



LESSONS FROM THE GREAT RECESSION

Policymakers Must Reject Deep Budget Cuts for a Strong Recovery

By Christopher Meyer



In only a few months, the COVID-19 pandemic has taken an enormous toll on Maryland families and communities. More than 2,500 Marylanders have lost their lives so far and many more must grieve this sudden loss. On top of this stunning death toll, families across our state are facing severe economic hardship, often on top of obstacles that already stood between them and financial security. More than half a million Maryland workers filed for unemployment between mid-March and mid-May of this year, 42 percent more than the number who filed jobless claims in all of 2009, at the height of the Great Recession.ⁱ

As we navigate this upheaval, Marylanders are counting on their state and local governments more than ever – to contain the virus’s further spread, to educate children in an unfamiliar online context, and to maintain the roads, transit and other infrastructure that keep our communities humming. But deep, rapid revenue losses are making this job harder than ever. State analysts estimate that the pandemic could cost the state \$1 billion or more in lost revenue by the end of June and up to \$6.5 billion over the next two years.ⁱⁱ

Policymakers’ response to these deep, rapid revenue losses will have important consequences in the coming months and years. A response that protects the foundations of our economy and ensures families can meet their basic needs can minimize the harm and speed the economic recovery. On the other hand, a lopsided, cuts-only response could eliminate thousands of jobs and impose needless suffering on residents of every part of Maryland.

Maryland’s experiences and choices in the aftermath of the 2008–2009 Great Recession should inform our response to the current crisis and motivate policymakers to make better decisions this time around:

- Like the current crisis, **the Great Recession deeply damaged Maryland communities.** Thousands of workers lost their jobs, many faced unaffordable housing costs or even lost their homes, and children across the state saw their formative years marred by physiologically and cognitively taxing trauma. Too often, state and local budget cuts took away vital support right when it was needed most.
- The state cut already-meager core support for local health departments, **prompting all 24 local agencies to lay off staff and curtail or eliminate services.** The failure to meaningfully restore lost funding in subsequent years likely put Maryland communities in a worse position to respond effectively to the current pandemic.
- **Maryland public schools lost 1,600 teachers from 2008 to 2013,** even as enrollment grew by nearly 14,000 students. These staff reductions hit especially hard in schools serving large numbers of students of color or students in low-income families. For example, the 100 Maryland schools that served the largest shares of Black students in 2008 saw their pupil-teacher ratios increase by 10 times as much as the 100 schools serving the largest shares of white students, on average.
- **Deep budget cuts worsened the very crisis that caused the Great Recession,** as the state cut back on investments in affordable housing and revitalizing struggling communities.
- Because state and local workers who lost their jobs no longer had sufficient income to spend on necessities, **budget cuts had a ripple effect on Maryland's economy,** causing a deeper downturn and a weaker recovery. This ripple effect may have cost Maryland families billions in lost take-home income and eliminated thousands of jobs.

A lopsided, cuts-only response to the current crisis would likely have similarly harmful effects:

- Only 10 years after the last round of deep cuts – with little effort to rebuild in the interim – **we cannot afford to further weaken the basic investments like health care and education that support our economy.** Cutbacks would likely heighten barriers that hold back Marylanders of color, women, Marylanders with disabilities, and workers at low-wage jobs.
- As Maryland's cuts to housing during the Great Recession show, it is impossible to cut back state and local investments without worsening the very problem that caused the recession in the first place. In today's environment, **a cuts-only approach to balancing the state budget would inevitably make it harder to protect Marylanders' health.**
- A cuts-only approach to balancing the budget could **severely weaken Maryland's economy,** potentially costing Maryland families \$6 billion or more in lost take-home income by summer 2022 and eliminating thousands of jobs.
- While the precise impacts of budget cuts cannot be predicted, if staffing cuts and state agencies' productivity fall proportionately with revenues, a cuts-only approach could translate into losses such as **up to 8,000 fewer teachers** in Maryland classrooms, or **more than 500 fewer affordable rental homes** across the state.
- If policymakers tried to target some public investments for cuts while protecting others, the required cuts would be even deeper. For example, if policymakers wanted to prevent cuts to health, public schools, and higher education, they would have to cut other services – such as workforce development, child care assistance, and protecting the Chesapeake Bay – by up to half.

Fortunately, federal and state policymakers can take steps to protect essential public investments and avoid causing needless job loss:

- **Congress must work fast to provide sufficient, lasting support to see state and local governments through the crisis.** A fiscal aid package must be bigger and longer lasting than the support the federal government provided during the Great Recession – and more flexible than the aid provided in earlier coronavirus response legislation. The Congressional Budget Office found that fiscal aid is among the most effective ways to bolster the economy during a downturn.
- **Policymakers in Maryland must take bold steps to improve our tax code** both by eliminating loopholes that allow large corporations and special interests to avoid paying their share and by expecting more of the wealthy few who today pay a smaller share of their income in state and local taxes than the rest of us do.ⁱⁱⁱ A more effective, more balanced tax code would support vital public investments and strengthen our economy by asking more of individuals with the deepest financial cushions, rather than placing more responsibility on families who live paycheck to paycheck.

Maryland's Unbalanced Fiscal Response Needlessly Contributed to Great Recession Harms



Health

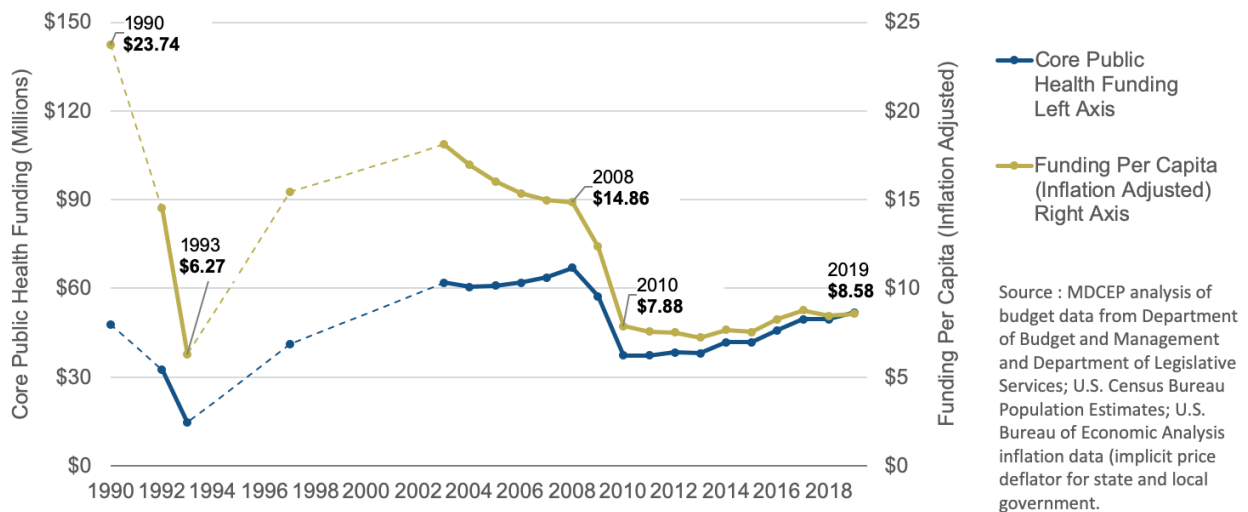
The state has slashed support for county boards of health multiple times over the last 30 years and failed each time to fully rebuild. This means that each round of cuts led to fewer staff and increasingly inadequate public health services – everything from reduced access to childhood vaccines to fewer water quality tests.^{iv} Some county leaders have said the reduced health department staffing due to years of inadequate funding made it harder to perform administrative tasks associated with the pandemic response.

- The state responded to a fiscal crisis in the early 1990s by cutting state funding for county health departments from \$47.8 million in fiscal year 1990 to only \$14.6 million in 1993, a 69 percent decline. The state slowly rebuilt public health aid in the subsequent years, but by 2003 funding was still a quarter below its 1990 level.^v
- Public health aid remained essentially steady during the early-2000s economic expansion, but policymakers targeted county health departments for cuts again during the Great Recession. The state reduced public health aid by \$10 million in fiscal year 2009 and by another \$20 million in 2010 – a 44 percent cut over two years.
- These funding cuts translated into lower staffing, reduced services, and less efficient operations. All 24 county health departments cut staffing between 2009 and 2011, eliminating 449 or more employee and contractual positions altogether. These included 44 positions in communicable disease control and 110 positions in maternal and child health. Health departments ultimately had to terminate some services altogether. The Frederick and Montgomery County health departments stopped providing vaccinations at public schools. The Howard County health department closed its HIV clinic. The department in Cecil County ceased water sampling. The cuts forced some departments to charge higher fees and made it harder to adopt up-to-date electronic health records systems.
- Another round of – quite possibly permanent – funding cuts would further impede local health departments as they respond to the unprecedented challenges posed by the COVID-19 pandemic.

Decades of Budget Cuts Left Maryland Less Prepared for a Public Health Crisis

Core funding grants to county boards of health, FY 1990–2019

Total funding, current dollars (blue) and funding per capita, constant 2019 dollars (beige)



Education

The state made significant progress providing schools the resources they need to deliver a high-quality education in the early years of this century, but policymakers reversed most of this progress during the Great Recession, forcing schools to serve more students with fewer teachers and support staff, making it harder for children to excel in the classroom. These effects showed up in various measures of student achievement.^{vi}

- Following passage of the Bridge to Excellence in Public Schools Act of 2002, the state ramped up education funding based on an analysis of the resources school districts needed to satisfy the state’s academic standards. During this ramp-up, the number of school districts at or close to this standard increased from four in 2002 to 23 in 2008 – all but one of Maryland’s 24 county-based school districts.
- Students’ test scores also improved during these years across multiple school districts, subjects, and grade levels. For example, the share of third graders scoring proficient or advanced on the Maryland School Assessment increased by 10 percentage points in math and 12 percentage points in reading from the 2003–2004 school year to 2007–2008. The gains were even larger in school districts where large numbers of students face barriers to learning because of low family income or the legacy of racial segregation.
- Policymakers responded to revenue losses during the Great Recession by suspending scheduled inflation adjustments in our school funding formula from 2009 to 2012 and capping the adjustments through 2015. By the time policymakers stopped cutting, the number of fully funded school districts had fallen to six, and more than half of all Black students in Maryland attended a school district that was underfunded by 15 percent or more compared to the 2002 standard – despite higher academic expectations.
- Funding cuts left schools with little choice but to lay off teachers. Maryland public schools lost 1,600 teachers from 2008 to 2013, even as enrollment grew by nearly 14,000 students.^{vii} These staff reductions hit especially hard in schools serving large numbers of students of color or students in low-income families. The 100 schools that served the largest shares of Black students in 2008 saw their pupil-teacher ratios increase by 10 times as much as the 100 schools serving the largest shares of white students, on average. The 100 schools serving the largest shares of students in low-income families saw their pupil-teacher ratios increase by six times as much as the 100 schools serving the smallest shares of students with low family incomes.
- During these years, improvements in student achievement stalled. For example, the share of third graders scoring proficient or advanced on the Maryland School Assessment in math increased by only 5 percentage points from 2007–2008 to 2011–2012, while the proficient and advanced share in reading increased by only 2 percentage points.

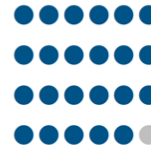


Maryland's Bridge to Excellence Law: A Story of Progress and Retreat



2002: When the state began phasing in the Bridge to Excellence formula, only 4 Maryland school districts were fully funded.

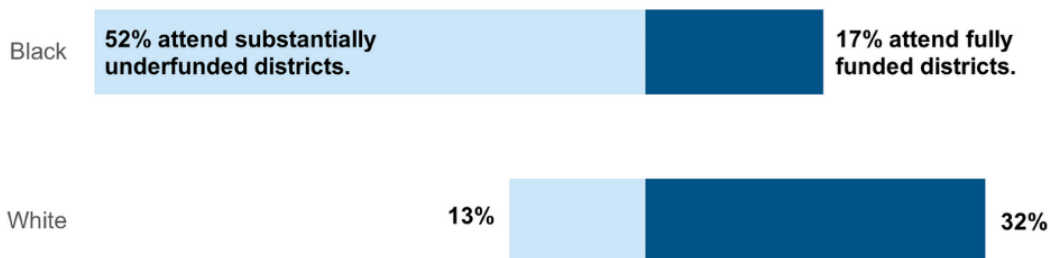
2008: After six years of consistent funding, 23 school districts were fully funded.



2017: After years of cuts that baked in underfunding, only 6 districts were still fully funded.

Source: Department of Legislative Services July 2019 presentation to the Blueprint for Maryland's Future Funding Formula Workgroup. School districts are marked as fully funded if they are at or above 95 percent of the Bridge to Excellence adequacy standard.

More than Half of Black Students in Maryland Attended Substantially Underfunded Schools as of 2017



Source: MDCEP analysis of DLS presentation to the Blueprint for Maryland's Future Funding Formula Workgroup and NCES Enrollment Data. Districts are coded as substantially underfunded if they are funded below 85% of the Bridge to Excellence adequacy standard. Districts are coded as fully funded if they are funded at or above 95% of the adequacy standard.



Housing

Perhaps most alarmingly, the state deeply cut its investments in affordable housing in the aftermath of a housing market collapse that forced many homeowners into foreclosure and made it harder for many renters to keep up with rapidly rising, unaffordable costs.

- The state’s housing investments peaked in fiscal year 2007 at \$102 million.^{viii} The state then cut funding for three years in a row, for a total reduction of \$30 million. This is a 37 percent decline in the state’s housing investments, adjusted for inflation and population growth.
- This includes a 64 percent reduction in adjusted funding for programs that support revitalization in communities that face economic challenges^{ix} and a 30 percent reduction in support for affordable housing development.^x
- These cuts came at the worst possible moment, making it harder for the state to effectively respond to Marylanders’ growing housing challenges.
- While exploding home prices before the Great Recession made it hard for many families to afford their mortgage or rent, this hardship did not subside after the bubble burst. More Maryland families faced unaffordable mortgage or rent payments in 2010 – when state investments in housing were lowest – than in 2007, at the height of the housing bubble. More than one-third of Maryland households faced unaffordable housing costs even in 2012, several years into the official economic recovery – while state housing investments remained depressed.^{xi}
- Unaffordable housing costs created additional barriers for Marylanders who already faced obstacles built through decades of discriminatory housing policy. While 38 percent of Maryland households overall faced unaffordable housing costs in 2010, 47 percent of Black households and 53 percent of Latinx households faced high housing costs. By

2012, 16 percent of all Maryland households – including 1 in 4 renters – spent more than half their income on housing and basic utilities.

- About 1,800 more Marylanders experienced homelessness on any given day when the economic crisis was most severe than in the years preceding the recession, an increase of 20 percent.^{xii}

Economic Impact

Budget cuts to public health, education, and housing each harmed Marylanders in different ways. On top of those specific harms, cutbacks led to more job loss, a deeper recession, and a slower recovery.

In fiscal year 2011, the state budget – excluding federal dollars and public university revenues – was about \$3.6 billion lower than it would have been if it had kept up with inflation and population growth since 2007.^{xiii} Because of ripple effects as families spend their income at local businesses, each \$1 cut from the state budget likely translates into a more than \$1 loss to the state economy. Estimates by independent legislative analysts suggest that this \$3.6 billion budget hole may have reduced Maryland families' take-home income by as much as \$4.1 billion in 2011 alone and cost thousands of jobs in the public as well as private sectors.^{xiv}

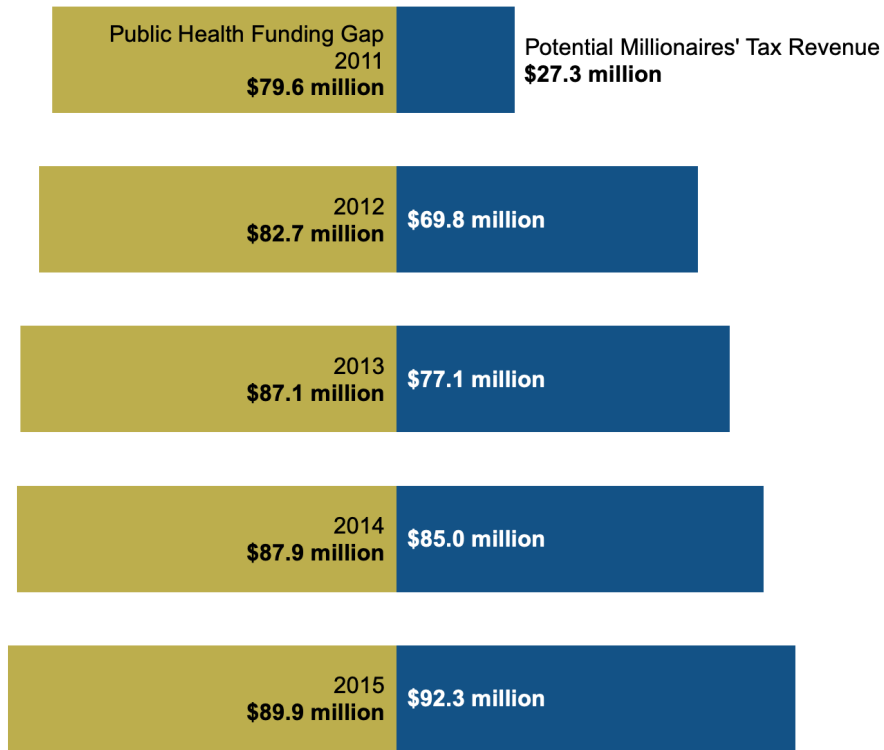
Inadequate Response

State and federal policymakers did take some positive steps to prevent even deeper cuts, but bolder action could have prevented more needless suffering.

- Congress included significant fiscal aid to state and local governments in the 2009 stimulus package, but that aid was generally too small to prevent deep cuts and often evaporated long before revenues recovered. For example, federal support for K-12 and higher education in Maryland increased by nearly 80 percent from 2009 to 2010, offsetting a deep drop in state education funding.^{xv} However, that assistance disappeared only two years later, leaving inflation-adjusted federal education aid lower than its pre-recession level – while state education funding remained well below its 2009 level even five years later. Analysis by the Congressional Budget Office shows that increased federal support for state and local governments would have been among the most effective ways to cushion the economic downturn and speed the recovery.^{xvi}
- Lawmakers in Maryland passed several measures to raise revenue between 2007 and 2012, including reforms like a millionaires' tax that asked more of the individuals with the greatest ability to pay. They also took actions like increasing the sales tax rate, which provided much-needed revenue while at the same time making our tax code more lopsided. These actions raised about \$6 billion in new revenue between fiscal years 2008 and 2012, and more since.^{xvii} This revenue prevented deeper, more damaging cuts, but was not sufficient to prevent harmful cuts altogether.
- After raising revenue to respond to the immediate needs of the last recession, Maryland policymakers made a range of decisions that put the state on less secure financial footing. They made the millionaires' tax temporary, costing the state \$350 million in the five years after it expired at the end of 2010.^{xviii} They also chose to reduce taxes in other ways that have made our tax system even more lopsided in favor of the wealthiest Marylanders, such as increasing the exemption for multi-million-dollar estates and providing pricey new tax breaks to large, profitable corporations.

A Permanent Millionaires' Tax Could Have Nearly Filled Maryland's Public Health Funding Gap

Public health funding gap (beige) and potential millionaires' tax revenue (blue)



Source: MDCEP analysis of Maryland budget data, U.S. Census Bureau Population Estimates, Bureau of Economic Analysis inflation data, and HB 1177 of 2010 Fiscal and Policy Note. Public health funding gap is defined as the amount needed to bring core public health funding to its FY 1990 level, adjusted for inflation and population growth.

We Should Make Better Choices Today

Maryland's experiences and missteps – as well as some positive choices – in the aftermath of the Great Recession should inform our response to the coronavirus-induced economic crisis we face today:

- Only 10 years after the last round of deep cuts – with little effort to rebuild in the interim – we cannot afford to further weaken the basic investments in things like health care and education that serve as the foundation of our economy.
- We can expect budget cuts to heighten barriers that already hold back Marylanders of color, women, Marylanders with disabilities, and workers at low-wage jobs. Scaling back our public investments will also likely eliminate thousands of jobs and hinder economic growth for years to come.
- As Maryland's cuts to housing during the Great Recession show, it is impossible to cut back state and local investments without worsening the very problem that caused the downturn in the first place. In today's environment, a cuts-only approach to balancing the state budget would inevitably make it harder to protect Marylanders' health.

State analysts estimate that the coronavirus pandemic and necessarily aggressive response could cost \$1 billion or more in lost revenue by the end of June, and anywhere from \$4.7 billion to \$6.5 billion over the next two years.^{xix} If policymakers respond to these rapid, severe revenue losses by slashing state investments in the foundations of our economy such as health care and education – or attempt to spare some investments by cutting even deeper into others – Marylanders will face a wide range of harms:

- Based on independent legislative analysts' estimates, budget cuts of this magnitude could severely weaken Maryland's economy. These cuts could cost Maryland families as much as \$6 billion to \$8 billion in lost take-home income by summer 2022.^{xx} A lopsided fiscal response could eliminate thousands of jobs, including many in the private sector.
- It is all but guaranteed that budget cuts to public schools would force school systems to serve more students with fewer teachers. While the precise number of layoffs cannot be predicted, a 10.7 percent reduction in teaching staff – equal to the best-case revenue loss expected during the 2020–2021 school year – would take more than 6,500 teachers out of the classroom.^{xxi} Staff reductions proportional to the worst-case revenue losses would cost Maryland schools more than 8,300 teachers. Our experience following the Great Recession suggests that schools serving large numbers of students of color and students in low-income families could see the largest staff cuts.
- Cuts to other state agencies would be similarly harmful. For example, while it is impossible to predict precise impacts, if budget cuts led to a proportional reduction in the state's ability to develop and preserve affordable housing, it could mean a loss of 430 to 550 affordable rental units, between new housing not built and avoidable rent increases.^{xxii} These losses would come at a time when thousands more families will likely face unaffordable housing costs and hundreds more could experience homelessness.
- Similarly, a lopsided, cuts-only fiscal response would almost certainly mean cutting the state's investments in health, the single largest piece of the state budget. This could take health insurance away from thousands of Marylanders if policymakers cut Medicaid or could make it harder for people without health insurance to access needed care. As many as 250,000 may have already lost employer-provided health insurance because of coronavirus-related job losses.^{xxiii} Cuts to public health and health care would be the worst possible response to a pandemic that has already cost more than 2,500 Marylanders their lives.^{xxiv}
- While policymakers may be tempted to try to spare some state investments while cutting others, this is not a viable approach. The state is expected to revenue losses of between 10 percent and 13 percent in the coming budget year. If policymakers relied solely on cuts to balance the budget – but tried to protect public schools from any funding losses – they would have to cut other state investments by anywhere from 16 percent to 20 percent.^{xxv} If state colleges, universities, and community colleges were also off limits, they would have to cut the rest of the state budget by 19 percent to 24 percent. If policymakers tried to prevent education or health budget cuts, they would have to slash up to half of all other state investments – including essential services such as workforce development, child care assistance, housing, and protecting the Chesapeake Bay.

Solutions

While there is no question that the coronavirus pandemic will have profound, lasting effects on all Marylanders, state and federal policymakers can take steps to reduce the harms rather than making things worse:

- **Congress must work fast to provide sufficient, lasting support to see state and local governments through the crisis.** The pandemic’s economic fallout is subjecting every state to sizable revenue losses, which means that every state’s residents will experience needless suffering absent sufficient federal support. A fiscal aid package must be bigger and longer lasting than the support the federal government provided during the Great Recession – and more flexible than the aid provided in earlier coronavirus response legislation. The federal government’s failure to provide adequate fiscal support following the Great Recession contributed to state and local austerity that held back the recovery – even though the Congressional Budget Office found that fiscal aid is among the most effective ways to bolster the economy during a downturn.^{xxvi}
- **Policymakers in Maryland must take bold steps to improve our tax code** both by eliminating loopholes that allow large corporations and special interests to avoid paying their share and by expecting more of the wealthy few who today pay a smaller share of their income in state and local taxes than the rest of us do. Estimates by independent state analysts show that taxes and the public investments they support increase jobs and Marylanders’ take-home income on net.^{xxvii} Taxing individuals with the highest incomes, those with the most built-up assets, and large corporations would likely bring the greatest economic benefits. Because individuals with high incomes – and even more so, those with built-up wealth – have more financial cushion than working families living paycheck to paycheck, each additional \$1 of income has little effect on their spending. Careful empirical research shows that during an economic downturn, families living paycheck to paycheck spend about 10 times as large a portion of each additional \$1 of income as those with the most built-up assets.^{xxviii} This means that asking more of wealthy individuals and using the resulting revenue to invest in essential services that create decent jobs can boost sales at local businesses cushion the impact of a recession.

ⁱ Bureau of Labor Statistics Unemployment Insurance Weekly Claims Data.

ⁱⁱ Maryland Office of the Comptroller, “Covid-19: General Fund Guidance Applying Moody’s Scenarios,” May 2020, https://www.marylandtaxes.gov/covid/documents/COVID-19_General_Fund_Guidance_Applying_Moodys_Scenarios.pdf

ⁱⁱⁱ Meg Wiehe, Aidan Davis, Carl Davis, Matt Gardner, Lisa Christensen Gee, and Dylan Grundman, “Who Pays? A Distributional Analysis of the Tax Systems in All 50 States,” Institute on Taxation and Economic Policy, 2018, <https://itep.org/whopays/>

^{iv} Jennifer Ellick and Erin McMullen, “Survey of Local Health Departments in Maryland,” Department of Legislative Services, 2013, <http://mgaleg.maryland.gov/Pubs/CommTFWorkgrp/2013-Survey-Of-Local-Health-Depts-Report-January-2013.pdf>

^v MDCEP analysis of budget data from Department of Budget and Management and Department of Legislative Services; U.S. Census Bureau Population Estimates; U.S. Bureau of Economic Analysis inflation data (implicit price deflator for state and local government).

^{vi} For detailed discussion of Maryland school funding history, see Christopher Meyer, “Budgeting for Opportunity: How our Fiscal Policy Choices Can Remove Barriers Facing Marylanders of Color and Advance Shared Prosperity,” Maryland Center on Economic Policy, 2018, <http://www.mdeconomy.org/budgeting-for-opportunity/>

^{vii} MDCEP analysis of National Center for Education Statistics enrollment and staffing data.

^{viii} Throughout this report, state housing investments are defined as actual general fund and special fund expenditures, plus authorized general obligation bonds.

^{ix} Division of Neighborhood Revitalization.

^x Division of Development Finance.

^{xi} MDCEP analysis of American Community Survey data.

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- ^{xii} MDCEP analysis of data from the United States Interagency Council on Homelessness.
- ^{xiii} MDCEP analysis of Maryland budget data, U.S. Census Bureau Population Estimates, and U.S. Bureau of Economic Analysis inflation data (implicit price deflator for state and local government). The state budget is here defined as general funds and special funds only.
- ^{xiv} See Maryland Department of Legislative Services, “Economic Impacts of Reducing the Maryland Corporate Income Tax Rate,” 2013, <http://dls.maryland.gov/pubs/prod/TaxFiscalPlan/Corporate-Income-Tax-Analysis-Report-for-web.pdf>
Appendix 1 reports analysts’ estimates of the economic impact of reducing state expenditures. MDCEP analysis of Appendix 1 and Exhibit 2 indicates that a \$1.00 change in state expenditures is associated with a \$1.15 change in disposable personal income.
- ^{xv} MDCEP analysis of Maryland budget data.
- ^{xvi} “Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output in 2014,” Congressional Budget Office, 2015, <http://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49958-ARRA.pdf>
- ^{xvii} MDCEP analysis of revenue estimates from Department of Legislative Services fiscal and policy notes.
- ^{xviii} Maryland Department of Legislative Services, Fiscal and Policy Note for House Bill 1177 of 2010, http://mgaleg.maryland.gov/2010rs/fnotes/bil_0007/hb1177.pdf.
- ^{xix} Maryland Office of the Comptroller, “Covid-19: General Fund Guidance Applying Moody’s Scenarios,” May 2020, https://www.marylandtaxes.gov/covid/documents/COVID-19_General_Fund_Guidance_Applying_Moodys_Scenarios.pdf
- ^{xx} See footnote xiii. MDCEP calculations based on the DLS analysis indicate that a \$1.00 change in state expenditures is associated with a \$1.15 change in disposable personal income.
- ^{xxi} MDCEP analysis of National Center for Education Statistics teacher staffing data.
- ^{xxii} MDCEP analysis of Department of Housing and Community Development Managing for Results projections for FY 2021.
- ^{xxiii} Ben Zipperer and Josh Bivens, “16.2 Million Workers Have Likely Lost Employer-Provided Health Insurance Since the Coronavirus Shock Began,” Economic Policy Institute, 2020, <https://www.epi.org/blog/16-2-million-workers-have-likely-lost-employer-provided-health-insurance-since-the-coronavirus-shock-began/>
- ^{xxiv} Mortality data from Maryland COVID-19 Data Dashboard, <https://coronavirus.maryland.gov/>
- ^{xxv} MDCEP analysis of FY 2021 Maryland enacted general fund budget. All estimates in this paragraph are based on general fund appropriations, as special fund revenue loss projections are not currently publicly available.
- ^{xxvi} Congressional Budget Office, 2015.
- For discussion of the negative impact of state and local austerity following the Great Recession, see Heidi Schierholz and Josh Bivens, “Three Years into the Recovery, Just How Much Has State and Local Austerity Hurt Job Growth?” Economic Policy Institute, 2012, <https://www.epi.org/blog/years-recovery-state-local-austerity-hurt/>
- ^{xxvii} See “Economic Impacts of Reducing the Maryland Corporate Income Tax Rate,” 2013, Exhibit 4.
- ^{xxviii} Christopher Carroll, Jiri Slacalek, Kiichi Tokuoka, and Matthew White, “The Distribution of Wealth and the Marginal Propensity to Consume,” *Quantitative Economics* 8, 2017, <https://onlinelibrary.wiley.com/doi/epdf/10.3982/QE694>
See Table 4 (p. 1003), Column 2. During a recession, the 1 percent of households with the highest ratio of net worth to income are predicted to spend \$5 of each additional \$100 of income, compared to \$52 for the 20 percent of households with the lowest ratio of net worth to income.