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CROWE Policy Brief:

The Impact of Income Tax Reductions in Wisconsin

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Summary

On June 30, 2013, Wisconsin Act 20, which reduced the state's personal income tax rates for the first time since 1999 and eliminated a tax bracket, was signed into law.[1] This reform was later followed by 2013 Wisconsin Act 145, which further reduced the marginal tax rate for the bottom income bracket. The two acts shape the current income tax structure in Wisconsin. This paper evaluates the revenue and distributional impacts of the tax reductions from the two acts.

We use recent household-level income data to calculate state taxes under both the *actual* reduced tax rates in effect in 2016 and the *counterfactual* higher tax rates from 2012. Comparing the two tax regimes, we find the following effects of the income tax rate cuts in Wisconsin:

1. **State individual income tax revenue in 2016 was cut by about $400 million**, or 5% of the revenue that could have been collected under the 2012 tax rate schedule.
2. **The reduction in state tax liability is larger in percentage terms for low income households.** For example, the tax revenue from households with adjusted gross income (WAGI) below $25,000 declines by 13%, while it only declines by about 4% for households with WAGI above $100,000.
3. **For an average household, the lower tax rates raised after-tax income by about 0.24%** and reduced the household state tax liability in 2016 by about $132.
4. **The reduction in state tax liability and the increase in after-tax income are larger for richer households.** This is expected because poorer households pay less in taxes on

[1] See Page 2 of the paper by Wisconsin Legislative Fiscal Bureau: http://docs.legis.wisconsin.gov/misc/lfb/budget/2013_15_biennial_budget/102_budget_papers/280_general_fund_taxes_income_tax_rate_reduction.pdf

average. In particular, for households with extremely low income and zero tax liability under both tax regimes, the tax rate reductions have no effect at all.

This paper uses a static analysis of the income tax reforms, applying different tax structures to the same income data. Thus we ignore any behavioral response to taxation, such as the potential positive effect of tax rate reductions on household income arising from increased labor supply and resulting greater economic activity. That is, in the absence of the tax rate reductions, household income in 2016 would have been lower, and so would be the tax revenue. As a result, estimates in this paper likely overstate the (negative) revenue effect and understate the (positive) after-tax income effect of the tax rate reductions. Better estimates require a model to account for behavioral responses. In ongoing research, we are working on such a dynamic model at the Center for Research on the Wisconsin Economy (CROWE) and will use the model to evaluate the economic impacts of relevant policies at the state level

Individual Income Tax in Wisconsin

Wisconsin has a graduated (progressive) rate structure for the individual income tax, where tax rates increase as taxable income increases. Table 1 shows the 2016 tax rate schedule, which has four brackets and a separate marginal tax rate assigned to each bracket. The tax rate structure is cumulative, so that each tax rate applies only to income that falls within the corresponding bracket. A taxpayer with income exceeding the threshold for the top bracket would have income subject to each of the four tax rates. The tax brackets vary by filing status, with the bracket ranges for married taxpayers filing separately being approximately half of that for married joint filers. Tax brackets are indexed annually for changes in the Consumer Price Index.

Table 1. 2016 Taxable Income Brackets

Single ($)	Married Filing Jointly ($)	Marginal Tax Rate (%)
0 – 11,120	0 – 14,820	4.00
11,121 – 22,230	14,821 – 29,640	5.84
22,231 – 244,750	29,641 – 326,330	6.27
244,751+	326,331+	7.65

The current tax rate structure was first implemented in 2014. The structure in 2013 was similar except for a higher marginal tax rate of 4.4% for the bottom bracket, which was reduced to the current value of 4% through 2013 Wisconsin Act 145. Before 2013, the state employed five tax brackets. Table 2 shows the tax rate schedule in 2012. In 2013 Wisconsin Act 20 consolidated the five brackets into four with reduced marginal tax rates for each bracket. Note moreover that the reductions in tax rates were larger for the lower income brackets.

The goal of this paper is to evaluate the revenue and distributional impacts of the tax rate reductions from 2012 (Table 2) to 2016 (Table 1). We apply the two tax rate schedules to the same household income data and compare the resulting taxes and after-tax income. While the tax

rate schedule in Table 1 is used directly, we keep the marginal tax rates in Table 2 but adjust the brackets to 2016 values using corresponding changes in the Consumer Price Index between the 2012 and 2016. This adjustment allows us to interpret the resulting estimates as resulting purely from the tax rate reductions.

Table 2. 2012 Taxable Income Brackets

Single ($)	Married Filing Jointly ($)	Marginal Tax Rate (%)
0 – 10,570	0 – 14,090	4.60
10,571 – 21,130	14,091 – 28,180	6.15
21,131 – 158,490	28,181 – 211,330	6.50
158,491 – 232,660	211,331 – 310,210	6.75
232,661+	310,211+	7.75

Calculating Household Tax Liabilities from Survey Data

We use micro data from the 2017 Annual Social and Economic Supplement (ASEC) of the Current Population Survey, which contains income in 2016 for a sample of Wisconsin households. By choosing the income data in 2016, we can compare the resulting tax estimates with the latest official statistics from the Wisconsin Department of Revenue to make sure that our tax calculations are accurate.

The first step is to calculate the tax for each household in our sample under the *actual* 2016 tax rate schedule reported in Table 1. To do so, we first feed income and other demographic information for each household to a tax calculator (Taxsim27) maintained by the National Bureau of Economic Research to obtain the Wisconsin adjusted gross income (WAGI). WAGI excludes income not subject to tax in Wisconsin and is the basis for state tax calculation. We then write our own tax calculator that implements the tax code in Wisconsin in 2016. The calculator takes WAGI and other household information like marital status as inputs, applies personal exemptions and standard deductions to obtain taxable income, and then applies the tax rate schedule in Table 1 to the taxable income to obtain the gross tax. This is then adjusted for nonrefundable (married couple credit) and refundable tax credits (earned income tax credit) to obtain the net tax. For now, one component omitted from our calculator is alternative minimum tax (AMT). While this influences our results somewhat for 2016, the state AMT has been repealed and thus our estimates for future reforms will be more accurate.

Table 3 reports the resulting tax statistics by WAGI. To obtain these statistics, we weight each household by the ASEC sampling weight, adjusted by the distribution of tax filers across filing statuses and WAGI obtained from the Wisconsin Department of Revenue. To compare with official statistics, the net tax reported here accounts for nonrefundable credits but does not adjust for refundable credits.

Table 3. Income Tax by WAGI: Author's Calculations from ASEC

WAGI Class	Count	Total WAGI	Count with Net tax	Total Net Tax
Less than $25,000	1,276,520	10,823,272,247	388,942	106,404,263
$25,000 - $40,000	485,120	15,120,364,124	474,823	431,250,943
$40,000 - $70,000	569,100	29,558,110,036	569,100	1,231,041,577
$70,000 - $100,000	313,330	26,035,454,400	313,330	1,289,848,026
Over $100,000	397,110	68,018,129,851	397,110	3,995,218,964
TOTAL	3,041,180	149,555,330,657	2,143,305	7,053,763,773

To assess the accuracy of our calculations, we divide each number in Table 3 by the corresponding statistics from the Wisconsin Department of Revenue.[2] Table 4 shows that, overall, our calculations match the official statistics reasonably well. We slightly underestimate the tax revenue from households at the two ends of the income distribution. This is likely because it's difficult for survey data like the ASEC to capture irregular incomes other than wages and salaries. Irregular incomes are likely more important for both the very rich and the very poor households. For example, business income plays an important role for very high and also very low incomes, where net operating losses may result in negative WAGI. Underreporting of such incomes likely contributes to the low estimated taxes relative to official statistics for the two income groups at the extremes of our sample range.

Table 4. Ratio: Author's Calculations to Official Statistics

WAGI Class	Count	Total WAGI	Count with Net tax	Total Net Tax
Less than $25,000	1.00	1.01	0.90	0.94
$25,000 - $40,000	1.00	0.97	1.03	1.08
$40,000 - $70,000	1.00	0.98	1.01	1.08
$70,000 - $100,000	1.00	0.99	1.01	1.11
Over $100,000	1.00	0.82	1.01	0.92
TOTAL	1.00	0.90	0.99	0.98

Impacts of Recent Tax Rate Reductions in Wisconsin

Given that our calculation matches the official statistics reasonably well, we can use it as a benchmark to examine the effect of the recent income tax rate reductions. We do so by applying *counterfactual* tax rate schedules to the same taxable income data calculated above. Starting from taxable income instead of raw income guarantees that the same personal exemptions, standard deductions and other adjustments are used in the two cases. As a result, any difference

[2] Tables 2A and 2B, INDIVIDUAL INCOME TAX STATISTICS REPORT FOR TAX YEAR 2016. https://www.revenue.wi.gov/DORReports/16intxst.pdf

between the counterfactual calculations and the benchmark arises solely from the different tax rate schedules. Figure 1 summarizes our results.

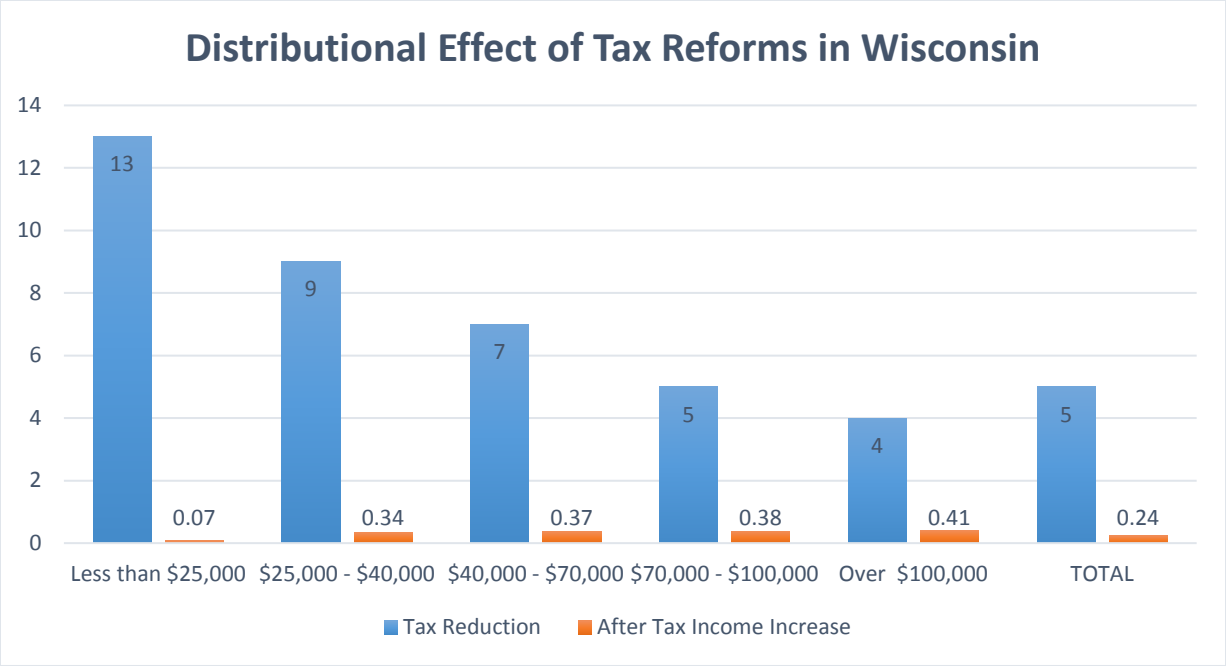

Figure 1: Distributional Effect of Recent Income Tax Reforms in Wisconsin. (in percent)

Table 5 provides our estimates of the revenue impact of the tax reforms. As mentioned above, our main counterfactual tax rate schedule is the one in Table 2, but with the bracket cutoff values adjusted to 2016 using corresponding changes in the Consumer Price Index. The third column (2012) in Table 5 reports the resulting tax revenues from each WAGI class. For comparison, the second column (2016) copies the corresponding benchmark calculations from the last column in Table 3. The fifth column (2016/2012) reports the ratio of the tax revenue from the two cases.

Table 5. Effect on Tax Revenue

	Year of Tax Rates			Ratio	
WAGI Class	2016	2012	2013	2016/2012	2016/2013
Less than $25,000	106,404,263	121,709,863	116,369,192	0.87	0.91
$25,000 - $40,000	431,250,943	475,160,936	452,934,927	0.91	0.95
$40,000 - $70,000	1,231,041,577	1,317,818,816	1,260,029,427	0.93	0.98
$70,000 - $100,000	1,289,848,026	1,363,864,641	1,307,256,361	0.95	0.99
Over $100,000	3,995,218,964	4,176,810,506	4,018,057,067	0.96	0.99
TOTAL	7,053,763,773	7,455,364,764	7,154,646,974	0.95	0.99

Overall, the tax rate reduction between 2012 and 2016 reduces total tax revenue in 2016 by about $400 million, or 5%. Percentagewise, the effect is decreasing in income. The tax revenue from households with WAGI less than $25,000 is reduced by about 13%, while the revenue from households with WAGI more than $100,000 declines only by about 4%.

The second counterfactual tax rate schedule we use is similar to Table 1 but with a higher (4.4%) marginal tax rate for the bottom bracket. This is effectively the tax rate schedule in 2013 but with the brackets adjusted to their 2016 values. Column 4 (2013) of Table 5 reports the resulting tax revenues, and column 6 (2016/2013) compares the estimates with the benchmark.

Overall, the estimates suggest that, among the $400 million reduction in annual tax revenue induced by the two acts, about $300 million arises from Act 20 and the remaining $100 million is due to Act 145. Our estimated effect of Act 20 is very close to the estimate by Wisconsin Legislative Fiscal Bureau (LFB). In August, 2013 the LFB estimated that Act 20 would reduce annual tax revenue by about $320 million.[3] The small difference between the two estimates is probably due to the different income data used in the two studies. We use a relatively small sample of actual income data in 2016, while LFB's study in 2013 used universe of actual tax returns from Wisconsin taxpayers, and then projected income for fiscal years 2013-2014 and 2014-2015. While our data is subject to reporting and sampling errors, LFB's estimate is subject to projection error. In particular, reduced tax rates are likely to have a positive effect on income, for example by inducing some households to work more. The LFB did not consider the dynamic behavioral impact of the tax reform, which likely contributed to their overstatement of the tax revenue lost under the policy. Interestingly, the LFB's estimate is larger than ours, suggesting that the projection error due to insufficient accounting of the income effect likely contributes to the difference between the two estimates. However, the difference between the two estimates are relatively small at roughly 7%, suggesting that the behavioral impact of Act 20 may not have been substantial.

Although Act 145 only reduced the marginal tax rate for the bottom income bracket, as the tax structure is cumulative, rich households are also affected. The last column in Table 5 suggests that, as with Act 20, the impact of Act 145 is also decreasing in income in percentage terms. In particular, the tax revenue from households with WAGI less than $25,000 is reduced by about 9%, while the tax revenue from households with WAGI more than $100,000 declines only by about 1%.

Table 6 reports the effects on net tax and after-tax income for an average household by household WAGI class. For simplicity, we only report the combined effects of the two acts.

[3] Page 269, Comparative Summary of Provisions, 2013 Act 20. Legislative Fiscal Bureau, August 2013. http://docs.legis.wisconsin.gov/misc/lfb/budget/2013_15_biennial_budget/101_comparative_summary_of_budget_provisions_act_20_august_2013

Column 2 reports the effect on household net state tax. Column 3 reports the percentage effect on household after-tax (both federal and state) income.

Table 6. Effect on Net Tax and After-Tax Income

WAGI Class	Change in Net Tax ($)	% Change in After-Tax Income
Less than $25,000	-11.99	0.07
$25,000 - $40,000	-90.51	0.34
$40,000 - $70,000	-152.48	0.37
$70,000 - $100,000	-236.23	0.38
Over $100,000	-457.28	0.41
TOTAL	-132.05	0.24

On average, the tax rate reductions reduced household state individual income tax by about $132 and raise household after-tax income by about 0.24%. Both effects are increasing in household income. For example, households with WAGI less than $25,000 see a reduction in their state tax by about $12 and an increase in their after-tax income by about 0.07%, while households with WAGI above $100,000 see a reduction in their state tax by over $450 and an increase in their after-tax income by about 0.41%. This pattern by income is largely expected, because poorer households pay less in taxes on average. While the reforms cut a larger percentage of the tax liability for low incomes, this liability is relatively low both in dollar terms and as a percentage of income. In particular, for households with extremely low income and zero tax liability under both tax regimes, the tax rate reductions had no effect at all.

Conclusion

We estimate the revenue and distributional impacts of recent tax rate reductions in Wisconsin. Our main findings are: (1) the lower tax rates reduced the state individual income tax revenue in 2016 by about $400 million, or 5%; (2) the reduction in state tax revenue was larger in percentage terms for low income households; (3) for an average household, the lower tax rates reduced the state tax in 2016 by about $132, and they raised after-tax income by about 0.24%; and (4) the reduction in state tax and the increase in after-tax income were larger for richer households. The last finding is expected because poorer households pay less in taxes on average.

Our static analysis ignores the behavioral effects of taxation and their dynamic feedback on the state economy, such as the potentially positive effect of tax rate reductions on household income arising from increased labor supply. Accounting for such effect would lead to a smaller reduction in total revenue and a larger increase in after-tax income. We are building a model to account for behavioral responses to policies and will use the model to evaluate the economic impacts of tax reform and other relevant policies at the state level.