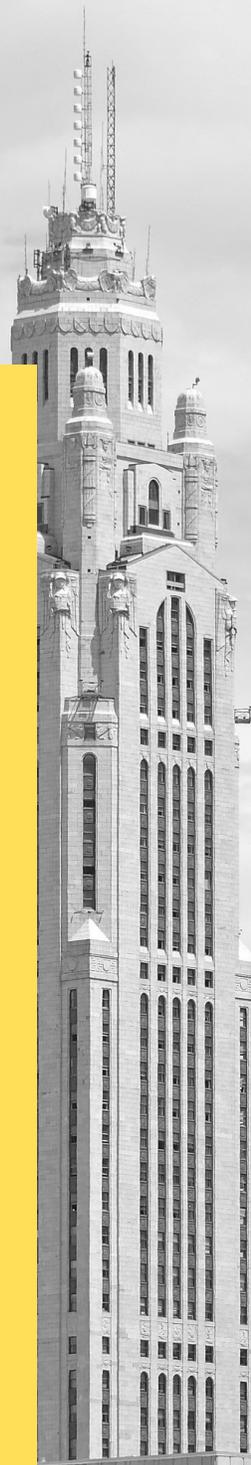


OHIO'S ECONOMY: 2009-2018

Measuring Genuine Progress in
the Buckeye State

May 2020

SCIOTO
ANALYSIS



Executive Summary

Gross Domestic Product (GDP) is a valuable but insufficient indicator of economic welfare for the policymaking process. An alternative measurement called the Genuine Progress Indicator (GPI) provides a more comprehensive measurement of economic welfare, incorporating environmental and social indicators alongside traditional economic indicators.

This study measures GPI in the state of Ohio from 2009 to 2018, building off an earlier study conduction for the 2009-2016 period. We find that Ohio's economy surged from 2016 to 2018 on the back of increased consumption, investment, and employment, benefiting from a stalling inequality trend and in spite of loss of farmland, depletion of non-renewables, and loss of family time in the form of leisure, parenting, and increasing commute times.

Despite the positive trend in GPI, GDP growth paints an even rosier picture of the state economy, more than doubling the estimated growth rate of Ohio's economy over the 2009 to 2018 period compared to GPI. This is likely because GDP does not factor in significant negative environmental impacts such as the depletion of non-renewables and loss of farmland or negative social impacts such as loss of leisure time and time spent commuting.

Context and Trends

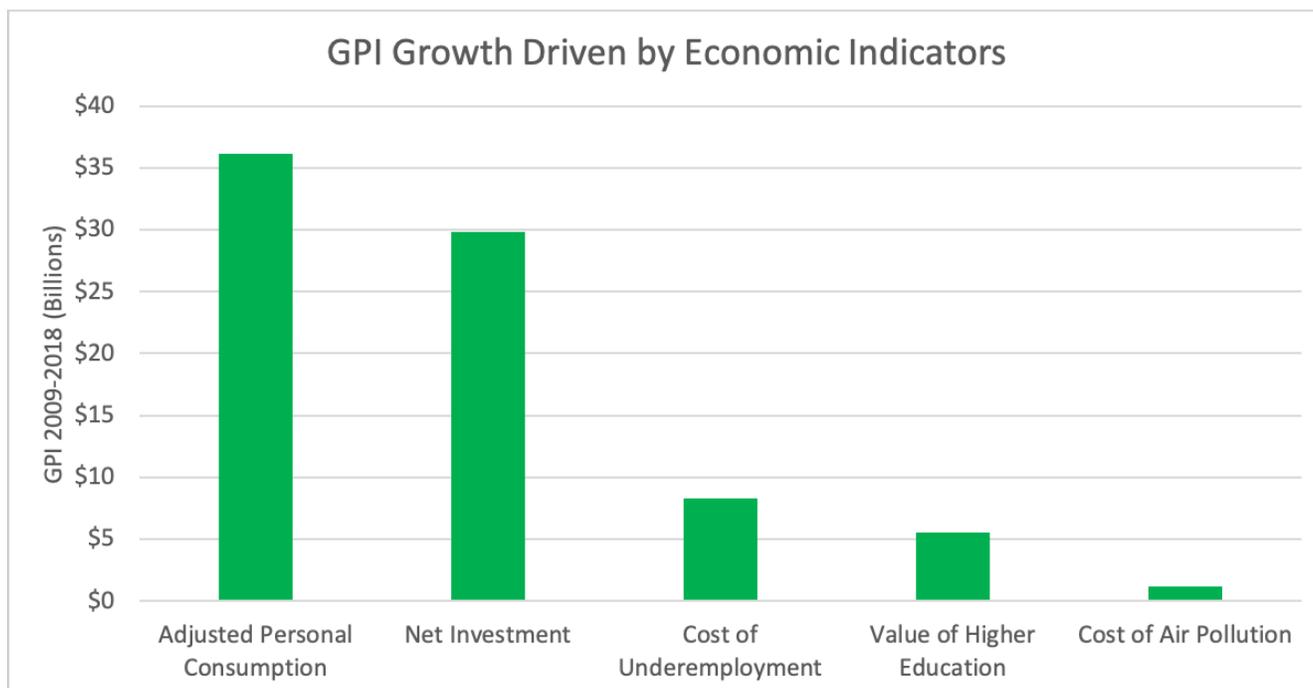
The statistic most associated with economic performance is gross domestic product (GDP), which is the sum of the value of all goods and services exchanged in the economy. While gross domestic product has done a good job of giving us an overall view of the economy, the measure leaves out some important components of economic performance. For instance, gross domestic product does not capture the value of housework, so if someone decides to hire a housekeeper and stops cleaning her own house, gross domestic product rises while services in the economy do not increase. Similarly, gross domestic product counts purchases that would be better off avoided in the first place such as car maintenance and abatement of environmental damage.

In order to deal with these problems, a growing group of economists are using an alternative indicator known as the "genuine progress indicator," or GPI. The genuine progress indicator starts with personal consumption much like GDP does, but then adds in corrections for inequality, environmental damage, and social benefits and costs not counted in GDP.

This study estimates Ohio's GPI from 2009 to 2018, building off a previous study conducted by Scioto Analysis in 2018.¹ This study is a collaboration between Scioto Analysis and a group of researchers at UC Berkeley's Goldman School of Public Policy and is the background for a policy analysis conducted studying best options for policymakers to raise revenue and grow the economy in 2020.

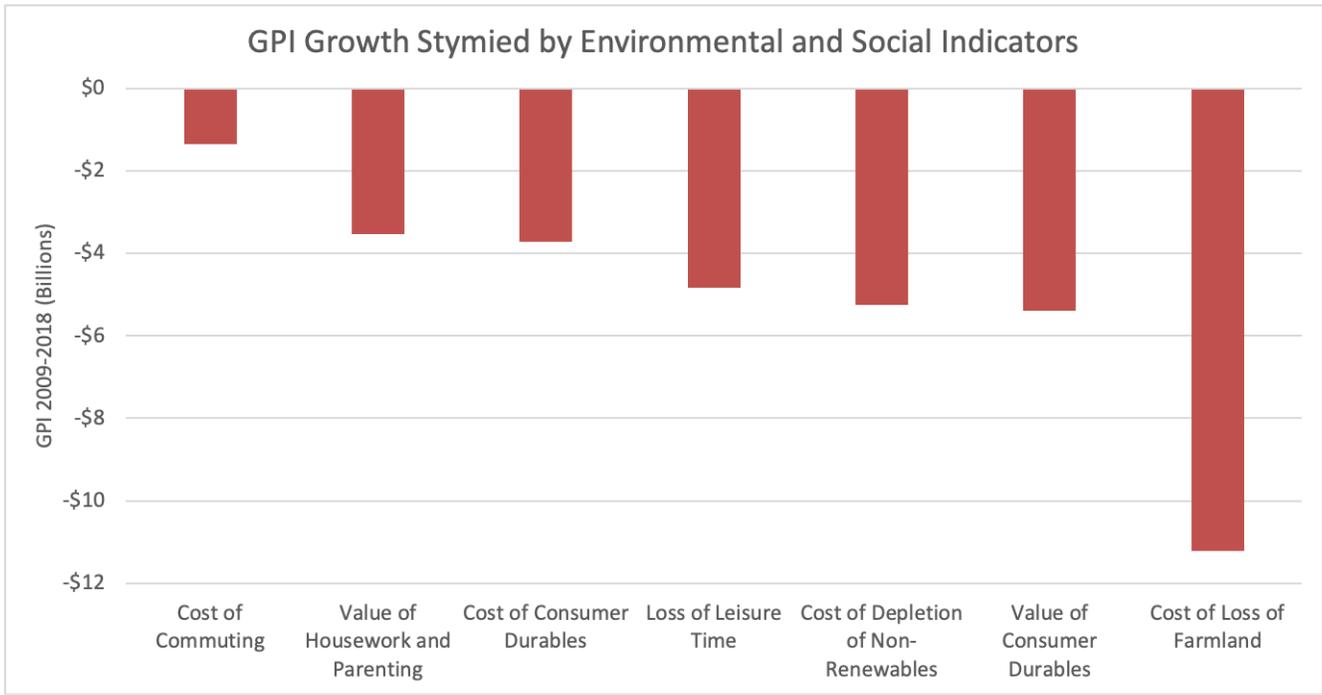
¹ Moore, Rob, "Ohio's Economy: 2009-2016," Scioto Analysis and Gross National Happiness USA, November 2018.

With this study, we now have ten years of data on GPI in Ohio and can track trends over that time period. As far as positive trends go (indicators that have improved GPI by more than \$1 billion from 2009 to 2018), 91% of gross GPI growth from 2009 to 2018 was driven in growth in consumption, net investment, and employment fueled by the long recovery from the Great Recession. Other bright spots were higher education, where the number of people with bachelor’s degrees grew by 420,000 over the decade, and air pollution, where four out of five major pollutants decreased in emissions over the time period.

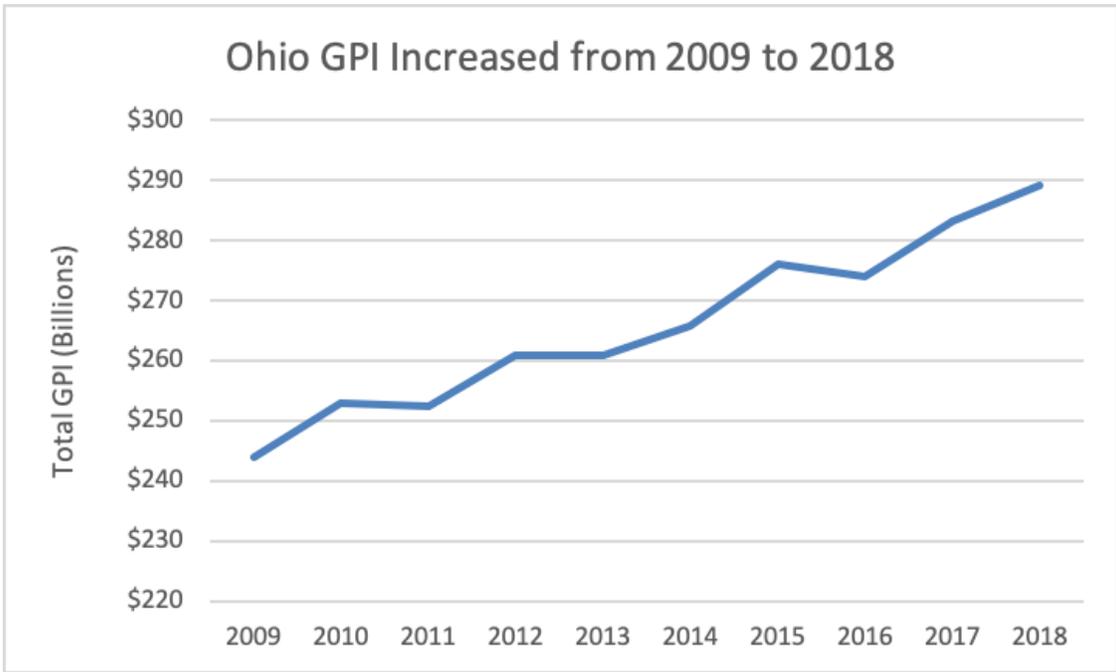


On the negative side, environmental and social indicators held back further GPI growth. While economic indicators experienced a net growth of \$65 billion in 2018 over the 2009 baseline, environmental and social indicators experienced a net decline of \$20 billion in 2018 versus 2009.

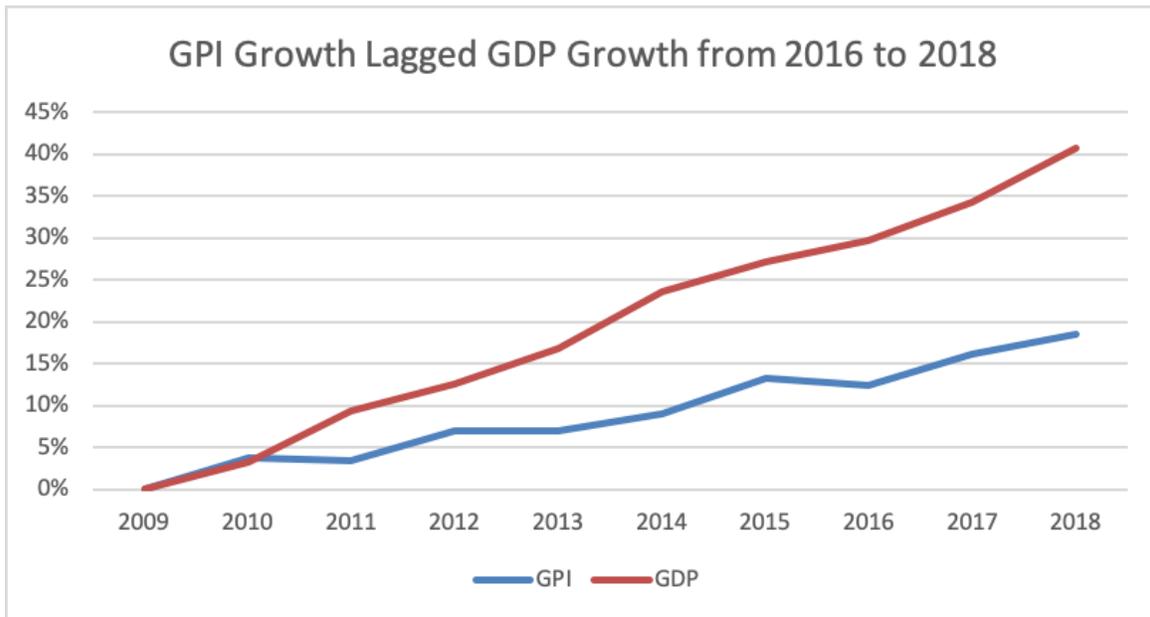
The largest negative GPI trend was loss of farmland, which accounted for 31% of gross GPI decline from 2009 to 2018. This was largely driven by increased value of farmland lost, not a net decrease in total state farmland over that time period. Another driver was trends in consumption of consumer durables, likely driven by the dual factors of increased purchasing power by consumers and delayed purchasing during the Great Recession. Other major factors were depletion of non-renewables, driven by Ohio’s natural gas boom, and loss of leisure time, reduction in housework and parenting time, and increase in commute times, all byproducts of the long economic recovery.



Overall, GPI has been on a positive trajectory the past ten years and especially the last two. After what amounted to a GPI recession in 2016, GPI grew by \$15 billion in the following two years on the backs of strong consumption and investment activity, good for an annualized growth rate of 2.8% per year over that time period.

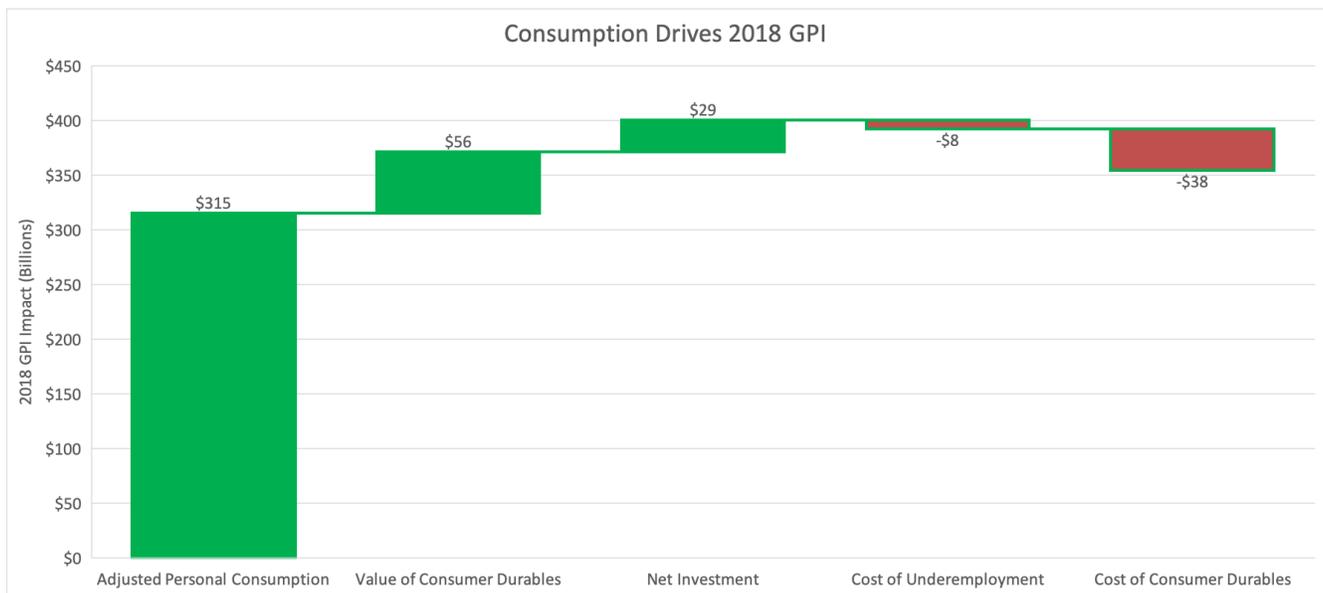


That being said, GPI growth lagged GDP growth over the ten-year period, amounting to less than half the growth rate of GDP from 2009 to 2018. Without environmental and social indicators in consideration, GDP paints much more rosy picture of the economy in the 2010s than GPI does.

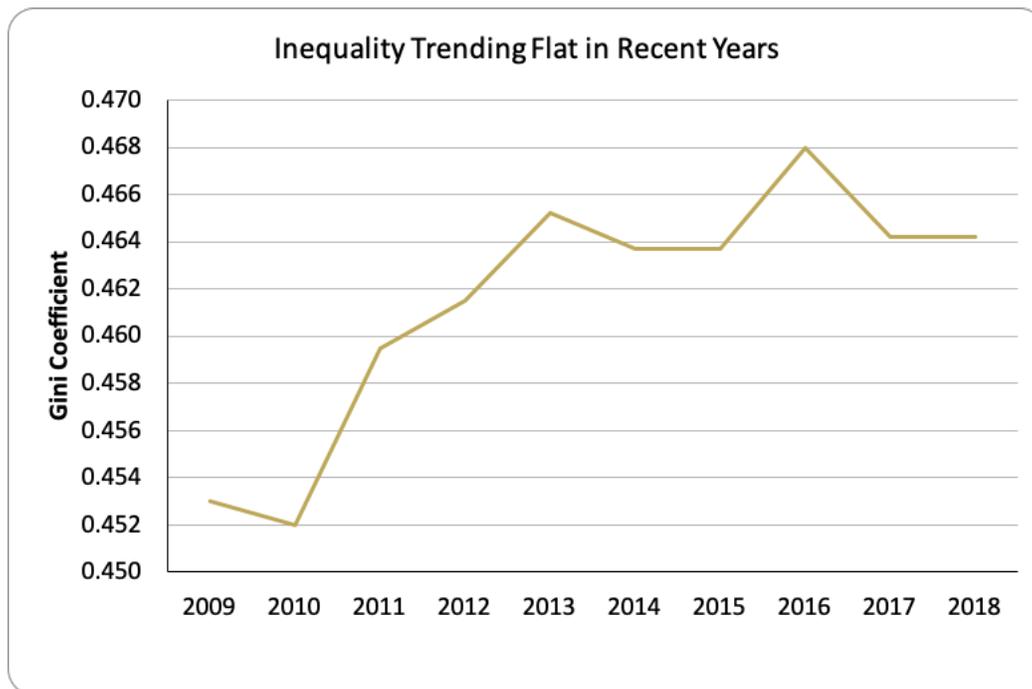


Economic Growth

If the story of Ohio’s GPI growth from 2009 to 2018 was based on growth in traditional economic indicators, its growth in traditional economic indicators is driven by increase in consumption. Of all gross positive GPI in 2018, 61% of it was made up of personal consumption. While consumer durables and net investment has positive GPI impacts in 2018 and underemployment has a small negative impact, personal consumption overwhelmed the impact of all other indicators in this category.

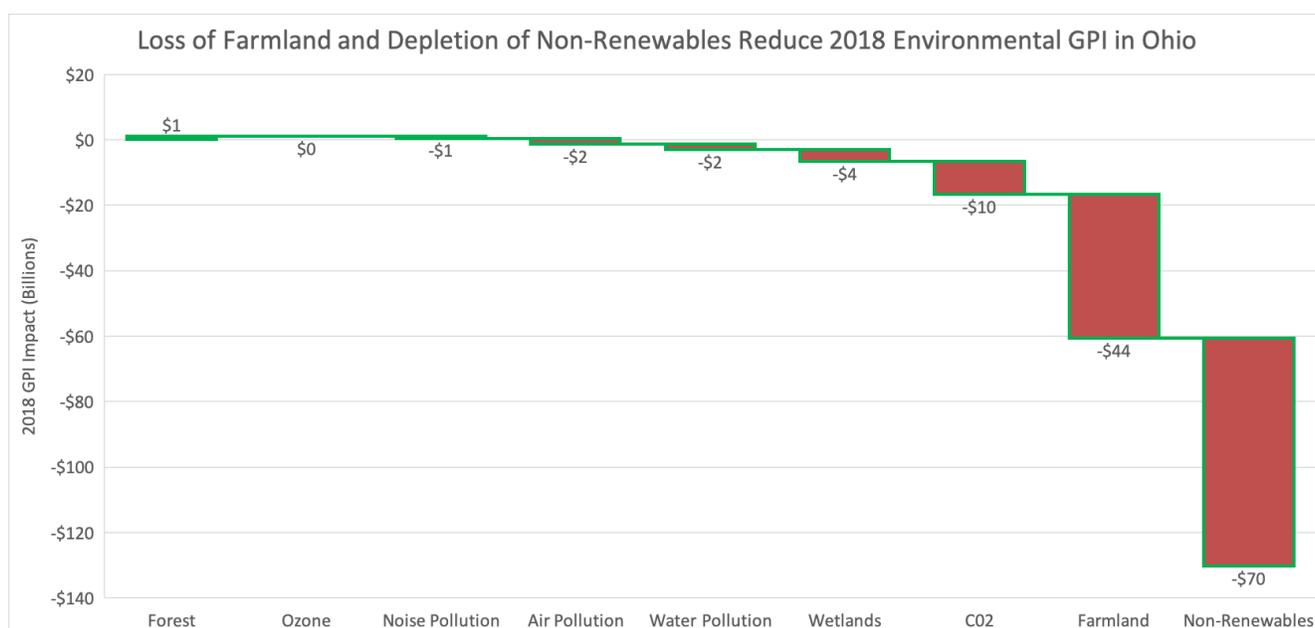


A particularly important trend since the last time Scioto Analysis published this study is the flatlining of the inequality trend. While inequality (as measured by the Gini coefficient, a measure of income inequality with 0 representing a completely equal income distribution and 1 representing a completely unequal income distribution) was on the rise from 2009-2013, up 2.7% over that time period, the trend from 2013 to 2018 was flat, with the Gini coefficient falling 0.2% over that time period.



Environmental Decline

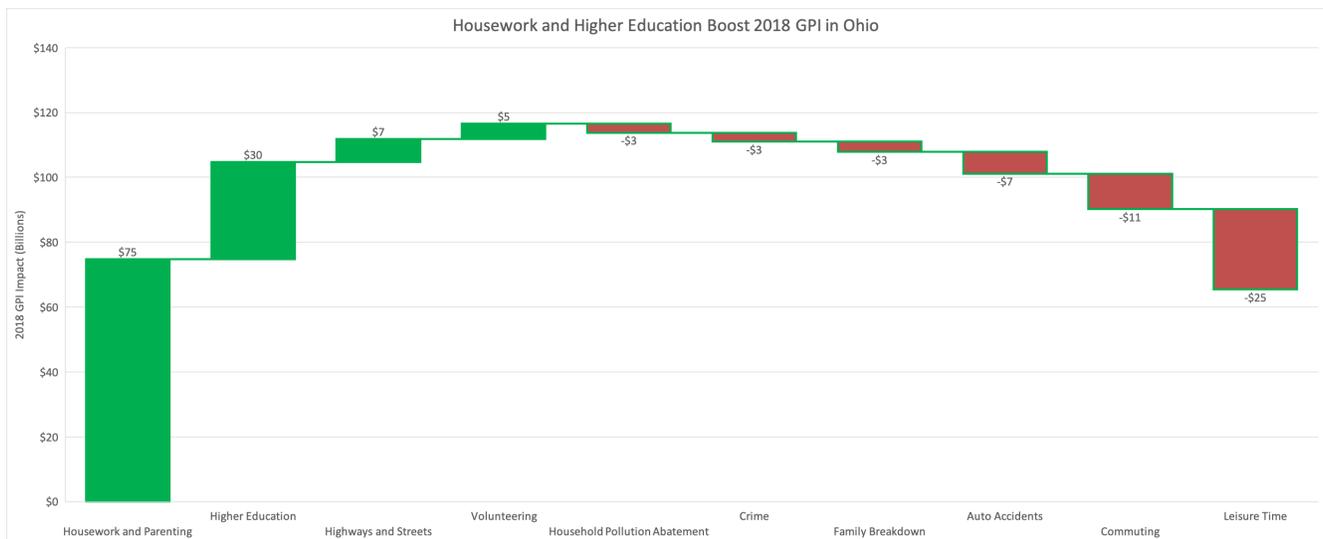
The environmental trend has been the opposite of the economic trend, with environmental indicators showing a significant slide from 2008 to 2018. In 2018, net environmental costs decreased GPI by a total of \$130 billion. This was mostly driven by the costs borne by the state in the form of depletion non-renewables and lost farmland, which added up to \$113 billion in economic damage in 2018, 87% of net environmental damage. Other significant impacts are CO₂ emissions, which amounted to \$10 billion in environmental damage, reduction of wetlands, which amounted to \$4 million in environmental damage, and water and air pollution, which each contributed \$2 million in costs to the state economy. The one small bright spot was the recovery of forest, which contributed \$1 billion in environmental benefit to the state.



Social Indicators

While social indicators have been on the decline as a whole from 2009 to 2018, they still provide a net benefit to the Ohio economy. In particular, the \$75 billion value of unpaid housework and parenting makes up 64% of gross social benefits. Also valuable is higher education, which generated \$30 billion in social benefits in 2018. Smaller boosts came from the value of highways and streets and volunteering, which combined to provide about \$12 billion in benefits in 2018.

On the negative side, loss of leisure time and increased commute times took a bite out of households' time in 2018, amounting to a total cost to the state economy in lost time of \$36 billion. Smaller but still substantial costs levied by auto accidents, family breakdown, crime, and household pollution abatement add up to an additional \$15 billion in social costs.



Appendix A: Economic Indicators

Year	Adjusted Personal Consumption	Cost of Consumer Durables	Value of Consumer Durables	Cost of Underemployment	Net Investment	Total
2009	\$278.94	-\$34.04	\$61.10	-\$16.03	-\$1.01	\$288.97
2010	\$284.29	-\$34.58	\$59.77	-\$15.55	\$8.30	\$302.23
2011	\$283.24	-\$35.44	\$57.53	-\$13.13	\$12.08	\$304.26
2012	\$285.61	-\$36.42	\$56.18	-\$12.11	\$19.13	\$312.38
2013	\$285.42	-\$37.13	\$55.33	-\$12.05	\$22.87	\$314.43
2014	\$291.82	-\$37.88	\$54.59	-\$9.67	\$25.68	\$324.54
2015	\$300.67	-\$39.09	\$55.01	-\$9.08	\$28.01	\$335.51
2016	\$301.79	-\$39.35	\$54.91	-\$8.90	\$24.03	\$332.48
2017	\$308.88	-\$38.53	\$55.08	-\$8.55	\$26.11	\$342.99
2018	\$315.05	-\$37.77	\$55.70	-\$7.72	\$28.79	\$354.05

Appendix B: Environmental Indicators

Year	Cost of Water Pollution	Cost of Air Pollution	Cost of Noise Pollution	Cost of Loss of Wetlands	Cost of Loss of Farmland
2009	-\$1.76	-\$2.92	-\$0.66	-\$3.55	-\$32.64
2010	-\$1.77	-\$2.76	-\$0.66	-\$3.55	-\$33.62
2011	-\$1.77	-\$2.64	-\$0.65	-\$3.55	-\$34.14
2012	-\$1.77	-\$2.48	-\$0.65	-\$3.55	-\$35.25
2013	-\$1.78	-\$2.33	-\$0.64	-\$3.55	-\$36.70
2014	-\$1.78	-\$2.18	-\$0.64	-\$3.55	-\$38.04
2015	-\$1.80	-\$1.95	-\$0.63	-\$3.55	-\$39.92
2016	-\$1.81	-\$1.80	-\$0.63	-\$3.55	-\$41.32
2017	-\$1.81	-\$1.79	-\$0.62	-\$3.55	-\$42.32
2018	-\$1.75	-\$1.74	-\$0.62	-\$3.55	-\$43.86

(All values in Billions)

Year	Cost of Net Forest Change	Cost of Carbon Emissions	Cost of Ozone Depletion	Cost of Depletion of Non-Renewables	Total
2009	\$0.94	-\$9.51	\$0.00	-\$64.37	-\$114.47
2010	\$0.95	-\$10.19	\$0.00	-\$66.58	-\$118.18
2011	\$1.03	-\$9.92	\$0.00	-\$66.07	-\$117.73
2012	\$1.05	-\$9.31	\$0.00	-\$64.22	-\$116.18
2013	\$1.06	-\$10.09	\$0.00	-\$66.56	-\$120.60
2014	\$1.05	-\$10.37	\$0.00	-\$69.10	-\$124.61
2015	\$1.02	-\$9.75	\$0.00	-\$67.50	-\$124.09
2016	\$0.99	-\$9.66	\$0.00	-\$66.09	-\$123.87
2017	\$0.99	-\$9.78	\$0.00	-\$65.91	-\$124.80
2018	\$0.94	-\$10.19	\$0.00	-\$69.61	-\$130.38

(All values in Billions)

Appendix C: Social Indicators

Year	Value of Housework and Parenting	Cost of Family Breakdown	Cost of Crime	Cost of Household Pollution Abatement	Value of volunteer work	Loss of Leisure Time
2009	\$78.22	-\$3.26	-\$2.77	-\$2.70	\$4.78	-\$19.88
2010	\$75.97	-\$3.29	-\$2.57	-\$2.68	\$4.98	-\$19.21
2011	\$74.09	-\$3.14	-\$2.62	-\$2.41	\$4.73	-\$20.62
2012	\$72.07	-\$3.12	-\$2.55	-\$2.57	\$5.13	-\$20.82
2013	\$74.16	-\$3.07	-\$2.47	-\$2.61	\$5.25	-\$22.17
2014	\$73.40	-\$2.93	-\$2.41	-\$2.63	\$4.95	-\$22.75
2015	\$75.40	-\$2.89	-\$2.58	-\$2.63	\$4.71	-\$23.92
2016	\$75.34	-\$2.77	-\$2.98	-\$2.63	\$4.71	-\$24.53
2017	\$75.04	-\$3.15	-\$3.41	-\$2.66	\$4.70	-\$24.26
2018	\$74.67	-\$3.14	-\$2.81	-\$2.70	\$4.69	-\$24.71

(All values in Billions)

Year	Value of Higher Education	Value of Highways and Streets	Cost of Commuting	Cost of Auto Accidents	Total
2009	\$24.40	\$6.43	-\$9.64	-\$6.24	\$69.33
2010	\$24.85	\$6.57	-\$9.45	-\$6.36	\$68.81
2011	\$24.94	\$6.74	-\$9.53	-\$6.29	\$65.90
2012	\$25.72	\$6.87	-\$9.75	-\$6.25	\$64.74
2013	\$26.65	\$6.88	-\$9.83	-\$5.86	\$66.94
2014	\$27.45	\$6.70	-\$10.00	-\$6.00	\$65.78
2015	\$26.69	\$6.73	-\$10.35	-\$6.49	\$64.68
2016	\$28.52	\$6.91	-\$10.59	-\$6.63	\$65.34
2017	\$29.19	\$6.88	-\$10.77	-\$6.59	\$64.97
2018	\$29.95	\$7.06	-\$11.00	-\$6.67	\$65.36

(All values in Billions)

Acknowledgements

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