Tax Compliance in the Amazon

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Online Appendix – Supplementary Figures and Results

Figure A1 reproduces the Amazon notice sent to purchasers in January of 2014.[1] There are a few features to note. First, a notice like this was sent to all Amazon customers who had purchases shipped to Tennessee in the previous year, and these messages do not identify the account holder as an individual or business. Amazon had no obvious means of differentiating between consumer and business purchasers—the trigger for each of these emails was simply purchasing from the platform and shipping to a Tennessee address. We rely on the Department of Revenue's determination of whether a tax filer was classified as a consumer or a business (which is primarily based on which tax return was filed) for our analysis. Second, notices were personalized to include the sum of each recipient's recent purchases. And third, recipients were given a link to a state portal where they could make use tax payments. Last, and perhaps most importantly, these emails do not imply or deny that online tax obligations would be enforced.

Figure A2 reproduces the first page of the business sales and use tax return and Figure A3 presents the Tennessee consumer use tax return.

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[1] The 2012 and 2013 email notices were virtually identical.

Table A1 reports summary statistics for three county-by-month aggregations: all consumer tax filings in the county (Column 1), consumer tax returns from individuals who filed prior to the first Amazon notice (Column 2), and returns from individuals who first appear in the consumer tax records after the first Amazon notice (Column 3, where summary statistics are limited to April 2012 – March 2015 filings since these taxpayers are not seen in earlier data). In a typical month, a county saw just four tax filings and $2,980 in total taxes paid, with the median consumer paying a sizable $607 in use tax (Column 1).

Total tax payments and the rate of new filers are similar across those who filed prior to the first Amazon notice (Column 2) and those whose first filing came after the Amazon letter campaign began (Column 3). Filers whose first payment came after the first Amazon email tended to be greater in number (7.5 in a typical county and month versus 2.0 filers for those who filed prior to the Amazon email campaign), and they remitted smaller payments ($433 versus $652).

In Figures 2-3 of the main paper, we showed that the volume of consumer filings rose sharply in the months following each Amazon email. A sudden influx of new filers, particularly after the first email, submitted payments that were much smaller than normal consumer payments, driving the median tax paid down but having no discernible aggregate effect on total, statewide consumer tax collections. These patterns are evident from the four statewide monthly averages plotted in Figure 2: total filings, the percent of filers with no previously observed payment, median tax paid, and total tax payments. Here, we quantify the deviations from underlying trends that coincided with each Amazon email. Specifically, we estimate the following specification for county c, month m:

$$Y_{cm} = \beta_0 + AMZ_m\beta_1 + f(t_m, \gamma_m) + \beta_c + X_{cm}\beta_x + \varepsilon_{cm}, \tag{A1}$$

where Y_{cm} represents an aggregate, county-level average filing outcome for consumers, and AMZ_m, $f(t_m, \gamma_m)$, β_c, and X_{cm} are as defined in Equation (1) of the main paper. Standard errors allow ε_{cm} to be correlated within county c.[2]

Table A2 reports Equation (A1) estimates. Consistent with Figure 2, we find that each email preceded an additional 16-21 filers per county, per month. This nominally small influx of additional taxpayers was nonetheless up to five times the size of the average monthly count of filers in a county. The share of *new* filers increased by 7-24 percentage points following each Amazon email notice, though the median tax payment decreased by $413 – $572. One striking insight from Table A2 is that estimated effects on total filers (Column 1) did not taper from one notice to the next. The other salient conclusion is that despite large influxes of new taxpayers, total tax collections did not significantly increase (Column 4). Consumer responses were limited to a relatively large number of very small tax payments. This suggests that either taxpayers with small liabilities were most responsive to the emails, and/or that taxpayers did not remit their entire liability.[3]

As in the analysis of business returns in the main paper, we exercise caution in interpreting β_1 estimates as attributable to Amazon emails alone, as opposed to random or unobserved variation in monthly filing behavior. In brackets under each AMZ_t coefficient estimate, we report the percent of placebo β_1 coefficients that are larger in absolute value than the true estimate.

The increased volume of total filings was atypical during time periods immediately following Amazon emails, falling in the top 1 percent of all rolling three-month periods across 2003-2015 (Column 1 of Table A2). Following the first and second emails, the percent of consumer filers

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[2] Equation (A1) estimates are very similar with and without county fixed effects, in terms of sign, significance, and magnitude. Conclusions are also similar when we weight Equation (1) by the typical monthly volume of consumer filings prior to April 2012.

[3] We cannot distinguish between these two since we only observe tax payments and not true tax liabilities.

who were new was conditionally higher than it was in all but respectively 1 and 4 percent of other 2003-2015 time periods, whereas the increased rate of new filers following the third email notice was not atypically high. In Column 3 we report that the median tax payment was significantly lower following each Amazon email. Finally, Column 4 results show that the change in total taxes paid was statistically insignificant following each email, as well as more central in the distribution of total tax point estimates from all other time periods. Taken together, results from Columns 1 through 4 indicate that the Amazon emails led to an increase in the number of new consumer tax filers (Columns 1 and 2), but the tax payments made by these additional filers were small enough to drive down the median payment per filer (Column 3) and had no impact on total tax collections (Column 4).

Table A3 reports summary statistics for business sales and use tax returns. A typical business return claimed $69,747 in gross sales and paid $3,508 in sales and use taxes. Seven percent of monthly filing windows claimed repurposed items, averaging $411, and nine percent contained out-of-state purchases, averaging $603.

Figures A4 and A5 depict the timepath of placebo β_1 estimates for, respectively, consumer and business tax filing outcomes, illustrating dynamic trends in these outcomes conditional on an overall time trend and county controls. Figure A4 is consistent with unconditional trends in consumer filings shown in Figure 2, and furthermore does not suggest that consumers responded to email notices by shifting their tax reporting forward in time. This behavior would manifest as a spike in filings around Amazon emails, which we observe, but then a fall in the volume of filings below normal rates, which we do not. On the business side, Figure A5 is likewise consistent with simple averages in Figure 4 of the main paper. Figure A6 depicts the business tax

placebo distributions, highlighting that many of the statistically significant estimates from Table 1 are in fact unexceptional among "effects" of other time periods on these outcomes.

Next, we assess whether the findings from Table 1 differ by measures of business size and experience with filing. Results are reported in Tables A4-A7. Size distinctions can be important since required filing frequency depends on firm size and it is widely believed that the state focuses its audit resources on larger firms, which could create different audit expectations. We estimate Equation (1) for six business subgroups: businesses reporting either no gross sales or average gross sales in the bottom 5% of non-zero sales (83,441 entities); businesses reporting average gross sales in the top 10% (20,841); businesses with total number of filings in the bottom 50% (162,437); businesses with total number of filings in the top 10% (32,836); businesses in the bottom 5% of average gross sales and the bottom half of total number of filings (67,132); and businesses in the top 10% of average gross sales and the top 10% of total number of filings (3,503).

Table A4 results explore if filing differs across these business subgroups. Columns are ordered from small and infrequent filers to large and continuous filers. Most of these estimates are statistically significant but very close to zero and indistinct from placebo time periods. A notable exception is for infrequent filers and filers with low average sales (Columns 1-3). These subgroups of businesses were 1-2 percentage points *less* likely to file a return after the second and third emails, a large change relative to placebo estimates in brackets as well as 3-8% mean filing rates.

Table A5 reports Equation (1) results for log tax payments across these six groups. Moving from Column 1 to 6, the magnitude of estimates suggests that the Amazon email notices may have prodded smaller businesses and/or less frequent tax filers into making larger tax payments.

Many of these smaller businesses could be one-person operations, and are perhaps more likely to act like consumers with regards to tax filing behavior. Despite large estimated responses among smaller businesses (45-57 log points in Column 1), however, none of the three-month windows following Amazon emails were atypical relative to placebo estimates.

Tables A6 and A7 present the same subgroup analysis for the two itemized lines from the business tax return, the value of repurposed items and out-of-state purchases. Infrequent tax filers reported more out-of-state purchases by 35 log points (Column 3 of Table A6) after the first Amazon email notice, but this is the only atypical response out of the 36 estimates across the two tables (Tables A5 and A6).

Figure A1: Amazon Email

M Gmail   ███████ ████████████

Tennessee Tax Information
1 message

Amazon.com <usetaxnotification@amazon.com>   Fri, Jan 24, 2014 at 12:39 AM
To: ████████████████████████████

Hello from Amazon.com,

Thank you for being a loyal customer of Amazon.com LLC. We appreciate your business and look forward to continuing to provide you vast selection, low prices, fast delivery and convenience.

As you may know, Amazon.com LLC was not required in 2013 to collect sales or use taxes in Tennessee. However, the state of Tennessee requires us to provide the following notice to you:

You may owe use tax on purchases you made from Amazon.com LLC during the previous calendar year. The amount of tax you may owe is based on the total sales price of the items you purchased during the calendar year unless an exemption exists under state law or you have already paid the tax. A sale is not exempt under state law because it is made through the Internet. The total sales price of purchases you had shipped to Tennessee in 2013 was $████████. This is the amount that you may include on your Tennessee use tax return to calculate the appropriate use tax owed unless you have already paid the tax.

As purchases from Amazon.com LLC can be made through various sales channels, we have included directly below your breakdown of purchases from the various channels.

Total sales from www.amazon.com $████████
Total sales from www.endless.com $0.00
Total sales from www.myhabit.com $0.00
Total sales from www.amazonwireless.com $0.00
Total sales from www.amazonsupply.com $0.00
Total sales from www.dpreview.com $0.00

In addition, the state of Tennessee requires us to provide you with the following link that you can use to get more information and pay any taxes due:

Use Tax Page: https://apps.tn.gov/usetax
Please note the following:

• While Amazon.com LLC does not report this information directly to the state of Tennessee we are required to provide this information to you based on Tennessee Code T.C.A. § 67-6-515 (f)(3).
• This notification has been sent to all customers that had purchases delivered to Tennessee. If you are not a resident of Tennessee, the most common reason for receiving this notification is that you may have sent a gift to a recipient in the state.

For more information you may also view our Tennessee Use Tax Notification Page at:
www.amazon.com/gp/help/customer/display.html?nodeId=200909330

Sincerely,
Customer Service
Amazon.com

TENNESSEE DEPARTMENT OF REVENUE
State and Local Sales and Use Tax Return

RV-R0012001 (1/21)

SLS 450

Filing Period	Account Number	Check if applicable:
Due Date	Location ID	

Amended return ☐

Final return ☐

Change of mailing address ☐

Legal Name

Mailing Address

City	State	ZIP Code

Location Address

City	State	ZIP Code

Taxpayers should submit their return and payment from Line 21 by visiting the Department's website at
https://tntap.tn.gov/eservices

Round to nearest dollar

1. Gross sales..(1) _____

2. Cost of personal property purchased on a resale certificate but used..(2) _____

3. Cost of out-of-state purchases and property imported into Tennessee for use ....(3) _____

4. Fair market value of tangible personal property fabricated, produced, compounded, or severed from the earth for use in Tennessee...(4) _____

5. Total sales and purchases (add Lines 1-4)...(5) _____

6. Exempt transactions from Schedule A, Line 11...(6) _____

7. State net taxable total (subtract Line 6 from Line 5) ....(7) _____

8. State sales and use tax (multiply non-food sales and purchases by 7%).....................................(8) _____

9. State food tax (multiply food sales by 4%)...   ....(9) _____

10. Local sales and use tax from Schedule B, Line 8...   ....(10) _____

11. Tax collected in excess of state and local levies...(11) _____

12. State tax on transactions subject to single article and reduced rates from Schedule C, Line 9 ....(12) _____

13. Local tax on transactions subject to the special tax rate from Schedule C, Line 15.........................(13) _____

14. Central Business Improvement District Fee from Schedule D, Line 10...(14) _____

15. Prepaid Wireless 911 Surcharge $1.50 per retail transaction for prepaid wireless telecommunications less 2% administrative fee ....(15) _____

16. Local Occupancy Tax on Short-term Rentals total from Schedule F, Column H..............................(16) _____

17. Net tax due (add Lines 8-16)...(17) _____

18. Credit memo balance ....(18) _____

19. Penalty (see instructions)..(19) _____

20. Interest (see instructions) ....(20) _____

21. Total tax due - If filed timely, subtract Line 18 from Line 17, if filed late, subtract Line 18 from Line 17 and add Lines 19 and 20 ....(21) _____

FOR OFFICE USE ONLY

TENNESSEE DEPARTMENT OF REVENUE
Consumer Use Tax Return

RV-R0000501   INTERNET (03-17)

SLS 452

Purchaser (Check One)	SSN OR FEIN
☐ Individual ☐ Business	

Phone:

County of Residence:

Name: _____

Address: _____

City: _____ State: ____ Zip: _____

Make your check payable to the Tennessee Department of Revenue for the amount shown on Line 11 and mail to:
TENNESSEE DEPARTMENT OF REVENUE
Andrew Jackson State Office Building
500 Deaderick Street, Nashville TN 37242

1. Total Amount of All Purchases.. (1) _____ .00

2. State Tax on All Purchases (Multiply Line 1 x 7%)...................... (2) _____ .00

3. State Single Article Tax (Total From Schedule A, Column D)........... (3) _____ .00

4. Total State Tax (Add Lines 2 and 3).. (4) _____ .00

5. Total Purchases [Line 1 Minus Single Articles With a Unit Price in Excess of $1,600 (Total from Schedule A, Column B) and Purchases of Specified Digital Products Included in Line 1].. (5) _____ .00

6. Local Tax (Multiply Line 5 x Applicable Local Sales Tax Rate)........ (6) _____ .00

7. Total Amount of Specified Digital Products Deducted on Line 5....... (7) _____ .00

8. Local Tax on Specified Digital Products (Multiply Line 7 x 2.50%)..... (8) _____ .00

9. Local Tax on Single Articles With a Unit Price in Excess of $1,600 (Total From Schedule A, Column C).. (9) _____ .00

10. Total Local Tax (Add Lines 6, 8, and 9)................................. (10) _____ .00

11. Total Amount Due (Add Lines 4 and 10).................................. (11) _____ .00

I declare this is a true, complete, and accurate return to the best of my knowledge.

_____   _____
Taxpayer Signature   Date

FOR OFFICE USE ONLY

Use tax is the counterpart to sales tax. Tennessee, like other states that impose a sale tax, impose a tax on the use of property in this state brought or shipped into Tennessee untaxed. If you purchase untaxed merchandise through the internet, over the telephone, or from mail-order catalogs, or if you travel outside the state and purchase merchandise that is shipped to your Tennessee address, then you must pay use tax directly to the Department of Revenue. If Tennessee sales tax is added to the price of your purchase, you do not owe use tax. Use tax applies to purchases of tangible personal property, specified digital products (e.g., downloads or access to digital videos, digital music, and digital books), computer software, video game digital products, and warranty or maintenance contracts covering computer software or tangible property, such as household appliances, motor vehicles, boats.

Schedule A - Calculation of Single Article Tax

NOTE: Schedule A is used to determine the local sales tax and the state single article tax due on the purchase of individual items of tangible personal property with a unit purchase price of more than $1,600. The first $1,600 of the purchase price is subject to local tax at the local tax rate for your residence or business address. A local tax chart is available at www.tn.gov/revenue. In addition, the state single article tax at the rate of 2.75% applies to the purchase price from $1,600 to a maximum of $3,200.

Example - Sofa purchase price is $2,000. State tax at 7% is $140. Local tax at 2.25% on the first $1,600 of the price is $36. State single article tax at 2.75% on $400 (amount of purchase price over $1,600) is $11. Total tax due is $187.

In Column C, multiply $1600 by the applicable tax rate for your residential or business address. Enter the result in the box provided. Total all amounts reported in Column C and enter on Line 9 on Page 1.

In Column D, multiply the portion of the purchase price shown in Column B that is over $1,600 by 2.75%, Enter the result, but not more than $44 for that item. Total all amounts reported in Column D and enter on Line 3, Page1.

Column A Description of Item	Column B Purchase Price	Column C $1,600 x Local Tax Rate	Column D State Single Article Tax

Table A1. County-level consumer filing summary statistics

	(1)	(2)	(3)
	All filers	Filed prior to Amazon notices	First filed after initial Amazon notice
Time period	July 2003 – March 2015	July 2003 – March 2015	April 2012 – March 2015
Number of filers per month	3.91	2.07	7.48
	(16.07)	(5.54)	(28.20)
Percent of filers who are new*	76.34	70.54	69.99
	(33.19)	(40.30)	(34.18)
Total tax paid	2,980.40	2,435.89	2,260.70
	(18,897.36)	17,246.76	(15,549.33)
Median tax paid*	606.96	652.16	432.54
	(2,069.38)	(1,880.66)	(2,687.86)
County-month observations	13,299	13,198	3,312
Individual consumers	39,208	20,349	18,859

Notes: The table summarizes monthly tax outcomes for 95 counties, July 2003 - March 2015. Column (1) reports filing statistics for all consumer sales tax returns, aggregated to the county-by-month level. Columns (2) and (3) statistics refer to county-by-month aggregate statistics from two groups of consumers: Those who filed prior to the first Amazon email notice in April 2012 (Column 2), and those who first filed in April 2012 or later (Column 3, where statistics are limited to April 2012 and later).
* Summary statistics on the percent of filers who are new and the median tax paid are limited to county-months with any filings. New filers are those with no record of a consumer filing since July 2003, the earliest record in our data.

Table A2. Amazon email notices and consumer tax filing behavior

	(1)	(2)	(3)	(4)
	Number of filers	Percent of filers who are new	Median tax paid	Total tax paid
April 2012 notice	15.8***	23.8***	-413.2***	882.9
	(3.8)	(1.6)	(111.7)	(834.3)
	[0.7%]	[1.4%]	[10.1%]	[41.7%]
January 2013 notice	21.4***	16.5***	-571.6***	-637.7
	(4.8)	(1.9)	(89.9)	(655.8)
	[0.0%]	[4.3%]	[2.9%]	[59.7%]
January 2014 notice	17.4***	7.2***	-506.2***	-60.0
	(4.0)	(2.6)	(99.9)	(992.0)
	[0.7%]	[21.6%]	[3.6%]	[95.0%]
Monthly county observations	13,299	7,968	7,968	13,299
R-squared	0.168	0.234	0.015	0.004

Notes: The table lists Equation (A1) results for consumer tax filing outcomes, aggregated to the county-month level, and includes data from July 2003 through March 2015. The notice variables are time dummy variables for the month that Amazon distributed the emails plus the following two months. Each regression includes county fixed effects, a quadratic time trend, and indicators for January-December calendar months, as well as the following time-varying county-level control variables: population, income per capita, farming income per capita, labor force participation, and median age. Regressions for the percent of filers who are new (Column 2) and the median consumer tax payment (Column 4) are limited to county-months with any filings. Standard errors, in parentheses, allow for correlated error terms within county. For each point estimate, the percent of placebo estimates that are greater than that point estimate, in absolute value, is listed in brackets below the standard error. *** significant at 1%, ** 5%, * 10%

Table A3. Business filing summary statistics

|	Mean	St.Dev.
Gross sales	69,746.55	(123,706.73)
Any repurposed items claimed	0.07	(0.26)
Repurposed item value	410.77	(7,254.97)
Any out-of-state purchases claimed	0.09	(0.29)
Value of out-of-state purchases	602.51	(8,050.69)
Tax paid	3,507.99	(5,445.95)
Average time between filings (in months)	2.75	(3.55)
Monthly entity-by-SITUS observations	9,851,981	

Notes: The table summarizes monthly tax outcomes for 247,628 entity-SITUS combinations, July 2003 - March 2015.

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Figure A4. Timepath of placebo estimates for consumer use tax filing outcomes

I. Number of consumer sales tax filings, by month
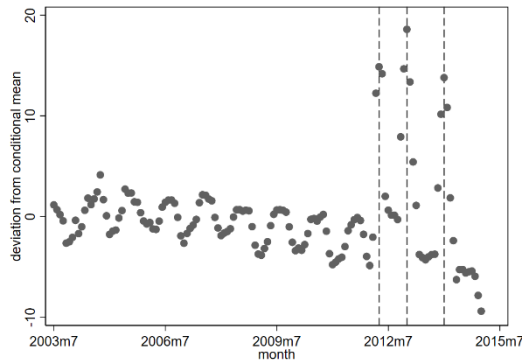
II. Share of filers who are new, by month
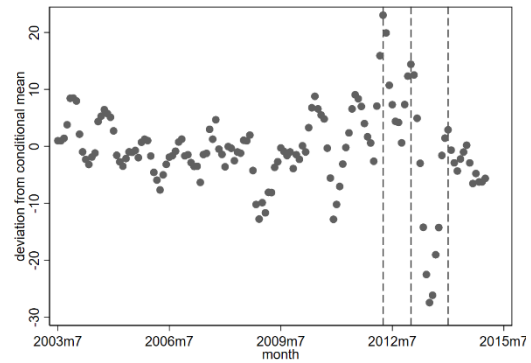
III. Median tax paid, by month
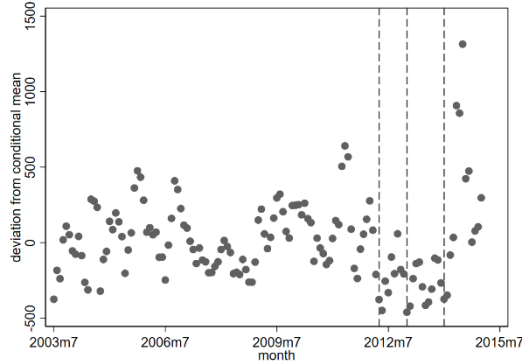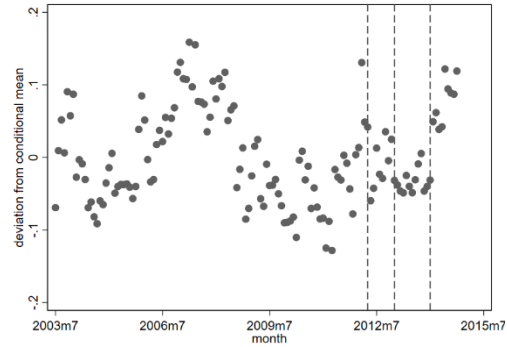

IV. Statewide total tax paid, by month
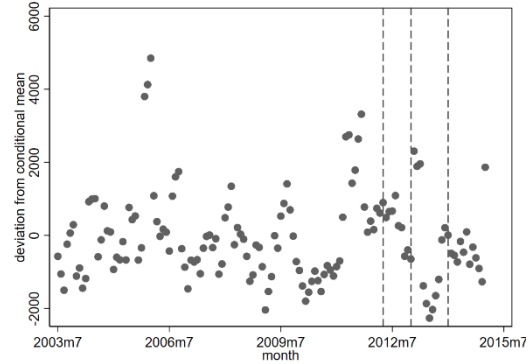
Notes: In each panel, a scatter point represents the point estimate of β_1 in Equation (A1), where AMZ_m is defined as an indicator equal to one for filings in the three-month period after the date noted on the horizontal axis. Each panel depicts the timepath of conditional deviations from the mean for a given outcome. Vertical lines mark months with Amazon email blasts.

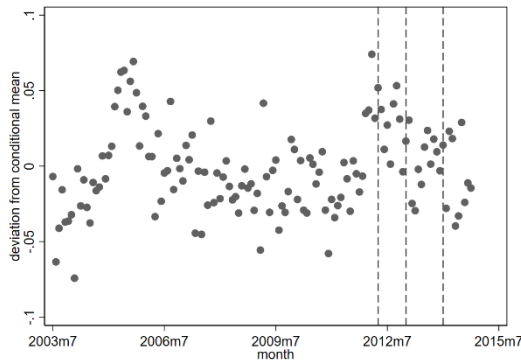Figure A5. Timepath of placebo estimates for business sales and use tax filing outcomes
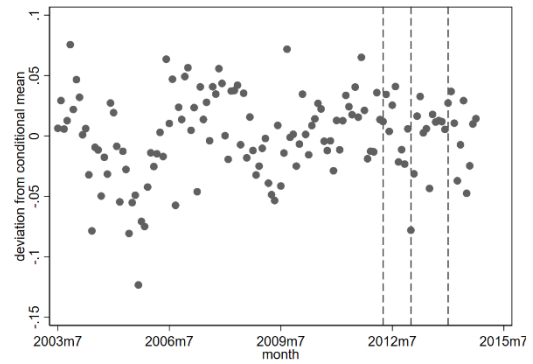
I. Any filing this month
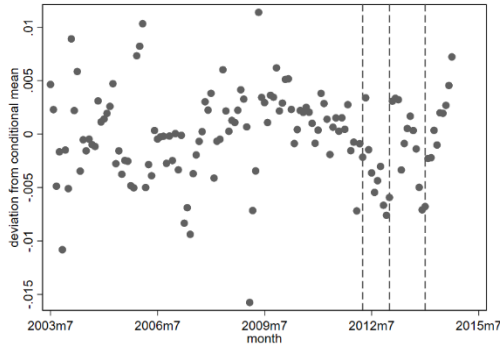
II. Total business sales and use tax payments, by month

III. Value of repurposed items claimed, by month

IV. Value of out-of-state purchases claimed, by month

Notes: In each panel, a scatter point represents the point estimate of β_1 in Equation (1), where AMZ_m is defined as an indicator equal to one for filings in the three-month period after the date noted on the horizontal axis. Each panel depicts the timepath of conditional deviations from the mean for a given outcome. Vertical lines mark months with Amazon email blasts.

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Figure A6. Business tax responsiveness to Amazon email notices against pseudo-treatment months

I.   Filed this month (0,1)

II.   Log total tax paid

III.   Log value of repurposed items claimed

IV.   Log value of out of state purchases
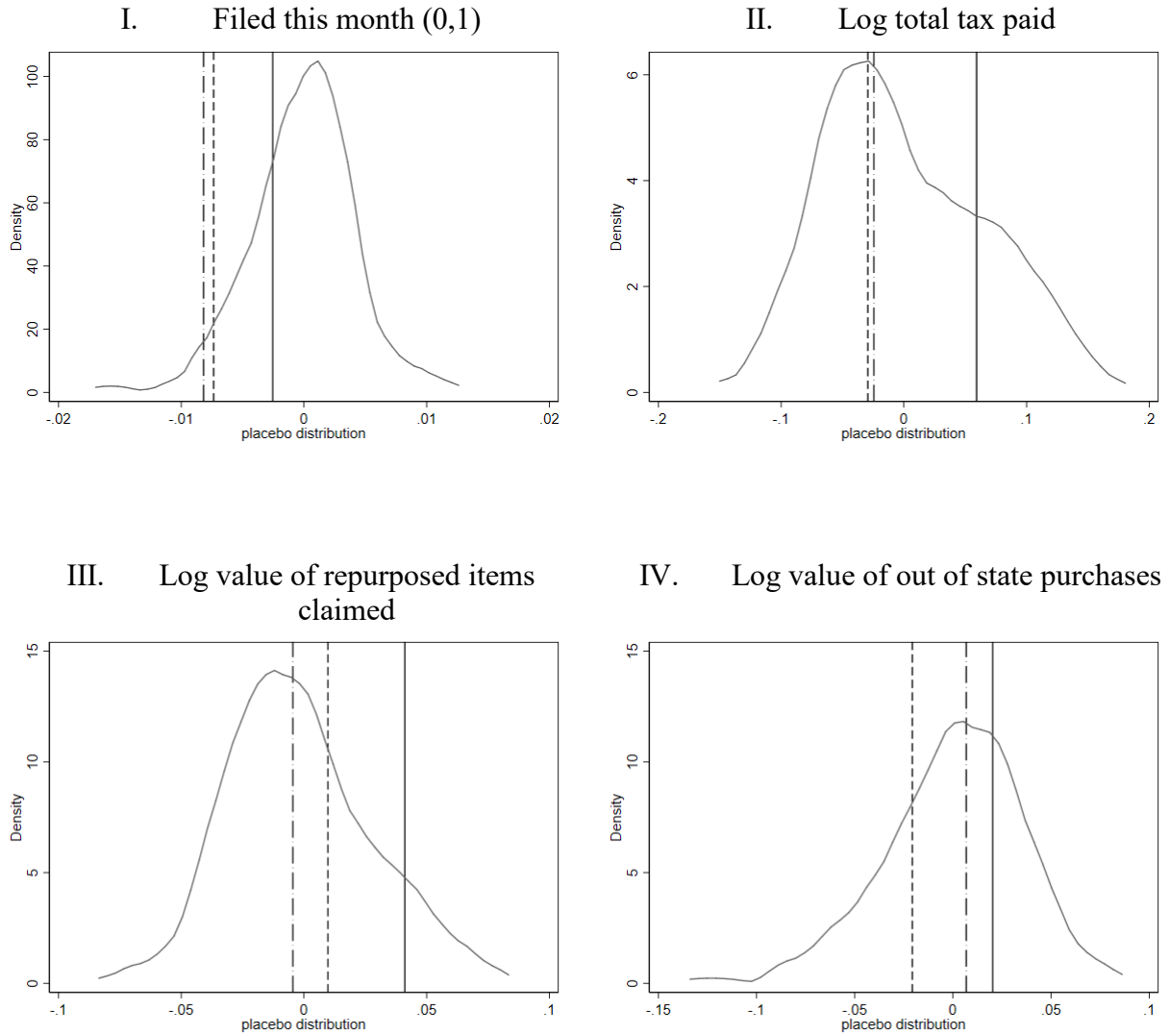
Notes: Each figure plots the distribution of iterations of the Equation (1) model for business tax behavior with respect to the labeled outcome, substituting the indicator for a recent Amazon notice with an indicator for every possible three-month period in the panel. The solid (short dashed) [long dashed] line represents the true coefficient estimate for the first (second) [third] email notice, which is also reported in Table 1.

Table A4. Amazon email notices and monthly business filing (1,0), by subgroup

	(1)	(2)	(3)	(4)	(5)	(6)
	Low average sales and low filing frequency	Low average sales	Low filing frequency	High filing frequency	High average sales	High average sales and high filing frequency
April 2012 notice	0.0017***	0.0024***	-0.00071***	0.0066***	-0.0105***	-1.10E-05
	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.003)
	[64.7%]	[72.8%]	[89.0%]	[72.8%]	[24.3%]	[99.3%]
January 2013 notice	-0.0080**	-0.0127***	-0.0137***	0.0203***	-0.0030**	0.0190***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.003)
	[9.6%]	[2.9%]	[10.3%]	[24.3%]	[66.9%]	[15.4%]
January 2014 notice	-0.0109***	-0.0107***	-0.0192***	-0.0011	-0.0033**	0.00391
	-0.0004	-0.0005	-0.0003	-0.0009	-0.0015	-0.0029
	[2.9%]	[7.4%]	[0.0%]	[97.1%]	[64.7%]	[79.4%]
Observations	9,260,961	11,511,195	22,407,093	4,531,344	2,874,877	483,407
R-sq	0.17	0.351	0.191	0.169	0.587	0.209
Summary Statistics						
Mean	0.031	0.075	0.037	0.946	0.328	0.938
Standard deviation	(0.174)	(0.263)	(0.190)	(0.226)	(0.469)	(0.242)

Notes: The table reports results of Equation (1) for a binary indicator as to whether business entities filed in a given month, estimated separately for six subgroups, and includes data from July 2003 through March 2015. The notice variables are indicators for the month that Amazon distributed the emails and the following two months. Each regression includes entity-by-SITUS-by-calendar month fixed effects, a quadratic time trend, and the following time-varying county-level control variables: population, income per capita, farming income per capita, labor force participation, and median age. Businesses with "low average sales" are in the bottom 5% in terms of average gross sales reported on sales and use tax returns. Those with "high average sales" are in the top 10%. Businesses with "low filing frequency" are in the bottom half in terms of the total number of business tax returns observed between July 2003 and March 2015. Finally, businesses with "high filing frequency" are in the top 10% in terms of observed business tax returns. Standard errors, in parentheses, allow for correlated errors within an individual entity's filings. The percent of placebo time effects that are greater than a given point estimate, in absolute value, is listed in brackets under its standard error.
*** significant at 1%; ** 5%; * 10%

Table A5. Amazon email notices and monthly business tax payments (log), by subgroup

	(1) Low average sales and low filing frequency	(2) Low average sales	(3) Low filing frequency	(4) High filing frequency	(5) High average sales	(6) High average sales and high filing frequency
April 2012 notice	0.572***	0.245***	0.117*	0.0675***	0.0073	0.0209
	(0.113)	(0.032)	(0.067)	(0.007)	(0.019)	(0.020)
	[22.8%]	[15.4%]	[72.1%]	[21.3%]	[96.3%]	[79.4%]
January 2013 notice	0.522***	0.0841***	0.210***	-0.0774***	0.00355	-0.0732***
	(0.063)	(0.032)	(0.035)	(0.008)	(0.017)	(0.023)
	[25.7%]	[66.9%]	[44.9%]	[12.5%]	[97.8%]	[35.3%]
January 2014 notice	0.452***	-0.00483	0.134***	-0.0423***	0.00987	-0.0344*
	(0.086)	(0.036)	(0.047)	(0.007)	(0.016)	(0.018)
	[31.6%]	[97.1%]	[64.0%]	[46.3%]	[96.3%]	[64.0%]
Observations	113,888	642,663	342,650	4,285,006	910,973	452,835
R-sq	0.744	0.715	0.802	0.691	0.778	0.692
Summary Statistics						
Mean	165.60	315.34	686.19	4277.57	11124.58	10902.6
Standard deviation	(1245.3)	(1693.36)	(2880.00)	(5577.40)	(10184.48)	(9369.15)

Notes: The table reports results of Equation (1) for log tax payments among business entities, estimated separately for six subgroups, and includes data from July 2003 through March 2015. The notice variables are indicators for the month that Amazon distributed the emails and the following two months. Each regression includes entity-by-SITUS-by-calendar month fixed effects, a quadratic time trend, and the following time-varying county-level control variables: population, income per capita, farming income per capita, labor force participation, and median age. Businesses with "low average sales" are in the bottom 5% in terms of average gross sales reported on sales and use tax returns. Those with "high average sales" are in the top 10%. Businesses with "low filing frequency" are in the bottom half in terms of the total number of business tax returns observed between July 2003 and March 2015. Finally, businesses with "high filing frequency" are in the top 10% in terms of observed business tax returns. Standard errors, in parentheses, allow for correlated errors within an individual entity's filings. The percent of placebo time effects that are greater than a given point estimate, in absolute value, is listed in brackets under its standard error.
*** significant at 1%; ** 5%; * 10%

Table A6. Amazon email notices and monthly business repurposed item values (log), by subgroup

	(1) Low average sales and low filing frequency	(2) Low average sales	(3) Low filing frequency	(4) High filing frequency	(5) High average sales	(6) High average sales and high filing frequency
April 2012 notice	0.0638	0.0350*	0.00583	0.0448***	0.118***	0.121***
	(0.045)	(0.019)	(0.023)	(0.007)	(0.023)	(0.032)
	[66.2%]	[70.6%]	[93.4%]	[18.4%]	[25.0%]	[41.9%]
January 2013 notice	0.0593*	-0.0102	0.0371**	0.0157**	-0.0133	0.0194
	(0.035)	(0.020)	(0.018)	(0.006)	(0.021)	(0.030)
	[67.6%]	[90.4%]	[64.7%]	[62.5%]	[87.5%]	[88.2%]
January 2014 notice	0.254***	0.0529**	0.110***	0.000316	-0.102***	-0.0662**
	(0.052)	(0.025)	(0.024)	(0.006)	(0.022)	(0.029)
	[22.1%]	[53.7%]	[24.3%]	[98.5%]	[31.7%]	[68.4%]
Observations	113,888	642,663	342,650	4,285,006	910,973	452,835
R-sq	0.593	0.681	0.639	0.752	0.728	0.733
Summary Statistics						
Mean	188.94	614.79	201.28	533.84	1150.88	1115.76
Standard deviation	(5737.93)	(8430.03)	(6431.25)	(7478.42)	(12934.46)	(11506.71)

Notes: The table reports results of Equation (1) for log repurposed item values among business entities, estimated separately for six subgroups, and includes data from July 2003 through March 2015. The notice variables are indicators for the month that Amazon distributed the emails and the following two months. Each regression includes entity-by-SITUS-by-calendar month fixed effects, a quadratic time trend, and the following time-varying county-level control variables: population, income per capita, farming income per capita, labor force participation, and median age. Businesses with "low average sales" are in the bottom 5% in terms of average gross sales reported on sales and use tax returns. Those with "high average sales" are in the top 10%. Businesses with "low filing frequency" are in the bottom half in terms of the total number of business tax returns observed between July 2003 and March 2015. Finally, businesses with "high filing frequency" are in the top 10% in terms of observed business tax returns. Standard errors, in parentheses, allow for correlated errors within an individual entity's filings. The percent of placebo time effects that are greater than a given point estimate, in absolute value, is listed in brackets under its standard error.
*** significant at 1%; ** 5%; * 10%

Table A7. Amazon email notices and monthly business out-of-state purchases (log), by subgroup

	(1) Low average sales and low filing frequency	(2) Low average sales	(3) Low filing frequency	(4) High filing frequency	(5) High average sales	(6) High average sales and high filing frequency
April 2012 notice	0.0665	0.00184	0.348***	0.0159**	-0.0389	-0.0355
	(0.064)	(0.027)	(0.043)	(0.007)	(0.024)	(0.030)
	[73.5%]	[99.3%]	[4.4%]	[72.1%]	[82.4%]	[77.2%]
January 2013 notice	-0.0251	-0.0879***	-0.0368	-0.00949	-0.0352*	-0.0665**
	(0.056)	(0.029)	(0.024)	(0.007)	(0.021)	(0.029)
	[85.3%]	[49.3%]	[73.5%]	[80.1%]	[83.8%]	[68.4%]
January 2014 notice	-0.294***	-0.141***	-0.166***	0.0127*	0.192***	0.113***
	(0.076)	(0.033)	(0.033)	(0.007)	(0.024)	(0.030)
	[17.6%]	[29.4%]	[17.6%]	[75.0%]	[16.2%]	[55.9%]
Observations	113,888	642,663	342,650	4,285,006	910,973	452,835
R-sq	0.835	0.804	0.808	0.737	0.711	0.681
Summary Statistics						
Mean	1495.57	2591.8	889.90	736.38	939.00	824.88
Standard deviation	(13182.38)	(17259.18)	(10522.35)	(8338.66)	(8139.49)	(7500.44)

Notes: The table reports results of Equation (1) for log out-of-state purchases among business entities, estimated separately for six subgroups, and includes data from July 2003 through March 2015. The notice variables are indicators for the month that Amazon distributed the emails and the following two months. Each regression includes entity-by-SITUS-by-calendar month fixed effects, a quadratic time trend, and the following time-varying county-level control variables: population, income per capita, farming income per capita, labor force participation, and median age. Businesses with "low average sales" are in the bottom 5% in terms of average gross sales reported on sales and use tax returns. Those with "high average sales" are in the top 10%. Businesses with "low filing frequency" are in the bottom half in terms of the total number of business tax returns observed between July 2003 and March 2015. Finally, businesses with "high filing frequency" are in the top 10% in terms of observed business tax returns. Standard errors, in parentheses, allow for correlated errors within an individual entity's filings. The percent of placebo time effects that are greater than a given point estimate, in absolute value, is listed in brackets under its standard error.
*** significant at 1%; ** 5%; * 10%