EconomicsCenter

ANALYSIS OF OHIO'S 2016 SALES TAX HOLIDAY

Prepared by the Economics Center

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UNIVERSITY OF Cincinnati

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REPORT HIGHLIGHTS

In 2016, Ohio held its second sales tax holiday (STH), which targeted back-to-school spending through sales and use tax exemptions on certain clothing and school supplies. This past year, 16 other states also offered sales tax holidays exempting items typically purchased for the back to school season.

To assess the extent to which the sales tax holiday in 2016 may have had an impact on consumer spending and tax revenues for the State of Ohio, the Economics Center analyzed data and information on household spending patterns and monthly tax revenues. Findings of the analysis include:

- August retail sales have generally increased about 2 percent annually on average between 2004 and 2014, prior to the inaugural STH. The largest observed gains occurred post-recession in 2011 and in 2015 (the first STH), with 8.5 and 8 percent growth respectively over the prior years.

- For the most recent year, August retail sales grew by 3.8 percent compared to 2015, about twice the long run pre-STH average but less than half the gains observed from the previous year.

- While consumers have been a primary driver of post-recovery economic activity, overall trends for the state illustrate slower growth for the latter half of 2016 than anticipated, and lower than the prior year. This lower growth may be due to slow wage growth and slightly lower consumer confidence relative to 2015.

- Analysis of statewide estimated August retail sales suggests that the STH did not produce a substantial shift in consumer behaviors or patterns. In particular:

    - Results indicate that the STH may have been associated with about $34 million in exempted sales activity, equivalent to about 0.2 percent of retail sales statewide. This contribution of the STH to August sales activity was not statistically different from zero, and is not distinguishable from normal variations in retail sales observed historically.

    - Total estimated retail sales for August were $15.5 billion, inclusive of taxable and estimated exempt spending.

    - The estimated amount of uncaptured sales tax base is equivalent to about 11.5 percent of the potential August back-to-school spending for Ohio.

    - The uncaptured sales tax revenues represent approximately $2.4 million in savings to households.

Table A: Estimated STH Impact on Statewide Retail Sales for August 2016

Measure	Value*
Percent of Total Base	0.2%
Total Exempted Sales	$34,317,121
State Exempted Tax Revenues	$ 1,973,234
County Exempted Tax Revenues	$ 446,123
Share of Potential Ohio Spending	11.5%

Source: Economics Center model results and calculations
*Estimates are subject to rounding.

- In other words, there is no evidence that consumers shifted purchases disproportionately to occur during the STH weekend nor that substantial additional non-exempt spending occurred.

- There is no evidence that border counties disproportionately benefitted or were harmed as a result of the STH.

- On average, households reported completing about 48 percent of back-to-school shopping before August according to national surveys. Thirteen percent of households had finished their back-to-school shopping before August.

- For 2016, total estimated August back-to-school spending in Ohio was about $297.4 million, which is associated with a total of about $17 million in state sales tax revenues and $3.9 million at the county level.

Table B: Estimated Household Spending and Potential Tax Revenue for August 2016

Measure	Amount*
Average Qualifying Spend per Household	$469.50
Total Estimated Ohio Spending	$572,011,569
Estimated Maximum August Potential Spending	$297,446,016
Associated Tax Revenues from Maximum August Potential Spending	
State	*$17,103,146*
County	*$3,866,798*

Source: Economics Center calculations
*Estimates are subject to rounding.

- When compared to the analysis of the 2015 STH:

    - According to national surveys, 2016 experienced about 8 percent higher estimated back-to-school spending overall, but lower estimated sales accrued to the month of August, yielding smaller tax savings to households than the prior STH.

    - A net gain of $8 million in sales tax revenues was estimated to accrue to the State in 2015 due to additional non-exempt spending, which was not repeated in 2016.

INTRODUCTION

In 2016, Ohio held its second sales tax holiday (STH) targeted at back-to-school spending. As enacted through Senate Bill 264 (2016 only), Ohio's STH provided limited exemptions on clothing and school supplies during the first full weekend of August. August 2015 retail sales concurrent with the first such sales tax holiday, as measured by county sales tax revenues, experienced an above average gain relative to retail sales in 2014.

To assess the extent to which the 2016 STH may have had an impact on consumer spending and tax revenues for the state, and compare this to the 2015 STH, the Economics Center analyzed data and information on household spending patterns and monthly tax revenues. The results of the analysis indicate that the STH did not result in any substantial alterations of consumer behavior, either shifting spending to occur within the period of exemptions or generating additional non-exempted spending. The most substantial impact of the STH may have been consumer savings about $2.4 million in taxes. These results are consistent with observed national trends.

Sales Tax Holidays

Multiple states have offered sales tax holidays historically, for a variety of reasons. This past year, 17 states including Ohio held sales tax holidays, exempting items typically purchased for the back-to-school season. While the motivations for sales tax holidays vary depending on the timing and exempted goods, most common arguments in favor of the policy include providing tax relief to consumers and stimulating the economy through add-on purchases on non-exempted goods.[1] Table 1 displays a summary of back-to-school targeted sales tax holidays held in 2016.

[1] Buschman (2011), Drenkard and Henchman (2016)

Table 1: Sales Tax Holidays by State, 2016**

State	Dates	Clothing	School Supplies	Computers
Alabama*	August 5-7	$100	$50	$750
Arkansas	August 6-7	$100	No Cap	
Connecticut	August 21-27	$100		
Florida	August 5-7	$60	$15	
Georgia*	July 30-31	$100	$20	$1,000
Iowa	August 5-6	$100		
Louisiana (a)	August 5-6	All purchases of tangible personal property up to $2,500.		
Maryland*	August 14-20	$100		
Mississippi*	July 29-30	$100		
Missouri*	August 5-7	$100	$50	$1,500
New Mexico	August 5-7	$100	$30	$1,000
Ohio	August 5-7	$75	$20	
Oklahoma	August 5-7	$100		
South Carolina	August 5-7	No Cap	No Cap	No Cap
Tennessee	July 29-31	$100	$100	$1,500
Texas*	August 5-7	$100	$100	
Virginia*	August 5-7	$100	$20	

Source: Drenkard and Henchman (2016), Tax Foundation review of state statutes and revenue department websites

*State has multiple sales tax holidays, or exempts items beyond school supplies, clothing, and computers.

**Note: Massachusetts in 2011, 2012, 2013, and 2015 passed legislation for its August sales tax holiday in early August each of those years. As of press time, a bill for 2016 has not been enacted.

(a) Louisiana's holidays for general purchases and firearms and ammunition will only be a 2% reduction in the sales tax rate for 2016 and 2017. The sales tax holiday for hurricane supplies is canceled for 2016, will be a 2% exemption in 2017 and 2018, and will return to a full exemption in 2019. Louisiana sales tax holidays only apply to the statewide sales tax rate, and do not apply to parishes, municipalities, or other local taxing authorities. For items above the cap, Louisiana charges a sales tax on the portion of the purchase above the cap." (Drenkard and Henchman, 2016) https://taxfoundation.org/sales-tax-holidays-politically-expedient-poor-tax-policy-2016; http://www.salestaxinstitute.com/resources/sales-tax-holidays

As in most other states with a 2016 sales tax holiday, Ohio's occurred during the weekend of August 5 through 7. Table 1 illustrates that sales tax holidays vary across states, with the greatest commonality being the exemption of clothing up to a value of $100 per item.[2] In general, Ohio's sales tax holiday as currently articulated is less generous than other states except Florida, exempting up to $75 in clothing (per item) and providing no exemption for computers.

As indicated in Table 2, the number of states offering sales tax holidays peaked at 19 in 2010. The list of states offering sales tax holidays has remained relatively stable since that time. Except for a one-time instance in 1980, Ohio is a relatively new entrant to the list of states with sales tax holidays. Aside

[2] (Drenkard and Henchman, 2016); http://www.salestaxinstitute.com/resources/sales-tax-holidays

from the period 2008 through 2010 when West Virginia offered a sales tax holiday, none of the states contiguous to Ohio currently participate in the practice.[3]

Table 2: Summary of Sales Tax Holidays

Year	Number*	States*
1980	2	MI, OH
1981-1996	None	
1997	1	NY
1998	2	FL, NY
1999	3	FL, NY, TX
2000	7	CT, FL, IA, NY, PA, SC, TX
2001	9*	CT, DC, FL, IA, MD, PA, SC, TX
2002	9*	CT, DC, GA, IA, NC, PA, SC, TX, WV
2003	9	CT, GA, IA, NY, NC, SC, TX, VT, WV
2004	13*	CT, DC, FL, GA, IA, MA, MO, NY, NC, SC, TX, VT, WV
2005	13*	CT, DC, FL, GA, IA, LA, MA, MO, NM, NY, NC, SC, TX
2006	16*	AL, CT, DC, FL, GA, IA, MD, MA, MO, NM, NY, NC, SC, TN, TX, VA
2007	16*	AL, CT, DC, FL, GA, IA, LA, MA, MO, NM, NC, OK, SC, TN, TX, VA
2008	17*	AL, CT, DC, GA, IA, LA, MA, MO, NM, NC, OK, SC, TN, TX, VT, VA, WV
2009	16	AL, CT, GA, IA, LA, MS, MO, NM, NC, OK, SC, TN, TX, VT, VA, WV
2010	19	AL, CT, FL, IL, IA, LA, MD, MA, MS, MO, NM, NC, OK, SC, TN, TX, VT, VA, WV
2011	17	AL, AR, CT, FL, IA, LA, MD, MA, MS, MO, NM, NC, OK, SC, TN, TX, VA
2012	18	AL, AR, CT, FL, GA, IA, LA, MD, MA, MS, MO, NM, NC, OK, SC, TN, TX, VA
2013	18	AL, AR, CT, FL, GA, IA, LA, MD, MA, MS, MO, NM, NC, OK, SC, TN, TX, VA
2014	17	AL, AR, CT, FL, GA, IA, LA, MD, MA, MS, MO, NM, OK, SC, TN, TX, VA
2015	18	AL, AR, CT, FL, GA, IA, LA, MD, MA, MS, MO, NM, OH, OK, SC, TN, TX, VA
2016	17	AL, AR, CT, FL, GA, IA, LA, MD, MS, MO, NM, OH, OK, SC, TN, TX, VA

Source: Drenkard and Henchman (2016), Tax Foundation; Federation of Tax Administrators; state statutes and revenue department websites.
*Includes District of Columbia

Recent surveys indicate that retail spending by families overall increased this year, attributable largely to consumer confidence and families being in a "stock up" cycle.[4] While spending overall may be higher in 2016 than 2015, surveys also indicate that consumers began their back-to-school shopping earlier.[5] As a result of accelerated purchases, back-to-school sales accruing to August may be lower than in prior years.

[3] Drenkard and Henchmen (2016)
[4] NRF August 17, 2016
[5] NRF, August 17, 2016; Morris, August 10, 2016; Rasmussen, August 17, 2016

METHODOLOGY AND APPROACH

Data and Methodology

To examine the potential impact of Ohio's 2016 STH for back to school shopping, the Economics Center examined monthly data on sales and use tax revenues and rates for Ohio counties, as well as national figures on estimated back to school spending. National figures, applied to Ohio, were used to estimate the potential back-to-school spending among Ohio households to characterize the size of the overall market.

To evaluate the impact of the sales tax holiday on taxable retail activity and resulting sales tax revenues, the Economics Center utilized monthly sales tax revenue data from the Ohio Department of Taxation for 2004 through 2016. These data were used to estimate potential taxable August 2016 sales with and without the STH. The model also included Ohio wages and employment, US retail sales volume, inflation (as measured by the consumer price index (CPI) for the Midwest region), the consumer sentiment index (a measure of consumer confidence), and a recession indicator. To isolate the potential impact of the sales tax holiday, an August sales forecast was produced under both the assumption of a sales tax holiday in that month and the assumption of no sales tax holiday. The difference was then applied to actual estimated August retail sales. Data on sales tax revenues and estimated retail activity for border versus interior counties was also assessed to determine any potential distributional impacts of the sales tax holiday. Two forecast models were utilized – an Autoregressive Integrated Moving Average (ARIMA) and a Vector Autoregression (VAR) – and the average of the estimates were used to produce the final forecast.[6]

Historical Sales Tax Trends

August retail activity for the state has generally increased since 2004 as displayed in Table 3. Through 2014, prior to the state offering any STH for back-to-school shopping, the average annual growth rate for August retail activity was about 2 percent. The pre-recession period from 2006 to 2008 exhibited little to no growth, with 2009 manifesting a substantial decline over the prior year. With the post-recession recovery, August retail sales experienced annual growth again. The inaugural STH year of 2015 exhibited one of the largest growth rates in August retail sales at 8 percent, only outpaced by the 8.5 percent growth rate in statewide sales for 2011. The most recent year, 2016, saw about half the increase of the prior year at 3.8 percent.

[6] Two forecasting methods were utilized to minimize error associated with the uncertainty of the estimates. Details of the econometric approach are available upon request.

Table 3: August Retail Activity, 2004-2016

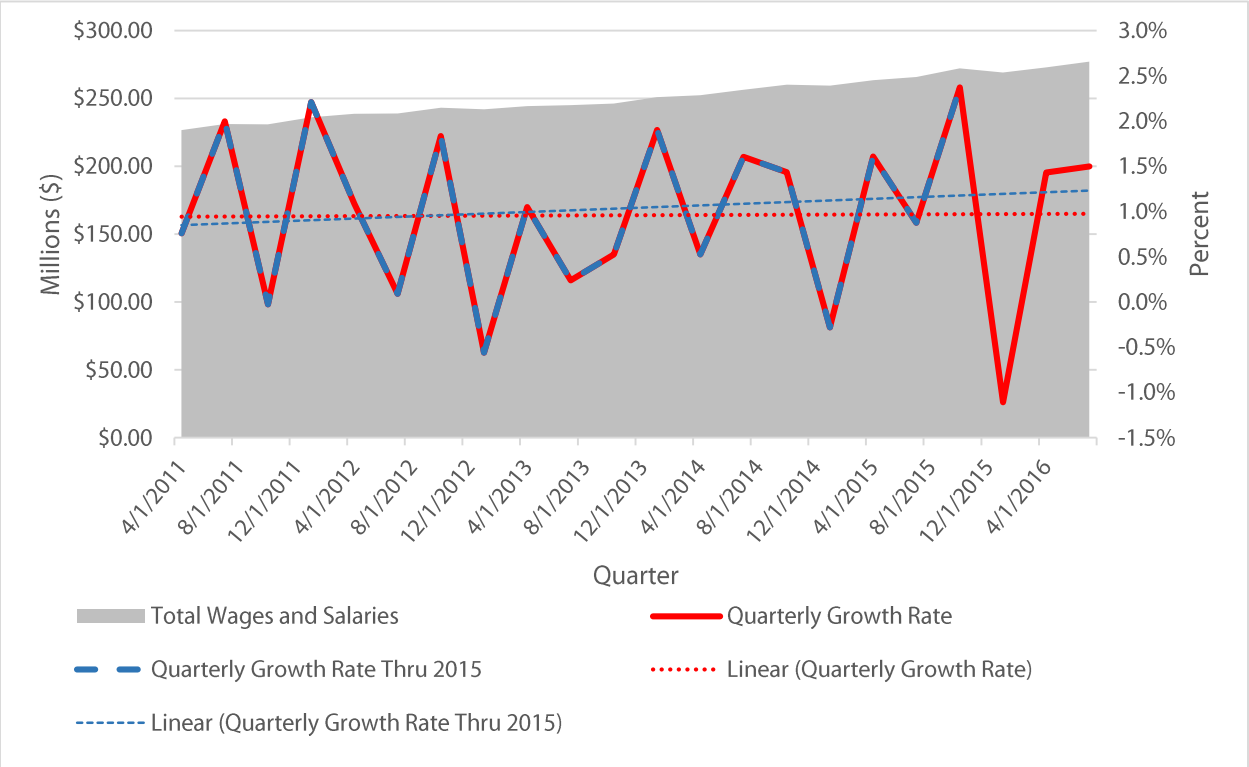
Year	Ohio Total Sales ($M)	Percent Change from Prior Year
2004	$11,177	
2005	$11,683	4.5%
2006	$11,462	-1.9%
2007	$11,548	0.7%
2008	$11,596	0.4%
2009	$10,485	-9.6%
2010	$11,147	6.3%
2011	$12,096	8.5%
2012	$12,340	2.0%
2013	$12,859	4.2%
2014	$13,655	6.2%
2015	$14,740	8.0%
2016	$15,294	3.8%

Source: Economics Center calculations of Ohio Department of Taxation data

The pattern in August retail sales is broadly consistent with overall economic trends, particularly slower wage growth and slightly lower consumer confidence relative to the prior year. Post-recession economic growth has been driven primarily by consumers.[7] Recently that growth has been slowing, with 2016 characterized by "relatively lethargic growth" for Ohio.[8] Figure 1 displays total nonfarm wages and salaries in Ohio, in dollars and the percent change. When examining wage and salary growth through the end of 2015 the average trend is slightly higher than when including the values for the first half of 2016. In other words, wage and salary growth overall for 2016 manifested as slower than was seen in 2015.

[7] Mokrzan, January 2017; State of Ohio, Office of Budget and Management, February 2015.
[8] Mokrzan, January 2017.

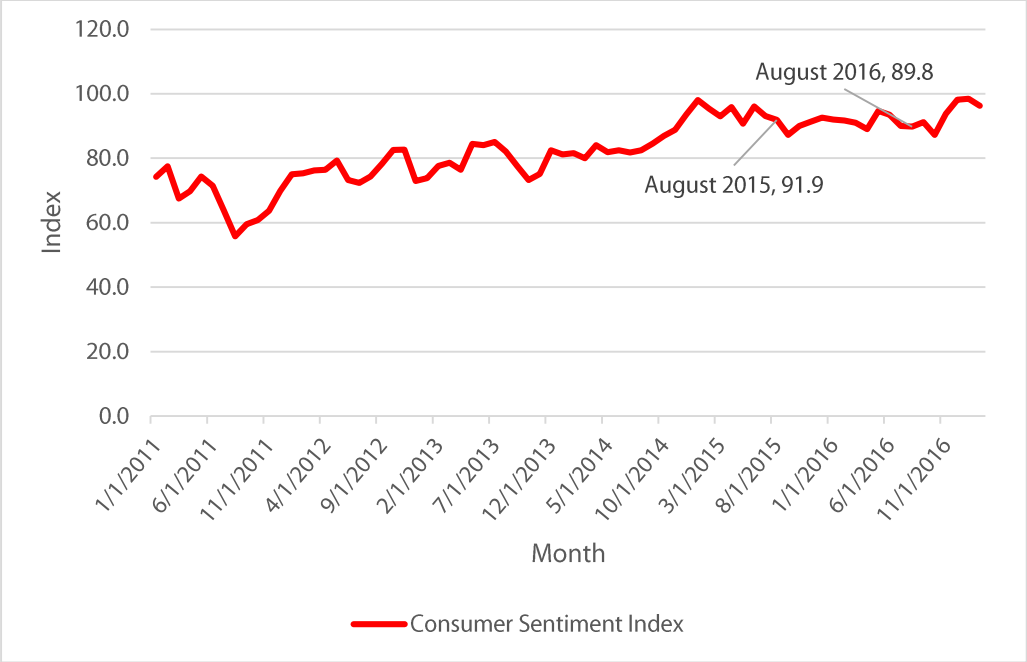
Figure 1: Quarterly Ohio Nonfarm Total Wages and Salaries, 2011-2016



Source: U.S. Bureau of Economic Analysis, Total Wages and Salaries in Ohio [OHWTOT], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/OHWTOT, March 23, 2017.

Consumer confidence, as measured by the University of Michigan's Consumer Confidence Index, also exhibited slightly weaker expectations for 2016 relative to 2015. As displayed in Figure 2, the index value for August 2016 is slightly lower than August 2015. Muted consumer confidence combined with slow wage and salary growth are likely the main factors driving slower growth overall.

Figure 2: Consumer Sentiment Index, 2011-2016



Source: University of Michigan, University of Michigan: Consumer Sentiment© [UMCSENT], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/UMCSENT, March 23, 2017.

RESULTS

Household Spending

National surveys of household spending for back-to-school shopping indicated that many households began their shopping in July for 2016, earlier than in years prior. Applying these spending estimates to Ohio households with school-aged children and qualifying spending categories provides an estimate of potential spending. While surveys indicate that on average households anticipated about $640 in back to school spending, computers and electronics not eligible for Ohio's STH account for about one-third of that amount.[9] Table 4 contains the Ohio household spending assumptions.

Based on the NRF survey data, the average household was anticipated to spend about $470 on items that would qualify for tax exemption during Ohio's STH. With approximately 1.2 million households in Ohio with children under age 18, this yields an estimated $572 million in total potential qualifying back-to-school spending in the state.

[9] NRF August 17, 2016

Table 4: Ohio Back-To-School Household Spending Assumptions*

Households with children under 18	1,218,342
Average back to school spending	$637.57
Qualifying Ohio Spending per Household	
Clothing	*$235.39*
Shoes	*$126.35*
School Supplies	*$107.76*
Total Qualifying	*$469.50*
Total estimated qualifying Ohio back to school spending	$ 572,011,569

Source: Economics Center calculations of NRF Back To School survey data and American Community Survey 1-Year estimates
*Estimates subject to rounding.

Not all of the potential spending occurred during the STH weekend. NRF survey responses indicated that on average, households had completed 48 percent of their back-to-school shopping before August. Thirteen percent of households finished their back-to-school spending prior to August.[10] Assuming about half of this total qualifying spend occurred prior to August leaves a maximum of approximately $297.4 million in household purchases remaining. This spending would be associated with about $17 million in state tax revenues and $3.9 million in county-level revenues. These estimates represent the maximum potential exempted tax base, and corresponding savings to households, if all of this spending were to occur during the STH weekend.

Table 5: Estimated Potential August Back to School Spending and Tax Revenues ($M)

Potential August Spending	$297.4
Associated State Tax Revenues	$17.1
Associated County Tax Revenues	$3.9

Source: Economics Center calculations

Retail Sales and Tax Revenue Forecast

Statewide Results

The Economics Center constructed two forecasts for August retail sales to infer the potential impact of the STH on taxable sales and tax revenues. Retail spending was estimated using the county-level revenues and tax rates. As such, the retail spending estimate covers all taxable types of spending, not just categories that would include exempted or non-exempted goods. If the difference between forecasts is negative ($Sales_{STH} - Sales_{no\ STH}$), the result indicates that tax exempt spending occurred in greater quantities than any associated non-exempt spin-off spending. The result may be interpreted as the net amount of tax exempted spending. A positive difference between forecasts, ($Sales_{STH} - Sales_{no\ STH}$), indicates that additional non-exempt, spin-off spending occurred more than offsetting the tax-exempt sales. The result may then be interpreted as the net additional spin-off spending.

[10] NRF August 17, 2016

In estimating the forecast models, Ohio wages had the strongest impact on estimated retail spending both in magnitude and statistical significance. The STH control produced an estimate of the percentage impact of the STH, however, this estimate was not statistically different from zero. In other words, while the model was able to assign a contribution of STH to taxable August sales, this contribution is not distinguishable from normal variations in retail sales observed historically. Table 6 contains the results of the analysis.

Model results indicate that the STH on net was associated with about $34 million in tax-exempt sales, representing a reduction in the estimated taxable base of about 0.2 percent statewide. As a result, total August retail sales (taxable plus exempt) are estimated to be $15.52 billion for 2016. This result suggests that the STH did not produce measurable spin-off non-exempted spending in excess of the exempted spending that occurred during the designated weekend. The uncaptured tax revenues associated with this spending yields less than $2 million in state tax revenues and approximately $446,000 in county-level tax revenues. This uncaptured base and revenues is equivalent to about 11.5 percent of the estimated potential spending for August 2016.[11]

Table 6: Estimated STH Impact on Statewide Retail Sales for August 2016*

Measure	Value
Percent of Total Base	0.2%
Total Exempted Sales	$34,317,121
State Tax Revenues	$1,973,234
County Tax Revenues	$446,123
Share of Potential Ohio Spending	11.5%

Source: Economics Center calculations of model results
*Estimates are subject to rounding.

These results suggest that the STH did not produce substantial changes in consumer behavior in 2016. Shoppers did not coordinate their spending to disproportionately occur during this period relative to other times, nor did they engage in substantial additional, non-exempted spending during this period. Thus, the net result of the STH is that consumers may have benefitted from about $2.4 million in total tax savings.

Border County Results

Similar to the analysis for the state as a whole, the results indicate the border counties did not experience an appreciable impact in retail sales activity in August 2016 as a result of the STH weekend. When examining interior counties, the results do not indicate that the 2016 STH weekend generated substantially more or less taxable sales and resulting fiscal revenues.

Overall, the potential reduction in taxable base estimated for the statewide results is about $400,000 per county. The model results do not suggest that border counties or interior counties systematically

[11] Results should be interpreted with care, as noted previously the estimated reduction is not statistically distinguishable from zero.

incurred disproportionately more or less sales and revenue as a result of the 2016 STH. Either all counties experienced a mild reduction in taxable sales, resulting in the estimated statewide reduction, or some counties enjoyed above average taxable sales while others offset these gains with below average sales. The potential variation across counties is not clearly determined by border or interior location.

Comparison to 2015 Analysis

Similar with national trends, estimated back to school spending for 2016 in Ohio was slightly higher than in 2015, about $572 million compared to $528 million. This increase is largely attributable to average spending being about 8 percent higher in 2016. While prior national survey results indicated about 70 percent of shopping occurred in August, the current report estimates about 52 percent of shopping remained for August. Thus, due to lower August shopping exempted sales were estimated slightly lower in 2016 ($34 million) relative to 2015 ($46 million). Similarly, estimated tax savings to households were slightly lower, by about $1 million. Total estimated August retail sales for 2015 (taxable plus exempt) were $14.8 billion. For the current analysis, total estimated August sales for 2016 are $15.5 billion, which represents a 5.2 percent increase over the prior estimate.

Consistent with the current findings, the prior analysis indicated that no substitution or shifting of consumption occurred due to the STH. The prior analysis differs from the present primarily in that estimated spending and resulting revenues due to the STH were higher in 2015. Thus, the state generated an additional $8 million in non-exempt spending as a result of consumers making additional purchases in 2015. The current results suggest that the STH did not generate additional spending in 2016. In other words, while the STH generated some savings for households from the tax exemptions in both years, the tax holiday did not appear to stimulate additional spin-off spending in its second year.

SUMMARY AND CONCLUSION

Historically, August retail sales have generally increased annually. Prior to 2014, the average annual growth rate was approximately 2 percent. Significant deviations from the average rate include the height of the recession (2009, with a 9.6 percent decline), the year following the post-recession recovery (2011) and the first STH year (2015), the latter two of which experienced the largest gains over the prior year, 8.5 percent and 8 percent respectively. The present period exhibited a 3.8 percent increase in sales, above the pre-STH long run average of 2 percent but about half of the prior year's gain. Slower growth in retail sales for 2016 is consistent with economic trends overall, particularly for wage and salary growth in Ohio and slightly lower consumer confidence compared to 2015.

National survey results applied to Ohio indicate that the total amount of back to school spending by households for 2016 was approximately $572 million. About half of this spend, or about $297 million, was available to occur within August. While household spending overall may have been higher this year than last, spending began earlier. According to national survey results, 13 percent of households had completed their spending by July.

Forecast results for Ohio indicate that statewide August retail sales were associated with about $34 million in tax exempted spending. The tax-exempt sales equate to 11.5 percent of the estimated household spending for August. This amounts to about 0.2 percent of total retail sales for August and is associated with about a $2 million in foregone state sales tax revenues and less than $500,000 in foregone county sales tax revenues. These sales tax reductions equate to savings for consumers. The results are not statistically different from zero, indicating that the STH did not generate substantial changes in consumer behavior, either timing of shopping or additional purchases of non-exempted items.

The analysis does not indicate that border counties were disproportionately harmed by or benefitted from the STH week. Either all counties experienced a slight decrease in taxable sales, or those that experienced sales gains were offset by losses elsewhere, leading to the statewide average reduction. The potential variation across counties is not clearly determined by border or interior location.

In comparison to the analysis of the 2015 STH, estimates indicate higher overall household spending for back-to-school, but fewer sales accruing to August. Further, while the 2015 STH is estimated to have produced additional taxable spending, generating spin-off activity, the result was not repeated in 2016.

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Project Staff
Jennifer M. Shand, PhD, Senior Research Associate
Christopher Nicak, Associate Director of Research

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