayers who are less motivated to comply. The customer information report fills this gap, providing the tax agency with a means of cost-effectively identifying and addressing noncompliance among taxpayers with significant unpaid use tax liabilities. I anticipate that the availability of these tools would not only result in increased enforcement revenue, but more importantly, the prospect of such enforcement would provide a much-needed incentive for taxpayers to voluntarily meet their use tax obligations in the first place.

By comprehensively addressing both the barriers to tax compliance and the incentive to comply through the introduction of third-party information reporting, it is my opinion that the transactional notice, annual purchase summary, and customer service report provisions together would greatly enhance the state's ability to protect its sales and use tax revenue base from the significant and growing leakage it has been experiencing from untaxed remote consumer purchases.

Appendix A

Sources of Information

Reports, Articles, and Papers

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Sources of Data

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District Court, City and County of Denver, State of Colorado. 2013, Plaintiff's Motion for Preliminary Injunction. November 5.

District Court, City and County of Denver, State of Colorado. 2013, Complaint Seeking Declaratory and Injunctive Relief, November 4.

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Williams, Stanley. 2010. Affidavit, November 17.

Appendix B: Curriculum Vitae of Brian Erard

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FAX: **(703) 390-9155**

E-MAIL: **BEandAssoc@Aol.com**

CITIZENSHIP: **U.S.A.**

EDUCATION

Ph.D., Economics, University of Michigan, 1990.
M.A., Statistics, University of Michigan, 1986.
M.A., Economics, University of Michigan, 1984.
B.A., Economics (with Honors), University of Notre Dame, 1982.

EMPLOYMENT HISTORY

Current Position

***Owner/Manager of B. Erard and Associates* –** a consulting business specializing in tax policy research, economic modeling, and statistical analysis since 1998.

Academic Appointments

Visiting Professor, University of Michigan Business School, 1998-1999 academic year

***Research Fellow*,** Office of Tax Policy Research**,** University of Michigan, 1998-1999 academic year

Associate Professor (with Tenure) and Economics Ph.D. Program Director, Department of Economics, Carleton University, July 1992 – June 1999

Assistant Professor, Department of Economics, University of Toronto, July 1990 – June 1992

Other Employment

Economist, Compliance Analysis Group, Internal Revenue Service, July 1988 – June 1990

Economist, Policy Economics Group (now known as the Barent's Group – A subsidiary of KPMG Consulting), Summers 1985, 1986

RESEARCH AREAS

Tax Policy, Tax Administration, Econometrics/Applied Statistics

TEACHING EXPERIENCE

Graduate Courses: Taxation, Public Expenditures, Applied Regression Analysis

Undergraduate Courses: Quantitative Methods, Taxation, Public Expenditures/ Benefit Cost Analysis, Introductory Microeconomics, Advanced Microeconomics

PROFESSIONAL HONORS AND RESEARCH AWARDS

Research cited in the *New York Times* and the *Wall Street Journal*

Invited to testify before the U.S. Senate Finance Committee at its hearing on "Best Practices in Tax Administration: A Look Across the Globe", April 12, 2011

Served as a keynote speaker, 2010 International Institute of Public Finance Annual Congress in Uppsala, Sweden.

Served as a distinguished invited guest speaker, Taiwan Ministry of Finance, 2008

Served as keynote speaker for Organization for Economic Cooperation and Development (OECD) conference on *Tax Compliance Measurement and Program Evaluation*, Ottawa, May 24-26, 2005

Winner (with co-author Jonathan S. Feinstein) of the International Institute of Public Finance (IIPF) Award for the Best Conference Paper Presented at the Annual World Congress ($2,500 DM), Berlin, August 23-26, 1993

PROFESSIONAL HONORS AND RESEARCH AWARDS, CONT.

Recognized as a *Top Undergraduate Economics Instructor*, University of Toronto, for course in Quantitative Methods, 1992

Finalist, National Tax Association–Tax Institute of America Dissertation Contest, 1990

SCHOLARLY PUBLICATIONS

Articles in Refereed Journals

"Participation and Compliance with the Earned Income Credit" (with Marsha Blumenthal and Chih-Chin Ho), *National Tax Journal*, 2005, Volume 58(2), 189 – 213.
http://ntj.tax.org/wwtax/ntjrec.nsf/06CE756499C7CA098525701C005DAEE5/$FILE/Article%2002-Erard.pdf

"Explaining the U.S. Tax Compliance Continuum" (with Chih-Chin Ho), 2003, *eJournal of Tax Research*, Volume 1(3), pp. 93 – 109.
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"Acquisitions and Investment" (with Huntley Schaller), Economica, 2002, Volume 69 (275), pp. 391 – 414. Acquisitions and Investment - Erard - 2003 - Economica - Wiley Online Library

"Searching for Ghosts: Who Are the Nonfilers and How Much Tax Do They Owe?" (with Chih-Chin Ho), Journal of Public Economics, 2001, Volume 81(1), pp. 25–50.
http://econ.ccu.edu.tw/academic/master_paper/100329-2.pdf

"Tax Compliance", (with James Andreoni and Jonathan Feinstein), Journal of Economic Literature, 1998, Volume 36(2), pp. 818–860.
http://jonathanfeinstein.com/PDFs/compliance.pdf

"Self-Selection with Measurement Errors: A Microeconometric Analysis of the Decision to Seek Tax Assistance and its Implications for Tax Compliance", Journal of Econometrics, 1997, Volume 81, pp. 319–356.
http://www.sciencedirect.com/science/article/pii/S0304407697865700

Articles in Refereed Journals, Cont.

"The Role of Moral Sentiments and Audit Perceptions in Tax Compliance", (with Jonathan S. Feinstein), Public Finance/Finances Publiques, 1994, Volume 49 (Supplement), pp. 70–89. http://jonathanfeinstein.com/PDFs/moral.pdf

"Honesty and Evasion in the Tax Compliance Game", (with Jonathan S. Feinstein), RAND Journal of Economics, 1994, Vol. 25(1), pp. 1–19. http://jonathanfeinstein.com/PDFs/moral.pdf

"Taxation with Representation: An Analysis of the Role of Tax Practitioners in Tax Compliance", Journal of Public Economics, 1993, Vol. 52, pp. 163–197. http://jonathanfeinstein.com/PDFs/moral.pdf

Chapters in Edited Books and Published Conference Proceedings

"Advances in Nonfiling Measures (with Mark Payne and Alan Plumley), in *New Research on Tax Administration: An IRS-TPC Conference,* paper presented at the 2012 IRS-Tax Policy Center Research Conference on New Perspectives on Tax Administration, June 21, 2012, pp. 79–90. http://www.irs.gov/pub/irs-soi/12resconadvnonfile.pdf

"The Individual Income Tax Reporting Gap: What We See and What We Don't" (with Jonathan Feinstein), in *New Perspectives on Tax Administration: An IRS-TPC Conference,* paper presented at the 2011 Internal Revenue Service - Tax Policy Center Research Conference, June 22, 2011, pp. 129-142. http://www.irs.gov/pub/irs-soi/11resconindincome.pdf

.

"Predicting Aggregate Taxpayer Compliance Behavior" (with Alan Plumley and Derek Snaidauf)), in *New Perspectives on Tax Administration: An IRS-TPC Conference,* paper presented at the 2011 Internal Revenue Service - Tax Policy Center Research Conference, June 22, 2011, pp. 73–92. http://www.irs.gov/pub/irs-soi/11resconpredict.pdf

"Chapter 3: California", in *Prefilled Personal income Tax Returns: A Comparative Analysis of Australia, Belgium, California, Quebec, and Spain, ed. Francois Vaillancourt,* Vancouver: Frasier Institute, pp. 39–62. http://www.fraserinstitute.org/uploadedFiles/fraser-ca/Content/research-news/research/publications/prefilled-personal-income-tax-returns.pdf

"Econometric Models for Multi-Stage Audit Processes" (with Jonathan Feinstein), in *Developing Alternative Frameworks for Explaining Tax Compliance,* ed. James Alm, Jorge Martinez-Vazquez, and Benno Torgler, New York: Routledge, pp. 113–138, 2010. http://jonathanfeinstein.com/PDFs/Feinstein_econ_models_multi_stage_audits.pdf

Chapters in Edited Books and Published Conference Proceedings, Cont.

"Pre-Completed Income Tax Returns: Evidence from the California ReadyReturn Program", *National Tax Association Proceedings from the 103rd Annual Conference in Chicago, IL, pp. 163–170, 2010.* *http://www.ntanet.org/images/stories/pdf/proceedings/10/24.pdf*

"Econometric Simulation of the Income Tax Compliance Process for Small Businesses" (with George Contos and Scott Stilmar), *Proceedings of the 2009 Winter Simulation Conference,* pp. 2902–2914, 2009. http://www.informs-sim.org/wsc09papers/281.pdf

"Towards a Framework for Tax Gap Estimation and Microsimulation Analysis of Tax Noncompliance", *Proceedings of the 97th Annual Conference on Taxation*, National Tax Association, Minneapolis, Nov. 11-13, 2004, pp. 47–52.

"Mapping the Compliance Continuum", in *Taxing the Hard-to-Tax: Lessons From Theory and Practice*, ed. James Alm, Jorge Martinez-Vazquez, and Sally Wallace, Amsterdam: Elsevier, 2004. http://aysps.gsu.edu/isp/files/ispwp0319.pdf

"Developing an Econometric Model for Measuring Tax Compliance Using Operational Audit Data" (with Chih-Chin Ho), *2002 American Statistical Association Conference Proceedings.* *http://www.irs.gov/pub/irs-soi/ho.pdf*

"The Income Tax Compliance Burden on Canadian Big Business", in *Taxation Compliance Costs: A Festschrift for Cedric Sandford*, ed. by C. Evans, J. Pope, and J. Hasseldine, Sydney: Prospect Media Pty Ltd, pp. 317–335, 2001. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.197.6214&rep=rep1&type=pdf

"The Magnitude and Determinants of Federal Estate Tax Noncompliance" (with Martha Eller and Chih-Chin Ho), in *Rethinking Estate and Gift Taxation*, ed. William G. Gale, James R. Hines, Jr., and Joel Slemrod, Washington, DC: The Brookings Institution, pp. 375 – 410, 2001. http://epe.lac-bac.gc.ca/100/200/301/finance/working_paper_tcbt-e/1997/1997-06/wp97-6e.pdf

"Review of Alternative Approaches to Audit Selection", in *Methods and Modeling Tools in Tax Administration*, ed. Dmitri Chernik and Jorge Martinez, Moscow: Unity Publishing, 2000.

"The Relationship Between State and Federal Tax Audits", (with James Alm and Jonathan S. Feinstein), in Empirical Foundations of Household Taxation, edited by Martin Feldstein and James Poterba, Chicago: University of Chicago Press, pp. 235–277, 1996.

Chapters in Edited Books and Published Conference Proceedings, Cont.

"Towards Building a Profile of an Income Tax Nonfiler: First Snapshots of a Ghost", (with Chih-Chin Ho of IRS), National Tax Association, Proceedings of the Eighty-Eighth Annual Conference, pp. 155–159, 1996.

"The Influence of Tax Audits on Reporting Behavior", in Why People Pay Taxes: Compliance and Enforcement, ed. Joel Slemrod, Ann Arbor: University of Michigan Press, 1992, pp. 95–114.

"The Compliance Costs of a Separate Personal Income Tax for Ontario: Simulations for 1991", (with Francois Vaillancourt), in Taxation in a Subnational Jurisdiction, ed. Allan Maslove, Toronto: University of Toronto Press, 1993, pp. 137–170.

Book Reviews

"Tax Compliance and Tax Morale: A Theoretical and Empirical Analysis", by Benno Torgler, *Journal of Economic Literature*, pp. 28-30, March 2009.

Working Papers

"The General Deterrent Effect of Tax Audits: An Econometric Framework for Analysis"

"The Income Tax Compliance Burden on Small and Medium-sized Canadian Businesses", Technical Committee on Business Taxation Working Paper 97-12, 1997

"A Critical Review of the Empirical Research on Canadian Tax Compliance", Technical Committee on Business Taxation Working Paper 97-6, 1997

"Bibliography on Tax Compliance and the Underground Economy", 1996

"The Income Tax Compliance Cost of Canadian Big Business," Technical Committee on Business Taxation Working Paper 97-2, 1997

OTHER PROFESSIONAL ACTIVITIES

Editorial Responsibilities

Member of Board of Referees, *Encyclopedia of Law and Economics*

Member of the Editorial Advisory Board of the *National Tax Journal*, 1995 through 1998.

Academic Referee Work

Referee for The Accounting Review, Canadian Journal of Economics, Canadian Public Policy, Economic Design, European Economic Review, European Journal of Political Economy, Industry Canada, International Tax and Public Finance, Journal of Accounting Research, Journal of Development Economics, Journal of Econometrics, Journal of Public Economics, National Tax Journal, Public Finance Review, and Review of Economics and Statistics

Conference Presentations

Discussant Comments on "IRS Enforcement and State Corporation Income Tax Revenues" by Margot Howard, Internal Revenue Service-Tax Policy Center Research Conference on *Tax Administration at the Centennial,* June 20, 2013.

Discussant Comments on "The Effect of Public Disclosure on Reported Taxable Income: Evidence from Japan and Norway" by Joel Slemrod, National Tax Association Spring Symposium, May 16, 2013.

"Advances in Nonfiling Measures (with Mark Payne and Alan Plumley), Internal Revenue Service - Tax Policy Center Research Conference, June 21, 2012.

"The Individual Income Tax Reporting Gap: What We See and What We Don't" (with Jonathan Feinstein), Internal Revenue Service - Tax Policy Center Research Conference, June 22, 2011.

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"Predicting Aggregate Taxpayer Compliance Behavior" (with Alan Plumley and Derek Snaidauf)),), Internal Revenue Service - Tax Policy Center Research Conference, June 22, 2011.

Conference Presentations, Cont.

“Pre-Completed Tax Returns: The California Experience”, National Tax Association Annual Conference, November 20, 2010.

Discussant Comments on “How Does Behavioral Economics Inform Tax Policy?,” with papers by James Alm, Raj Chetty, and Joel Slemrod, National Tax Association Spring Symposium, May 13, 2010.

Discussant Comments on "Mobility, Competition and the Distributional Effects of Tax Evasion" by *James Alm* and *Edward Sennoga*, University of Tennessee Center for Business and Economic Research Conference on "Mobility and Tax Policy: Do Yesterday's Taxes Fit Tomorrow's Economy?," Knoxville, October 2-3, 2008.

“Econometric Models for Multi-Stage Audit Processes: An Application to the IRS National Research Program”, Andrew Young School of Policy Studies Conference on Tax Compliance and Evasion, Georgia State University, Atlanta, GA, October 1-2, 2007.

Invited panel member. “Joint Forum on Tax Compliance: Options for Improvement and Their Budgetary Potential”, arranged by the Congressional Budget Office, U.S.

Government Accountability Office, and Joint Committee on Taxation, September 6, 2007.

“Estate and Gift Taxation in Taiwan: An Analysis of the Current System and Some Proposals for Reform” (with Chih-Chin Ho), National Bureau of Economic Research (NBER) East Asian Seminar on Economics, Manila, Phillipines, June 23-25, 2006.

“The General Deterrent Effect of Tax Audits: A Preliminary Micro-Econometric Analysis” (with Edward Emblom and Chih-Chin Ho), Internal Revenue Service Research Conference, Washington, DC, June 14-15, 2006.

“The General Deterrent Effect of Tax Audits: An Econometric Framework for Analysis”, 2005 Taipei Conference on Taxation: Theory, Policy, and Administration, Institute of Economics, Academia Sinica, Taipei, Taiwan, December 29-30, 2005.

Conference Presentations, Cont.

"Estimating the Informal Supplier Tax Gap" (with James Alm), 2005 IRS Research Conference, June 7, 2005. http://www.irs.gov/pub/irs-soi/05almerard.pdf

"Comments on *Corporate Tax Noncompliance* by Michelle Hanlon, Lillian Mills, and Joel Slemrod", Conference on Taxing Corporate Income in the 21st Century, sponsored by Office of Tax Policy Research, University of Michigan, and Burch Center of University of California, Berkeley, Ann Arbor, Michigan, May 5-6, 2005.

"Towards a Framework for Tax Gap Estimation and Microsimulation Analysis of Tax Noncompliance", 97th Annual Conference of the National Tax Association, November 11-13, 2004.

"Mapping the Compliance Continuum", conference on "The Hard to Tax: International Perspective," Andrew Young School of Policy Studies, International Tax Program, Georgia State University, Stone Mountain Park, May 15-16, 2003.

"Compliance Measurement and Workload Selection with Operational Audit Data", Internal Revenue Service Research Conference, George Washington University, Washington, DC, June 11-12, 2002. http://www.irs.gov/pub/irs-soi/compmewo.pdf

"Statistical Models of Non-Compliance for Use with Operational Audit Data", Federation of Tax Administrators Compliance and Education Workshop, San Antonio, March 3-5, 2002.

"The Income Tax Compliance Burden on Canadian Big Business", International Tax Compliance Cost Symposium, Sydney, Australia, April 26-27, 2000.

"The Magnitude and Determinants of Federal Estate Tax Noncompliance", Brookings Institution – University of Michigan Office of Tax Policy Research Conference on
"Rethinking Estate and Gift Taxation", Washington, D.C., May 4-5, 2000.

"Participation and Compliance with the Earned Income Tax Credit", Annual Meeting of the National Tax Association, Santa Fe, November 9-11, 2000.

Invited Lectures

“Measuring the Tax Gap”, delivered the inaugural series of Masterclass lectures for the Tax Administration Research Center (TARC), United Kingdom, November 21-22.
http://tarc.exeter.ac.uk/media/universityofexeter/businessschool/documents/centres/tarc/Erard_Measuring_the_Tax_Gap.pptx

“Measuring, Explaining, and Controlling Tax Evasion”, invited lecture delivered at Georgia State University International Center for Public Policy Summer Training Program on Tax Policy, Fiscal Analysis, and Revenue Forecasting, August 7, 2013.

“Tax Administration and Compliance in Montana”, contract with the Montana Department of Revenue to deliver a two-day seminar exploring ways to improve the administration of Montana taxes. Delivered jointly with Professor Joel Slemrod (University of Michigan Office of Tax Policy Research) and Professor Joseph Bankman (Stanford University Law School), August 9-10, 2010.

"Quantitative Techniques in Public Economics: Causal Inference", invited lecture delivered at Georgia State University Summer School in Public Economics, July 8, 2008.

“Alternative Methods for Centralized Case Examination Selection”, delivered to Financial Data Center, Ministry of Finance, Taiwan, March 11, 2008.

“Burgeoning Challenges in Tax Administration”, delivered to Training Institute, Ministry of Finance, Taiwan, March 12, 2008.

“Econometric Models of Multi-Stage Audit Processes”, delivered to Department of Economics, National Taiwan University, March 13, 2008.

Consulting Engagements

Consultation on Tax Gap Measurement with Australian Tax Office (ATO), contract to participate as a member of an expert advisory group to critically evaluate and provide guidance on alternative options for measuring the federal tax gap in Australia. Work in progress.

Development of Causal Inference Models, task order with the Internal Revenue Service to provide advice on the use of causal inference models for developing counter-factual predictions of taxpayer behavior. As part of this work, I developed a novel microeconometric methodology for evaluating the determinants of taxpayer filing compliance using a combination of publicly available survey data on the general population (which does not identify tax filing status) and information from filed tax returns compiled by the IRS (which is restricted to taxpayers who actually filed a return). Project completed, April 2014.

Consultation on Tax Gap Measurement with Canadian Parliamentary Budget Office, provided expert advice and recommendations concerning estimation of the magnitude of the tax gap in Canada. Work completed, March 2014.

Development of Estimates of Taxpayer Underreporting, task order with the Internal Revenue Service to develop new estimates of line item taxpayer underreporting with respect to the individual income tax by adapting detection controlled estimation methods for use with National Research Program audit results for tax years 2006 through 2008. Project completed, February 2014.

Consultation on Tax Gap Measurement with Her Majesty's Revenue and Customs (HMRC), United Kingdom, met in person with the HMRC tax gap group and provided expert advice on a range of compliance measurement issues. Work completed, November 2013.

Development of Health Insurance Micro-Simulation Model, subcontracts with IBM to develop a rich micro-simulation model of health insurance cover to assist the Internal Revenue Service with workload planning relating to its responsibilities under
the Affordable Care Act. Project completed, December 2013.

General Deterrence Modeling, multi-year project with IBM to develop and implement a longitudinal econometric framework for measuring the direct and indirect impacts of tax administration enforcement and service activities on taxpayer compliance for the Internal Revenue Service. Work completed December 2012.

<u>Consulting Engagements, Cont.</u>

Development of Models of Consumer Choice for Compliance Research, task order with the Internal Revenue Service to advise the Office of Research on the use of consumer choice models to model the determinants of tax preparation mode. Project completed, September 2012.

Refinement of Detection Controlled Estimation Methodology, multi-year project with the Internal Revenue Service to refine the Detection Controlled Methodology for estimating noncompliance by line item on tax returns for use with existing and future NRP audit data. Work completed August 2012.

Profile of Canada's Fishing Industry Labour Force*,* contract with Fisheries and Oceans Canada to assist with validation of the methodology underlying its report profiling Canada's Fishing Industry Labour Force from 1994-2006 based on information obtained from tax records. Project completed March 2010.

Analysis of the California ReadyReturn Program, project commissioned by the Frasier Institute to review and analyze the performance of the California ReadyReturn program in providing California taxpayers with the opportunity to receive and file a pre-completed income tax return. Project completed September 2009.

Measuring Compliance with the "Nanny Tax", contract with a corporate client to develop and implement a statistical methodology to estimate the degree to which household employers comply with their federal requirements to report and remit Social Security, Medicare, and unemployment taxes on behalf of their domestic employees. Project completed, August 2009.

Sensitivity Analysis of Detection Controlled Estimation Methodology, task order from the Internal Revenue Service to perform a sensitivity analysis of the Detection Controlled Estimation Methodology for estimating noncompliance for certain income line items of the individual income tax return. Project completed May 2009.

Small Business Tax Compliance Burden Estimation, subcontract from IBM to provide expert assistance relating to the design of an econometric framework for predicting the magnitude of the burden experienced by small businesses in complying with their federal tax filing and reporting obligations. Work completed January 2009.

Consulting Engagements, Cont.

Indirect Effects of IRS Service and Enforcement Activities, subcontract from IBM to review the literature on the impact of service and enforcement activities on tax compliance, help to facilitate a conference on best practices for measuring this impact, and assist with drafting a report with recommendations for implementing these practices. This work is meant to serve as a guide for the Internal Revenue Service in its allocation of resources associated with a large multi-year investment initiative to study the indirect effects of its activities on compliance. Project completed December 2008.

Combining Operational and Random Audits, task order from the Internal Revenue Service to develop and apply a statistical methodology to integrate data from operational audits and random audits to measure noncompliance characteristics in the general taxpayer population. Project completed October 2008.

Line Item Estimation of Individual Income Tax Noncompliance, task order from the Internal Revenue Service to extend the detection controlled estimation methodology to permit estimation of reporting noncompliance for separate income items on the individual income tax return using NRP data. Project completed 2007.

Detection Controlled Estimation, task order from the Internal Revenue Service to develop and estimate an econometric model to assess the magnitude of undetected noncompliance on returns examined under the *National Research Program (NRP)*, a large-scale random audit study of noncompliance on individual income tax returns. The results of this project were used in development of the official IRS estimates of the income tax gap – the difference between taxes owed and taxes voluntarily reported and paid. Project completed July 2006.

Compliance Burden of Retail Sales Tax, subcontract with PricewaterhouseCoopers to participate in the development of a survey instrument and to undertake an econometric analysis of survey results pertaining to a large scale nationwide analysis of the compliance burden of retailers in administering state retail sales taxes. The work is being undertaken as part of the Streamlined Sales Tax Project. The survey instrument was completed in November 2004 and administered in 2005. The final report containing our econometric analysis of the survey results was completed in June 2007.

Consulting Engagements, Cont.

OECD Conference Keynote Speaker and Conference Facilitator, contract with the Canada Revenue Agency to present the keynote address at an Organization for Economic Cooperation and Development (OECD) conference on *Tax Compliance Measurement and Program Evaluation* held in Ottawa, Canada; facilitated discussions over the three days of the conference (May 24-26); and assist in drafting the Workshop report. Final report completed in September 2005. The workshop included represetatives from the following countries: Australia, Canada, France, Japan, Netherlands, New Zealand, Sweden, the United Kingdom and the United States.

Departmental Performance Report, contract with the Canada Border Services Agency to provide expert assistance with respect to the development of the Agency's first Departmental Performance Report, including: providing guidance on how to link performance results to key expected outcomes and anticipated results (particularly with respect to compliance and enforcement); assistance in the development and interpretation of key performance measures; review of draft reports to ensure proper tone, emphasis, and linkages; assistance with rewriting and re-organizing the report to enhance clarity and impact. Completed 2005.

Assessing the Informal Supplier Tax Gap*,* contract with the Internal Revenue Service (James Alm, co-researcher) to develop estimates of the extent to which informal suppliers comply with U.S. federal income tax regulations. Final report completed September 2004.

Corporate Tax Gap Estimation, contract with the Internal Revenue Service to develop an econometric methodology for estimating the income tax gap for small and medium sized corporations. Completed July 2004.

Trade Reporting Compliance, contract with the former Canada Customs and Revenue Agency to develop estimates of the degree to which importers comply with valuation, classification, origin, and duty payment requirements. Completed March 2004.

Post-release Verification Program Evaluation, contract with the former Canada Customs and Revenue Agency to perform a thorough review of the Canadian post-release verification program with a view towards improving efficiency and performance in measuring and promoting compliance with trade reporting requirements. Completed March 2004.

<u>Consulting Engagements, Cont.</u>

Development of Performance Indicators, contract with the former Canada Customs and Revenue Agency (CCRA) to assist in the development and construction of performance measures, conduct statistical analysis to measure program performance, assist in the creation of CCRA business plans and performance reports. Work completed December 2003.

Refinement of Alternative Tax Scoring Methodologies, contract with the Internal Revenue Service to refine and perform additional testing of the alternative tax scoring methodologies for audit selection developed under an earlier contract. See below under "Alternative Tax Scoring Methodologies". Final report completed July 2003.

Assessment of the Benefits of New Random Audit Data for Workload Selection**,** contract with the Internal Revenue Service to empirically evaluate how well IRS workload selection criteria developed based on random audit samples from one tax year perform over a series of subsequent years, and to assess from these results how frequently random audit samples should be updated to maintain the efficacy of the audit programs. Final report completed June 2002.

Development of a Framework for Tax Gap Estimation**,** contract with the Internal Revenue Service to develop and test an econometric framework for the estimation of the federal income tax reporting gap using operational audit data. Final report completed November 2001.

Canada Customs and Revenue Agency Annual Report**,** contract with the former Canada Customs and Revenue Agency to provide expert advice on the development of a conceptual framework for measuring and reporting on the Agency's performance against the objectives set out in its Corporation Business Plan, and to assist in drafting major portions of the Annual Report covering the Agency's performance in delivering tax services and benefit programs. Work completed, September 2001.

Earned Income Tax Credit Participation Study, contract with the Internal Revenue Service to develop an estimate of the degree of program take-up within the federal Earned Income Tax Credit program in tax year 1996, taking into account the compliance burden associated with program participation. The contract also a called for the development of profiles of eligible households that do and do not participate. Project Completed in February 2001. A follow-up project extending the results to tax year 1997 was completed in October 2001.

Consulting Engagements, Cont.

Magnitude and Determinants of Estate Tax Noncompliance, econometric analysis of the magnitude and determinants of estate tax underreporting. I co-presented the results of this research with IRS researchers at a Brookings Institution Conference in May 2000. The underlying statistical methodology for the study builds on my earlier contract work for the IRS (see below) on estimating the estate tax underreporting gap.

Quality Assurance Surveillance Plan, Department of Education contract to develop an action plan for studying trends within the sub-baccalaureate labor market at the national and sub-national levels, and to explore whether post-secondary enrollment and completion patterns by field are coincident with these trends. Project completed October 1999.

Sub-baccalaureate Labor Market Trends and The Relatedness of Postsecondary Enrollment Trends, Department of Education project to carry out the study specified in the above action plan. Final report completed in October 2000.

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Alternative Tax Scoring Methodologies, Internal Revenue Service contract to develop an alternative to the current DIF (discriminant analysis) approach to audit selection based on modern statistical techniques. Final report completed November 1999

Estate Tax Underreporting Gap, Internal Revenue Service contract to develop estimates of the estate tax underreporting gap using a sophisticated econometric model. Project completed in February 1999.

Tax Audit Selection Study, USAID contract (through Georgia State University) to prepare a report describing audit selection techniques by state and federal tax agencies in the U.S. and Canada, and to develop a methodology for implementing statistically-based audit selection procedures in Moscow Tax Inspectorates. Field work in Moscow and report completed in November 1997.

Business Tax Compliance Burden Studies, contract with the Canadian Technical Committee on Business Taxation to develop, implement, and analyze two separate surveys on the compliance costs of Canadian corporate income and capital taxes. A report on the compliance burden of large Canadian corporations was completed in January 1997. A second report on the compliance burden of small and medium-sized Canadian businesses was completed in November 1997.

Consulting Engagements, Cont.

Underground Economy Study, contract with the Canadian Technical Committee on Business Taxation to prepare a critical review of the empirical research on tax compliance, particularly as it applies to businesses in Canada. The final draft of report was completed in September 1997.

Follow-up Study, contract with the Auditor General of Canada to prepare a follow-up report on Revenue Canada's progress since my earlier 1994 report on its new regime for processing personal income tax returns. Work completed in August 1997.

Evaluation of the Canadian Child Tax Benefit and Goods and Services Tax Credit Programs, contract with the Auditor General of Canada to evaluate the administration of these programs by Revenue Canada. The former program has some similarities to the U.S. Earned Income Tax Credit. Project completed in September 1996.

Nonfiler Tax Gap, developed (free of charge) in 1994 a novel statistical methodology to estimate the magnitude of noncompliance attributable to income tax nonfilers using TCMP data, which was used to generate the official IRS tax gap estimates for nonfilers. Dr. Chih-Chin Ho of the IRS and I extended this methodology to permit the development of a profile of non-filers -- work published in the *Journal of Public Economics.*

Federal-State Auditing and Compliance, study of state and federal audit practices performed for the Oregon Department of Revenue with Jonathan Feinstein of Yale University. I developed computer programs to merge micro-level federal and state tax return and audit information, and we performed an extensive analysis of the data. We prepared a report for the Oregon Department of Revenue on ways to improve auditing practices. Our research with this data led to my chapter "The Relationship Between State and Federal Tax Audits", (with James Alm and Jonathan Feinstein), in a National Bureau of Economic Research volume published by the University of Chicago Press. Project completed in 1994.

Evaluation of the New Regime for Processing Tax Returns, contract with the Auditor General of Canada to evaluate Revenue Canada’s administration of its new regime for processing individual income tax returns. Report completed in 1994.

Consulting Engagements, Cont.

Electronic Filing Study, contract with the Auditor General of Canada to prepare and administer a survey of federal tax agencies in the U.S., Australia, and New Zealand on their experiences with electronic filing of tax returns. I prepared a report summarizing the findings of my survey and drawing lessons for the Canadian electronic filing program. Project completed in 1993.

Individual Income Tax Gap Estimation, provided approximately 15 days of substantive technical and computing assistance to the IRS Compliance Analysis Group (at no charge) to update the IRS Tax Model so that it could make use of the 1988 TCMP data to generate new estimates of the Individual Income Tax Gap. Work completed in 1993.

Compliance Costs of Separate Personal Income Tax System in Ontario, 1992 contract with the Ontario Fair Tax Commission to evaluate the taxpayer compliance costs that would be associated with a shift from federal to provincial administration of Ontario's personal income tax.

Appendix C:
Description of Methodology for Estimating the State and Local Retail Sales Tax Compliance Costs of Vendors Doing Business in Colorado

Estimating Gross Compliance Costs

My estimation of gross sales tax compliance costs involves the following 4 steps for each of the following 4 sales size classes: (1) under $150,000; (2) $150,000 to $1 million; (3) $1 million to $10 million; and (4) over $10 million. The methodology is applied separately to data for the 2011, 2012, and 2013 tax reporting periods.

Step 1: Compute the sum of state sales tax revenue and state vendor fees to arrive at total Colorado state tax collected by licensed businesses.
(Source for sales tax revenue and vendor fees: tabulations provided by the DOR.)

Step 2: Compute Colorado taxable sales by dividing Colorado state taxes collected by licensed businesses from Step 1 by the state sales tax rate (2.9%).

Step 3: Derive an estimate of what the gross sales tax compliance burden of vendors doing business in Colorado would be under a typical sales tax system by multiplying a national estimate of retailer sales tax compliance burden per dollar of taxable sales by Colorado taxable sales from Step 2.
(Source for national compliance burden estimates: PwC Report Table V.A.1., p. 9.
http://www.streamlinedsalestax.org/uploads/downloads/JCCS_Part_I__Final_Report_Vol_I_20060407.pdf.)

Step 4: Adjust the estimate from Step 3 to account for the complexities of the state and local Colorado sales tax. As discussed in the main text, my adjusted estimate reflects my judgment that the presence of destination-based sales taxes with a local option, differences in tax bases and tax rates across local jurisdictions, and separate local administration of taxes by home rule cities make the Colorado sales tax significantly more burdensome than the national average – at least 30 percent more. Therefore, my adjusted estimate of aggregate gross compliance costs is computed by multiplying the preliminary estimate from Step 3 by 1.3.

Step 5: Divide the estimate of aggregate gross compliance costs from Step 4 by the number of accounts to obtain average estimated gross compliance costs per account.
(Source for number of state sales tax accounts: tabulations provided by the DOR.)

Step 6: Divide the estimate of aggregate gross compliance costs from Step 4 by aggregate gross sales to obtain average estimated gross compliance costs per dollar of gross sales.
(Source for aggregate gross sales: tabulations provided by the DOR.)

Estimating Vendor Fees

My methodology to estimate offsets to gross compliance costs involves the following 5 steps for each of the 4 size classes and 3 reporting years.

Step 1: Compute the weighted average vendor service fee rate (*v*) on sales taxes collected by licensed businesses for local home rule cities. The weights in this calculation are the sales in each home rule city that were taxable under the state sales tax in calendar year 2013. The use of a weighted average accounts for the greater contribution of vendor service fee rates in cities with larger taxable sales bases on the aggregate amount of service fees received by businesses. (Source for vendor service fee rates for home rule cities: DOR Publication DR 1002 www.colorado.gov/cms/forms/dor-tax/**dr1002**.pdf.)
(Source for state taxable sales by home rule city: Colorado Department of Revenue, *State Sales Tax Collected in Colorado Counties and Selected Cities and Related Statistics, Calendar Year 2013*:
http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251964580763&ssbinary=true.)

Step 2: For each year, estimate locally administered sales tax revenue by sales size class. Since only aggregate locally administered sales tax revenue is available from Census, we proportionally allocate the aggregate revenue in each year to the three size classes using the shares of aggregate state administered sales tax remittances in each class. For instance, the over $10 million sales class accounts for 67.44 percent of total remittances of state-administered sales tax in 2013. We therefore assign 67.44 percent of total remittances of locally-administered sales tax in 2013 to the over $10 million sales class.
(Source for aggregate locally administered sales tax revenue: Census Quarterly Summary of State & Local Taxes, Table 3 – Historical State Tax Collections by State https://www.census.gov/govs/qtax/table_3.html)
(Source for state administered sales tax remittances by size class: tabulations provided by the DOR)

Step 3: Divide estimated locally administered sales tax revenue from Step 2 by one minus the weighted average vendor service fee rate (1-*v*) from Step 1 to arrive at an estimate of locally administered sales taxes collected (inclusive of the vendor fee).

Step 4: Multiply estimated locally administered sales taxes collected from Step 3 by the weighted average vendor service fee rate (*v*) to arrive at the estimated vendor service fee on these collections.

Step 5: Compute the combined state and local vendor fee by adding the estimated vendor service fee on locally administered sales tax collections from Step 4 to the actual vendor service fee on state administered sales tax collections (including both state sales tax collections and state-administered local sales tax collections).
(Source for vendor service fees on state administered tax collections: tabulations provided by the DOR)

Estimating Cash Flow Benefits to Businesses

My methodology for estimating the cash flow benefits to businesses from the lawful delay in remittance of taxes they have collected involves the following 3 steps for each sales size class and tax reporting year.

Step 1: Divide the annual prime rate in each year by 365 to get the daily interest rate.
(Source for the annual prime rate:
http://www.federalreserve.gov/datadownload/Output.aspx?rel=H15&series=8193c94824192497563a23e3787878ec&lastObs=&from=&to=&filetype=csv&label=include&layout=seriescolumn.
)

Step 2: Multiply the result from Step 1 by the estimated dollar-weighted average number of days between collection and remittance of taxes by sales size class to arrive at the potential interest earned per dollar of tax collections.
(Source for dollar-weighted average number of days: PwC study, footnote 8, p. 9. (Source for national compliance burden estimates: PwC Report Table V.A.1., p. 9.
http://www.streamlinedsalestax.org/uploads/downloads/JCCS_Part_I__Final_Report_Vol_I_20060407.pdf.)

Step 3: Compute the overall potential interest on float from tax collections in each sales class by multiplying the result from Step 2 by the value of overall state and local sales tax collections in the class.
(Source for state administered sales tax collections: tabulations provided by the DOR.)
(Source for locally administered sales tax collections: see step 2 of the methodology for estimating offsets to gross compliance costs.)

Estimating Net Compliance Costs

Do the following computations for each year and sales size class:

Step 1: Add the estimated combined state and local vendor fee from Step 5 of *Estimating Vendor Fees* to the estimated cash flow benefits from Step 3 of *Estimating Cash Flow Benefits to Businesses* to obtain the estimated aggregate offsets to gross compliance costs.

Step 2: Subtract the estimated aggregate offsets to gross compliance costs from Step 1 from estimated aggregate gross compliance costs from Step 4 of *Estimating Gross Compliance Costs* to obtain estimated aggregate net compliance costs.

Step 3: Divide estimated aggregate net compliance costs from Step 2 by the number of state sales tax accounts to obtain average estimated net compliance costs per account.
(Source for number of state sales tax accounts: tabulations provided by the DOR.)

Step 4: Divide estimated aggregate net compliance costs from Step 3 by aggregate gross sales to obtain estimated net compliance costs as a percentage of gross sales.
(Source for aggregate gross sales: tabulations provided by the DOR.)