



*Question 2: Dodging a  
Bullet to the Ohio  
Economy*

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## Executive Summary

Recent headlines are rife with stories about the cost of prescription drugs. Such stories can send advocates and policymakers scrambling for a quick-fix policy change. There is a temptation to apply a simplistic approach to a complex issue. One such quick fix was Question 2, which was voted “no” on the election ballot in Ohio, November 7, 2017.

Question 2 “required the state of Ohio, including its state departments, agencies and entities not to pay more for prescription drugs than the price paid by the United States Department of Veterans Affairs.”<sup>1</sup> While adoption of Question 2 might have reduced the price paid for prescription drugs by state agencies, drug manufacturers are unlikely to stand pat and simply let the new law erode their revenues and profits.

The Beacon Hill Institute (BHI) estimated the economic impact of Question 2, assuming that the prescription drug companies would cost-shift at least part of the price changes enjoyed by the state of Ohio. Specifically, we assumed cost shifting of 25 percent, 50 percent, and 100 percent. This cost-shifting would have the same negative effects on the state economy as the imposition of a new excise tax on prescription drugs. We estimated those effects for 2018 and 2021.

We estimated that Question 2 would, at best, have reduced drug costs for the state of Ohio by \$273 million, or 16.79 percent. Depending on the degree to which drug companies make up for their resulting losses, we estimate that in 2018, that the state of Ohio would have suffered:

- a loss of 480 to 1,880 private sector jobs;
- a reduction in business investment of \$15 million to \$57 million; and
- a reduction in household real incomes of \$105 million to \$410 million.

In 2021, it would have suffered:

- a loss of 770 to 3,020 private sector jobs;
- a reduction in business investment of \$25 million to \$98 million; and
- a reduction in household real incomes of \$140 million to \$550 million.

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<sup>1</sup> John Husted, Ohio Secretary of State, Legislation and Ballot Issue, Ohio Drug Price Relief Act, <https://www.sos.state.oh.us/globalassets/ballotboard/2017/2017-08-17-certifiedballotlanguageissue2.pdf>

It is true that the price controls imposed by Question 2 might provide state agencies a substantial cost savings. But these savings would not be a free lunch. By raising the consumer price of prescription drugs, it would have forced consumers to reduce their spending on other items and, in the process, cause the economic harm just described—something to bear in mind about this particular quick fix.

## Introduction

Ohio voters went to the polls on November 7 to face two ballot measures or “Questions.” Of these, Question 2 was voted “no.” If Ohio residents had voted “yes” on Question 2 it would’ve “required the state of Ohio, including its state departments, agencies and entities not to pay more for prescription drugs than the price paid by the United States Department of Veterans Affairs.”<sup>2</sup>

Congress sets VA prescription drug prices at a statutory federal price ceiling (FPC), which mandates a discount of at least 24 percent off the non-federal average manufacturer price (NFAMP), with a rebate if price increases exceed inflation.<sup>3</sup>

Recent media headlines are filled with stories about the cost of new prescription drugs and about price increases for older drugs, as well. A few years ago, Congress summoned executives from drug maker Gilead to answer for pricing their cure for hepatitis-C, Harvoni, at \$1,000 per pill.<sup>4</sup> Biogen made headlines last year by pricing Sinraza – a new treatment for spinal muscular atrophy – at \$750,000 for the first year of treatment.<sup>5</sup>

Other companies, such as Mylan have attracted controversy for rapidly increasing the price of EpiPen.<sup>6</sup> Still other companies, such as Turing Pharmaceuticals bought decades-old treatments from other firms and increased the price by several thousand percent.<sup>7</sup>

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<sup>2</sup> John Husted, Ohio Secretary of State, Legislation and Ballot Issue, Ohio Drug Price Relief Act, <https://www.sos.state.oh.us/globalassets/ballotboard/2017/2017-08-17-certifiedballotlanguageissue2.pdf>

<sup>3</sup> Department of Veterans Affairs (VA), Medicaid, and Medicare Policies," Congressional Research Service, *Report for Congress* RL33802, January 17, 2007, pp. 8-13, at [/static/reportimages/03F3F3884EAC4CAF094D9074631A3577.pdf](https://static.reportimages/03F3F3884EAC4CAF094D9074631A3577.pdf).

<sup>4</sup> U.S. Senate Committee on Finance, “Wyden-Grassley Sovaldi Investigation Finds Revenue-Driven Pricing Strategy Behind \$84,000 Hepatitis Drug”, December 1, 2015, <https://www.finance.senate.gov/ranking-members-news/wyden-grassley-sovaldi-investigation-finds-revenue-driven-pricing-strategy-behind-84-000-hepatitis-drug>.

<sup>5</sup> Aimee Picchi, “The Cost of Biogen’s New Drug: \$750,000 Per Patient”, MarketWatch, December 29, 2016, <https://www.cbsnews.com/news/the-cost-of-biogens-new-drug-spinraza-750000-per-patient/>.

<sup>6</sup> Charles Duhigg, “Outcry Over EpiPen Prices Hasn’t Made Them Lower”, *The New York Times*, Business Day, June 4, 2017, <https://www.nytimes.com/2017/06/04/business/angry-about-epipen-prices-executive-dont-care-much.html?mcubz=3>.

<sup>7</sup> Andrew Poolack, “Drug Goes From \$13.50 a Tablet to \$750, Overnight”, *The New York Times*, Business Day, September 20, 2015, <https://www.nytimes.com/2015/09/21/business/a-huge-overnight-increase-in-a-drugs-price-raises-protests.html?mcubz=3>.

While few can defend the actions of Mylan and Turing, the stories about Harvoni and Sinraza gloss over that fact that drug companies spend from \$4 billion to \$11 billion to develop each new drug.<sup>8</sup> Tufts University Professor Joseph DiMasi puts the number at \$2.6 billion – still a substantial investment.<sup>9</sup>

These sensational stories can send advocates and policymakers scrambling for quick-fix policy changes. These changes tend to apply a simplistic approach to a very complex issue. One such quick fix was Question 2.

In these complex situations one of the possibilities prescription drug makers have is to raise VA drug prices which offset any potential savings to the state. They could also refuse to offer the drugs to Ohio at the VA price, resulting in fewer drugs available to state and state served healthcare recipients.

Another possibility is that prescription drug makers could raise the prices of drugs paid for by the private sector, which is to say, engage in cost-shifting. Health care providers engage in cost shifting as a result of price controls already imposed on Medicaid and Medicare services. Health care providers make-up their losses brought about by these controls by charging private insurers higher prices, and thus by shifting the cost from public to private payers. Figure 1 illustrates the difference between the payment-to-cost ratios of different payers of medical services.<sup>11</sup>

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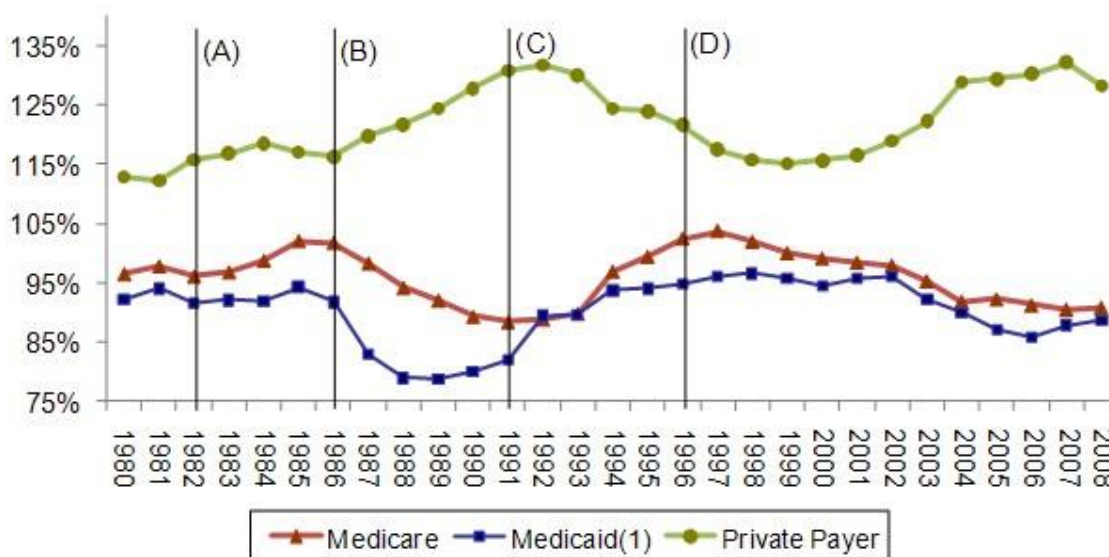
<sup>8</sup> Mathew Herper, “The Truly Staggering Cost Of Inventing New Drugs”, *Forbes*, February 10, 2012, <https://www.forbes.com/sites/matthewherper/2012/02/10/the-truly-staggering-cost-of-inventing-new-drugs/#6e47d4874a94>.

<sup>9</sup> “Tufts CSDD Assessment of Cost to Develop and Win Marketing Approval for a New Drug Now Published”, Tufts Center for the Study of Drug Development, March 10, 2016, [http://csdd.tufts.edu/news/complete\\_story/tufts\\_csdd\\_rd\\_cost\\_study\\_now\\_published](http://csdd.tufts.edu/news/complete_story/tufts_csdd_rd_cost_study_now_published).

<sup>11</sup> Austin Frankt, “The Evolution of Hospital Costs and Profits”, *The Incidental Economist: The Health Services Research Blog*, October 13, 2011, <http://theincidentaleconomist.com/wordpress/the-evolution-of-hospital-costs-and-profits/>.

Figure 1:

Aggregate Hospital Payment-to-Cost Ratios for Private Payers, Medicare, and Medicaid



The Omnibus Budget Reconciliation Act of 1990 (OBRA), enacted November 5, 1990, “required that drug manufacturers give state Medicaid programs rebates for outpatient drugs based on the lowest prices available to any purchaser.”<sup>12</sup> Congress set the rebate at 12.5 percent of the average manufacturer price in 1991 and 1992 and at 15 percent after 1992. The rebate was subsequently set at 23.1 percent after December 31, 2009.<sup>13</sup>

Congress soon realized that, in response to the Medicaid rebate requirement, drug manufacturers might increase prices to other purchasers. It thus ordered the Comptroller General to provide a report “on changes in the prescription drug prices that manufacturers charged the Department of Veterans Affairs (VA), other federal programs, retail and hospital pharmacies, and other purchasing groups and managed care plans.”<sup>3</sup> The report found that the prices for the HMO drugs rose, on average, more than twice as fast in the year after the discount went into effect as the year before.

<sup>12</sup> Health Affairs, “Prescription Drug Pricing,” Health Policy Brief Series 7, August 2017, [http://www.healthaffairs.org/doi/10.1377/hpb20171008.000173/full/healthpolicybrief\\_173.pdf](http://www.healthaffairs.org/doi/10.1377/hpb20171008.000173/full/healthpolicybrief_173.pdf)

<sup>13</sup> Social Security Act, Section 1927C, paragraph 1Bi, [https://www.ssa.gov/OP\\_Home/ssact/title19/1927.htm](https://www.ssa.gov/OP_Home/ssact/title19/1927.htm).

Were a similar effect to be felt under Question 2, Ohio's households and businesses might have seen prescription drug prices rise, hurting companies' profits and household incomes and ultimately the state economy.

(BHI) estimated the impact of Question 2 if voters had voted "yes," assuming that the prescription drug companies cost-shift price savings enjoyed by the state of Ohio to private payers.

## **The Effects of Question 2 on Ohio**

We engaged in a multi-step process to conduct our analysis. First, we estimated the price changes that the new law would bring about. Second, we estimated the amount of money the state of Ohio currently spends on prescription drugs. We applied the percentage change in drug prices to the spending to estimate the change in spending on prescription drugs that Ohio would experience under Question 2. The Appendix provides a detailed methodology.

We then applied our OHIO-STAMP® (Ohio State Tax Analysis Modeling Program) to estimate the effects that Question 2 could have on the state economy. We simulated the effects of the potential shift in drug prices from public to private payers under three assumptions, ranging from low to high, about the portion of the cost saving that would be shifted to the private sector in the form of higher prices: 25 percent, 50 percent, and 100 percent. We assumed that the changes would take place in 2018 and reported the results for the first year and three years out. The OHIO-STAMP estimates are "dynamic," in the sense that they capture the effects of the cost shifting on work, investment and disposable income.

We find that the state of Ohio would save 16.79 percent on prescription drug prices if voters approve Question 2. We estimate that Ohio's state agencies will spend \$1.626 billion on prescription drugs in 2018. We calculated that the state of Ohio would have saved \$273 million on prescription drugs under Question 2. Table 1 displays our estimate of the percentage of the Ohio state agencies saving that drug companies would have shifted to the private sector.



**Table 1: Ohio Prescription Drugs Savings Shifted to Private Payers, 2018**

<b>Estimate</b>	<b>Cost Shift</b>	
	<b>(%)</b>	<b>Savings (\$)</b>
Low	25	68,236,492
Medium	50	136,472,983
High	100	272,945,967

Our OHIO-STAMP model shows the economic effects of the higher prescription drug prices on the Ohio economy. Table 2 displays these results. Depending on the degree to which drug companies make up for their resulting losses, we estimate that in 2018, the state of Ohio would have suffered:

- a loss of 480 to 1,880 private sector jobs;
- a reduction in business investment of \$15 million to \$57 million; and
- a reduction in household real incomes of \$105 million to \$410 million.

**Table 2: The Economic Effects of the Question 2**

<b>Economic Effects</b>	<b>2018</b>	<b>2021</b>
25 percent cost-shift		
Private Jobs	-480	-770
Baseline Investment, (\$ million)	-15	-25
Real Disposable Income (\$million)	-105	-140
50 percent cost-shift		
Private Jobs	-940	-1,510
Baseline Investment, (\$ million)	-29	-49
Real Disposable Income (\$million)	-205	-274
100 percent cost-shift		
Private Jobs	-1,880	-3,020
Baseline Investment, (\$ million)	-57	-98
Real Disposable Income (\$million)	-410	-550

Table 2 shows the results for other scenarios and for 2021. The impacts are larger for 2021 than for 2018 because of projected price rise over the four-year period. According to several studies, prescription drug prices have increased by double digits over the past few years and are

forecast to continue this trend for the foreseeable future.<sup>14</sup> As a result, the economic effects of Question 2 also increase dramatically over time.

## **Conclusion**

Question 2 would have required “the state of Ohio, including its state departments, agencies” to dramatically reduce the prices they pay for prescription drugs.<sup>15</sup> While this sounds like a good idea, the voters cannot assume that drug makers would respond by simply absorbing losses in their profits. Drug makers could respond by raising VA drug prices, offsetting any potential savings to the state. Or they could refuse to offer the drugs to Ohio at the VA price, resulting in fewer drugs becoming available to state-served healthcare recipients. Finally, drug makers could raise the price of drugs paid by the private sector, which is to say, engage in cost shifting.

If prescription drug makers chose to engage in cost shifting, any cost savings enjoyed by the state of Ohio and its agencies would have gotten transferred to Ohio consumers. The State’s private economy would have suffered job losses and lower levels of investment and household incomes..

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<sup>14</sup> Aimee Picchi, “Prognosis for RX in 2017: More Painful Drug-Price Hikes”, MarketWatch, December 30, 2016, <https://www.cbsnews.com/news/drug-prices-to-rise-12-percent-in-2017/>.

<sup>15</sup>John Husted, Ohio Secretary of State, Legislation and Ballot Issue, Ohio Drug Price Relief Act, <https://www.sos.state.oh.us/globalassets/ballotboard/2017/2017-08-17-certifiedballotlanguageissue2.pdf>

## Appendix

To identify the economic impact of Question 2, BHI utilized its OHIO-STAMP® (State Tax Analysis Modeling Program) model for Ohio. STAMP is a five-year dynamic CGE (computable general equilibrium) model that has been programmed to simulate changes in taxes, costs (general and sector specific) and other economic inputs. As such, it provides a mathematical description of the economic relationships among producers, households, governments and the rest of the world.<sup>16</sup>

We used price data from the Veteran's Affairs (VA) and Ohio Department of Medicaid (ODM) to calculate the difference in prescription drug prices between the VA and ODM.<sup>17</sup> We used ODM prices as a proxy for the prices all state agencies pay for prescription drugs. This allowed us to estimate the effects of the switch to VA prices for Ohio's agencies other than ODM, although these agencies may pay prices higher than ODM.

The VA maintains a public database that lists the prices they pay for most of the prescription drugs it purchases. According to the VA, however, the database may not display the lowest prices paid for some of the drugs for which the VA obtains additional negotiated discounts. If the actual prices the VA pays for prescription drugs are lower, this would cause our price change estimates to be lower than the actual change.<sup>18</sup>

To calculate the change in drug prices, we used the 100 prescription drugs with the highest dollar value of reimbursements by ODM. Both the VA and ODM list drugs with different doses (such as 25, 30, and 50 milligrams) separately, and thus we summed the total reimbursement costs for each drug for all doses.

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<sup>16</sup> For a clear introduction to CGE tax models, see John B. Shoven and John Whalley, "Applied General-Equilibrium Models of Taxation and International Trade: An Introduction and Survey," *Journal of Economic Literature* 22 (September, 1984): 1008. Shoven and Whalley have also written a useful book on the practice of CGE modeling entitled *Applying General Equilibrium* (Cambridge: Cambridge University Press, 1992). See also Roberta Piermartini and Robert Teh *Demystifying Modelling Methods for Trade Policy* (Geneva, Switzerland: World Trade Organization, 2005)

[http://www.wto.org/english/res\\_e/booksp\\_e/discussion\\_papers10\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/discussion_papers10_e.pdf) (accessed June 18, 2010).

<sup>17</sup> U.S. Department of Veteran Affairs, Office of Acquisition and Logistics, Pharmaceutical Prices, <https://www.va.gov/oal/business/fss/pharmprices.asp>. Ohio Department of Medicaid, Drug Coverage Information, Drug Lookup Tool, <https://pharmacy.medicaid.ohio.gov/drug-coverage>.

<sup>18</sup> U.S. Department of Veteran Affairs, Office of Acquisition and Logistics, Pharmaceutical Prices, <https://www.va.gov/oal/business/fss/pharmprices.asp>

BHI found an example of each of the 100 drugs on the VA list and on the ODM website and created separate lists to compare the VA prices to ODM prices. To assure we were matching drugs accurately, we compared drug codes and not simply brand names.

The VA prices drugs by the package (for example per bottle), whereas ODM prices drugs per unit in a package (for example per pill). Drugs measured in grams (inhalers) proved to be inconsistent with the market price and we removed them from list, and replaced them with the drug with the next highest Medicaid reimbursement. BHI adjusted the ODM prices by multiplying the cost per unit by the quantity of drugs in the package. We contacted ODM to confirm our assumption about the ODM quantities and prices. We checked the retail price of each drug on the website GoodRX.com to make sure that our adjustment to the ODM prices were consistent with the prices that prevail in the marketplace.

We calculated the weighted average percentage difference between the ODM price and the VA price, using total Medicaid reimbursements for each drug as a weight. We adjusted our price differences to reflect the 23.1 percent rebate state Medicaid programs receive from drug companies for branded drugs and a 13 percent rebate for generic drugs. The adjustment is necessary because the ODM list price is the amount Medicaid reimburses pharmacies for the drug, before receiving the rebate from the drug company. We apply the appropriate rebate to each branded and generic drug on our list, and calculate the weighted average difference as 16.79 percent. We recognize that both ODM and the VA likely receives other discounts that could affect price difference between ODM and VA prices.<sup>19</sup>

Since the other Ohio agencies likely have their own discount and rebate programs, but we were unable to obtain the information, we used the 16.79 estimate as a proxy for total drug price savings under Question 2.

Having estimated the change in drug prices due to Question 2, we next estimated the state of Ohio's annual spending on prescription drugs. Unfortunately, the Ohio Department of Mental Health and Addiction Services and U.S. department of Medicaid are the only agencies that break out prescription drug spending for Ohio. We scoured state agency reports and contacted agencies by phone and email in an attempted obtain the data, without success.

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<sup>19</sup> Medicaid.gov, Prescription Drugs, Medicaid Drug Rebate Program, (updated February 15, 2017), <https://www.medicaid.gov/medicaid/prescription-drugs/medicaid-drug-rebate-program/index.html>.

We therefore, as our next best option, used the California Legislative Analyst's Office (CLAO) report on Proposition 61 as a proxy for estimating Ohio spending on prescription drugs. The Legislative Analyst's report estimates California spending on prescription drugs by eight state agencies for FY 2014-2015. We collected data on the population served by these agencies and the FY 2014-2015 budget for each agency. We collected the same data for the corresponding Ohio state agencies.

Using the data for the California agencies, we calculated the prescription drug spending per capita of the population served by the agency. We multiplied the per capita spending figures from the California state agencies by the population served for each Ohio state agency to estimate the prescription drug spending for each corresponding Ohio agency.

Because the Ohio Department of Health does not enumerate the population it serves, we assumed that fraction of its total budget going for prescription drug spending would match the fraction for the California Department of Health. Table 3 displays the results.

For Medicaid, the CLAO report only includes the Medicaid direct spending on prescription drugs and not Medicaid spending on Managed Care Organizations (MCOs) coverage for prescription drugs. This is appropriate since the Question 2 language states that "the state of Ohio, including its state departments, agencies and entities not to pay more for prescription drugs" and not for payments for prescription drug coverage.

As stated above, Medicaid provides data on net prescription drug spending for the program in Ohio. In FY 2015, Medicaid calculates that ODM spent a net of \$432.389 million for prescription drugs.<sup>20</sup> We also calculated ODM net spending on prescription drugs using the methodology above at \$428.165 million, a difference of only 0.99 percent, which gives us confidence in the accuracy of our approach. See the first two rows in Table 3.

However, the federal government standardizes the Medicaid programs across the different states. It is probable that California and Ohio differ in healthcare and prescription drug spending for their state employee retirement programs, corrections departments and systems of

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<sup>20</sup> Medicaid.gov, Financing and Reimbursement, State Expenditure Reporting for Medicaid & CHIP, Medicaid Financial Management Report - Net Services FY 2015, <https://www.medicaid.gov/medicaid/financing-and-reimbursement/state-expenditure-reporting/expenditure-reports/index.html>.

higher education. We make a second adjustment to the data to correct for these possible differences. We calculate the ratio of total health care expenditure per population served in Ohio to of total health care expenditure per population served in California for each agency and adjust our figure for prescription drug spending for each agency using this ratio. For example, the Ohio Public Employee Retirement System (OPERS) expenditure per population served on healthcare (covered lives) in FY 2015 was 83 percent of the amount California only of Public Employee Retirement System (CALPERS) spent in the same fiscal year. Therefore, we adjusted our prescription drug spending for OPERS down by 17 percent ( $100 - 83 = 17$ ). We repeated the exercise for the other agencies.

**Table 3: Calculation of Ohio State Spending on Prescription Drugs FY 2015**

Agency	CA Drug Spending (\$000's)	CA Population Served	CA Per Capita Spending (\$)	OH Population Served	OH Drug Spending (\$000's)
Medicaid (CA)	1,809,000	12,627,234	143	2,988,691	428,165
Medicaid OH					432,389
Public Employees Retirement System*	1,328,000	1,873,598	709	1,090,000	646,240
Higher Education	338,000	478,368	707	329,984	233,156
Corrections*	211,000	121,474	1,737	50,174	23,791
Developmental Services*	8,000	1,084		693	5,114
Metal Health and Addiction Services	NA	NA	NA	NA	75,302
Department of Health	57,000	\$898,956	6.3%	NA	40,756
<b>Total</b>	<b>3,729,000</b>				<b>1,452,525</b>

\*adjusted by the ratio of healthcare spending.

Finally, we converted the figures for FY 2014-2015 into 2018 data using the Bureau of Labor Statistics' Consumer Price Index, for prescription drugs.<sup>21</sup> This increased our estimate of Ohio's spending on prescription drugs to \$1,625,589,173.

Our next step was to apply our estimated prescription drug price changes to our estimate for Ohio spending on drugs to obtain the change in spending under Question 2. We multiplied the 16.79 percent that Ohio would save on prescription drugs by our estimate that Ohio's state

<sup>21</sup>U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, Prescription Drugs in U.S. City Average, Series CUSR0000SEMF01, <https://www.bls.gov/cpi/>.

agencies will spend \$1.626 billion on prescription drugs in 2018. The result is that Ohio would save \$273 million on prescription drugs under Question 2.

We simulated the effects of the potential shift in drug prices from public to private payers under three assumptions, ranging from low to high, about the portion of the cost saving that would be shifted to the private sector in the form of higher prices: 25 percent, 50 percent, and 100 percent. Table 4 displays the results.

**Table 4: Ohio Prescription Drugs Savings Shifted to Private Payers**

<b>Estimate</b>	<b>Cost Shift (%)</b>	<b>Savings (\$)</b>
Low	25	68,236,492
Medium	50	136,472,983
High	100	272,945,967

BHI built the OHIO-STAMP model and modified it to accommodate the change in private prescription costs. We assumed that the prescription drug manufacturers would shift an assumed fraction of the Ohio state cost savings to Ohio private sector payers. We increased the cost for the health care sector in the STAMP model by the amounts listed in Table 4. Our OHIO-STAMP model simulation provided estimates for the changes to real disposable income, and employment resulting from the cost shifting.

## About the Authors

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