

Capstone Project:

Advocacy for Sound Fiscal Policy Regarding Social Welfare Funding Post-COVID-19

Capstone Advisor: Melanie Petsch

Capstone Team:

Angela Kuang, Kathryn Kaiser, Pendik Saputro, Xinzhe Zou



Acknowledgements

This report was produced for the Federation of Protestant Welfare Agencies (FPWA) in conjunction with Columbia University's School of International and Public Affairs (SIPA) as a Capstone Consultancy project. The authors, Angela Kuang, Kathryn Kaiser, Pendik Saputro, and Xinzhe Zou, are graduate students at SIPA. Melanie Petsch, Lead Data Scientist at the New York Stock Exchange and Adjunct Associate Professor of International and Public Affairs, oversaw the project. Any views expressed herein are the authors' own and do not necessarily represent those of SIPA.

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The report is informed by several interviews with experts in the field. We also would like to thank them for their valuable contributions: Andrea Bubula, Senior Lecturer in the Discipline of International and Public Affairs, Columbia University; Chris Wimer, Director Center on Poverty and Social Policy, Columbia University, and Arloc Sherman, Senior Director and Senior Fellow, Center on Budget and Policy Priorities. We would also like to thank Derek Thomas, Senior Fiscal Policy Analyst and Gaurav Gupta-Casale, Fiscal Policy Analyst at FPWA for sharing their knowledge and skill with us.

Highlights and Summaries

[Abstract](#)

This mid-term and final abstract were submitted to SIPA to describe the work of the capstone group in the two parts of the semester

[Presentation Slides](#)

This slideshow summarizes the full semester and includes the table of contents linking to all of the final deliverables

Reference Materials

[Annotated Bibliography](#)

This bibliography is a synopsis of some of the literature reviewed pertinent to the research

[Interview Summaries](#)

Three separate interviews were conducted by team members to understand aspects of the research more deeply. These interviews are summarized here

Brief Summaries on the Current Pandemic and the Great Recession

[Comparison of COVID-19 and the Great Recession: Small Businesses and Unemployment](#)

This brief summary details similarities and differences in both economic downturns related to small business and unemployment

[Nine Facts about the Great Recession and Tools for Fighting the Next Downturn](#)

This brief summarizes a report from the Brookings Institute in simpler language and has important implications for the current downturn.

Three program summaries looking at ARRA and CARES

These program summaries briefly describe the federal response for three social welfare programs - childcare, unemployment benefits, and food security

[HEAD START program summary](#) (and [spreadsheet appendix](#))

[Unemployment Insurance summary](#)

[SNAP program summary](#)

SNAP Need Modeling

[National SNAP Analysis Spreadsheet](#)

This spreadsheet provides the underlying datasets for our SNAP analysis

[Methodology for Spreadsheet](#)

This summary describes the methodology for the data sets in the SNAP spreadsheet

Possible Variations on the FPWA Initial CARES Map

[Mapping Initial CARES Act Funding](#)

We found the Tableau map of the initial CARES Act fund from FPWA to be very compelling. In the original map, which is the first version in this workbook, more populous states stand out. We tried adjusting the funding levels by three metrics: per capita, per COVID-19 as of 4/22/20, and per case per capita. We thought you might find the variation interesting and inspiring as each map tells a different story; all are factual but with different emphasis.

Capstone Client: Federation of Protestant Welfare Agencies (FPWA)

Project Title: Advocacy for Sound Fiscal Policy Regarding Social Welfare Funding Post-COVID-19

Faculty Advisor: Melanie Petsch

Students: Kathryn Kaiser, Angela Kuang, Pendik Saputro, Xinzhe Zou
May 2020

The FPWA is an anti-poverty policy and advocacy organization serving the New York City social service sector by providing grants to help individuals and families meet their basic needs and advocating for fair public policies on behalf of people in need and the agencies that serve them. The FPWA developed a Federal Funds Tracker as a tool to demystify the federal budget's impact through interactive data visualizations and storytelling.

The initial goal of this Capstone project was to expand the FPWA's Federal Fund Tracker by modeling poverty, wages, and spending in New York City as it relates to the discontinued federal funding response to the Great Recession, the American Recovery and Reinvestment Act (ARRA). The ARRA 2009 stimulus package provided direct funds to families through tax cuts, tax credits, and unemployment benefits, funded public works projects (creating jobs), subsidized increased health care costs, along with significant education funding. Our Capstone group looked at the ways in which social welfare data is measured. We interviewed researchers at SIPA and a policy analyst in DC who had extensive experience in modeling policy results. We reviewed articles written about the assumptions and different approaches to calculating social welfare and created an annotated bibliography. We modeled multiple scenarios for SNAP funding related to economic conditions.

After the COVID-19 pandemic caused a new recession, our focus shifted to supporting FPWA efforts to compare federal funding responses in times of crisis and to develop resources for advocacy of sound policy. In particular, we pivoted to add context to the current federal funding policy, the Coronavirus Aid, Relief, and Economic Security (CARES) Act, with comparisons to the ARRA response to the Great Recession. We summarized research on lessons learned in the Great Recession, and analyzed and made accessible elements of the CARES Act that impact programs important to FPWA partners.

Our research into Head Start (a children education program), SNAP (Supplemental Nutrition Assistance Program, a food buying program), and expanded unemployment benefits shows that government spending that targets low-income and recently unemployed individuals can have a strong impact on the economy. Our visualizations of the allocation of stimulus funds across the country demonstrated that the current stimulus package may not be reaching the most in need recipients at an equitable rate.

The FPWA plays an important role in supporting effective policy regarding social welfare. It is an honor to be able to support their efforts during this unprecedented time in which social welfare funding is so essential.

Midterm Project Abstract

Capstone Client: Federation of Protestant Welfare Agencies (FPWA)

Project Title: Expand FPWA's Federal Funds Tracker to Visualize Spending, Poverty, and Wages in New York City as if the Recovery Act was Made Permanent

Faculty Advisor: Melanie Petsch

Students: Kathryn Kaiser (kk2224), Angela Kuang (ak4110), Pendik Saputro (ps3064), Xinzhe Zou (xz2750)

This Capstone project for the FPWA is supporting agency efforts to expand modeling of poverty, wages, and spending in New York City as it relates to discontinued federal funding. The FPWA is an anti-poverty policy and advocacy organization serving the New York City social service sector by providing grants to help individuals and families meet their basic needs and advocating for fair public policies on behalf of people in need and the agencies that serve them.


The FPWA developed a Federal Funds Tracker developed as a tool to demystify the federal budget's impact through interactive data visualizations and storytelling. This tool empowers advocates by democratizing the data and offers resources and opportunities for federal budget advocacy.

Our capstone group aim is to expand the tracker by analyzing the impact of the American Recovery and Reinvestment Act (ARRA), a 2009 federal stimulus package that provided direct funds to families through tax cuts, tax credits, and unemployment benefits, funded public works projects (creating jobs), subsidized increased health care costs, along with significant education funding.

Our highest priority tasks at the midterm are to look at the ways in which social welfare data is measured. We will interview researchers at SIPA who have particular knowledge in these areas, review articles written about the assumptions and differences in approaches to calculating these data sets and create an annotated bibliography to support our findings. In the second half of our project, we will model representations of the impact continued federal funding for ARRA could have had on poverty, wages, and spending for New Yorkers.

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Capstone Workshop:

Contribute to FPWA's advocacy for sound fiscal policy regarding social welfare funding post-COVID-19

May 2020
Capstone Advisor: Melanie Petsch
Capstone Member: Angela Kuang, Kathryn Kaiser, Pendik Saputro, Xinzhe Zou

FPWA

FPWA
Fulfilling the promise of opportunity

- The FPWA is the client for this Capstone project.
- The FPWA is an anti-poverty policy and advocacy organization serving the [New York City](#) social service sector by providing grants to help individuals and families meet their basic needs and advocating for fair public policies on behalf of people in need and the agencies that serve them.
- The FPWA developed a Federal Funds Tracker as a tool to demystify the federal budget's impact through interactive data visualizations and storytelling.

Just 3 Federal Grants Support More Than 80% of DSS's Federal Funding

Federal Grants by Agency, FY 2019 (\$ in thousands)



Agency	Funding (\$ in thousands)
Temporary Assistance for Needy Families (TANF)	~900,000
Health Insurance Information Counseling and Assistance Program (HICAP)	~250,000
Supplemental Nutrition Assistance Program (SNAP)	~150,000

Source: FederalFundsTracker.org

Project Timeline

- ➔ Research ARRA
 - Understanding the key elements
 - Poverty
 - Wages
 - Government spending
 - Literature review: Annotated Bibliography
 - Interview experts: Interview summaries

- ➔ In the midst of COVID-19
 - Help FPWA constituents synthesize and absorb information about funding in the current crisis
 - Compare the current CARES Act funding to fiscal response to the Great Recession in 2008/2009, ARRA Funding.
 - Research and write articles about three programs
 - Head Start
 - SNAP
 - Unemployment benefits
 - Share different possible visualizations of the CARES funding by state
 - Share different possible models for SNAP funding

American Recovery and Reinvestment Act (ARRA)



- Recovery Act was a stimulus package, developed in response to the Great Recession (global financial crisis) in 2009.

Recovery Act's Goals:

- ✓ to save existing jobs and create new ones;
- ✓ to provide temporary relief programs;
- ✓ to invest in infrastructure, education, health, and renewable energy.

NYC received more than \$7 billion in Recovery Act funds.

Coronavirus Aid, Relief, and Economic Securities Act



- CARES Act was a stimulus package, developed in response to the COVID-19 Pandemic in 2020.

CARES Act's Goals:

- ✓ To support healthcare providers;
- ✓ To support families and businesses impacted by the coronavirus pandemic.

NY state received more than \$112 billion in CARES Act funds.

Final Deliverables to FPWA

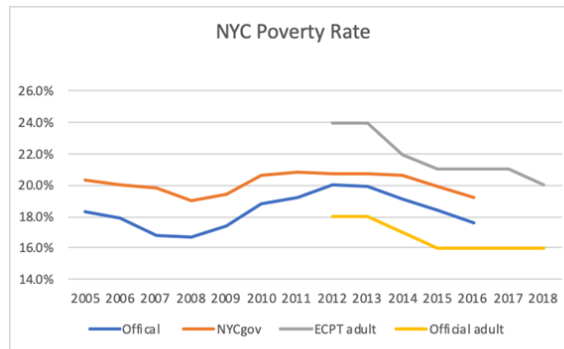
- Reference Materials
 - Interview summaries
 - Annotated bibliography
- Brief Summaries on the Current Pandemic and the Great Recession
 - Comparison between the great recession and current pandemic
 - Nine Facts about the Great Recession
- Three program summaries looking at ARRA and CARES funding
 - Child care, food security, unemployment benefits
- SNAP modeling methodologies guide
- Variations on the FPWA Initial CARES Map

Poverty: Several measures are widely used

All of the measures roughly trend together, but declare different portions of the population as in poverty.

Threshold Comparison:

- Official (OPM): \$24,858 (2017)
- NYC Government (NYCgov): \$33,562 (2017)
- ECPT: \$35,730 (2018)

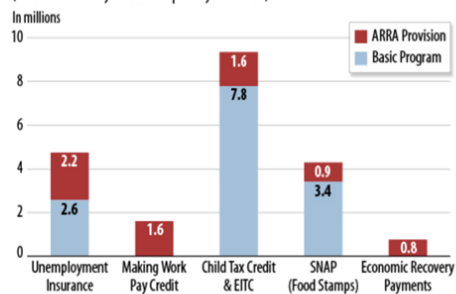


Source: Annual report from the office of the mayor and Robin Hood 2018 annual report

Poverty

- Research by Arloc Sherman from Center on Budget and Policy Priorities (CBPP) estimated that ARRA kept at least 6.2 million Americans out of poverty in 2009
- 419,000 were New Yorkers
- Using NAS guidelines for the poverty definition

People Kept Above the Poverty Line by Selected Benefits in 2009 (National Academy of Sciences poverty definition)



Source: CBPP analysis of March 2010 Current Population Survey

Center on Budget and Policy Priorities | cbpp.org

Real wages: A function of average hourly earnings and median weekly real earnings

Bill Dupor and Peter B. McCrory from Federal Reserve Bank of St. Louis found:

- “One dollar of ARRA spending in a subregion increased wage payments by \$0.64 in that subregion.”
- “Increased wage payments in the neighboring subregion by \$0.5.”



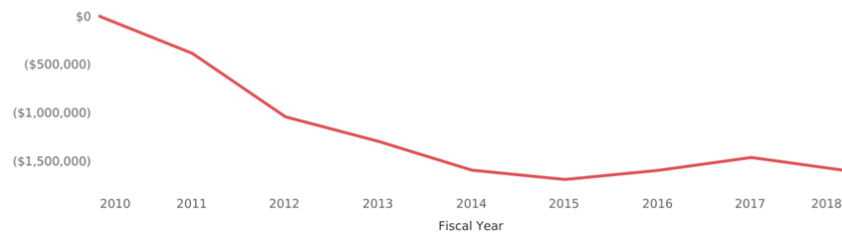
Government Spending: Declining trend since the recession

From 2010 to 2018, federal grants have fallen by \$1.8 billion (21 percent) after adjusting for inflation, driven by the decline of:

- education (\$1.3 billion, or 43 percent),
- social services (\$320 million, or 8 percent),
- environmental protection (\$19 million, or 79 percent),
- health (\$14 million, or 4 percent), and
- transportation grants (\$9 million, 8 percent).

Total Federal Grants to NYC Have Fallen by \$1.8 Billion (21 Percent) Since FY 2010 After Adjusting for Inflation

Change Relative to FY 2010 Funding Level (\$ in thousands)



Interview Summaries

- ➔ Andrea Bubula – SIPA Senior Lecturer
 - The research should consider that the effects of ARRA will be different each year due to changes on macroeconomic conditions.
 - Suggested model to use: Computable General Equilibrium (CGE), do more literature review and use the findings for benchmark.
- ➔ Chris Wimer – Director of Center on Poverty and Social Policy
 - The Center on Poverty and Social Policy portrays poverty in NYC more comprehensively by conducting periodical survey not only on income but also material hardship and health condition to sample population in NYC.
- ➔ Arloc Sherman – Center on Budget and Policy Priorities
 - Examined 6 policies as of 2010: higher SNAP benefits, regular Unemployment Insurance (UI), extended weeks of UI, an expanded EITC, an expanded Child Tax Credit, the Making Work Pay Tax Credit. (2009 had an additional (7th) Economic recovery payment).

Bibliography

- Dupor, B., & Mccrory, P. B. (2014). Fiscal Policy Spillovers: Points of Employment to Places of Residence.
- Elizabeth Kneebone, "The Child Tax Credit after ARRA: How Would Expiration Affect Metropolitan Families?" *Metropolitan Policy Program at the Brookings Institution*.
- Meyer, B. D., & Sullivan, J. X. (2012). Identifying the Disadvantaged: Official Poverty, Consumption Poverty, and the New Supplemental Poverty Measure. *Journal of Economic Perspectives*, 26(3), 111–136.
- Mishell, L., Bivens, J., Gould, E., & Shierholz, H. (2019). Updated Appendix B: Wage measurement. In *The State of Working America* (pp. 465-474). *Cornell University Press*.
- Sherman, Arloc (2009). Stimulus Keeping 6 Million Americans Out of Poverty in 2009, Estimates Show. *Center on Budget and Policy Priorities*.
- Trisi, Danilo & Saenz, Matt (2020). Deep Poverty Among Children Rose in TANF's First Decade, Then Fell as Other Programs Strengthened. *Center on Budget and Policy Priorities*.
- Vogel, C., Michaels, C., & Wileden, L. (2011). The End of an ARRA. *Center for an Urban Future*.

Comparing the Great Recession and the Pandemic

- Though the underlying causes of the two economic slowdowns are different, both crises are global.
- In both crises, the magnitude of economic devastation was profound on small business sectors.
- Based on the NFIB Research Center's latest survey, 76% of small businesses are negatively impacted by the COVID-19. While there are fiscal policy responses underway, progress on that front is slow.
- Despite the shared similarities above, the current downturn may well be worse than the Great Recession.
- It is predicted by J.P. Morgan that around 8.5 million jobs could be lost by this summer. Even after the coronavirus outbreak is under control, the employment rate will likely struggle to rebound when many of the small businesses close permanently for the lack of financing.

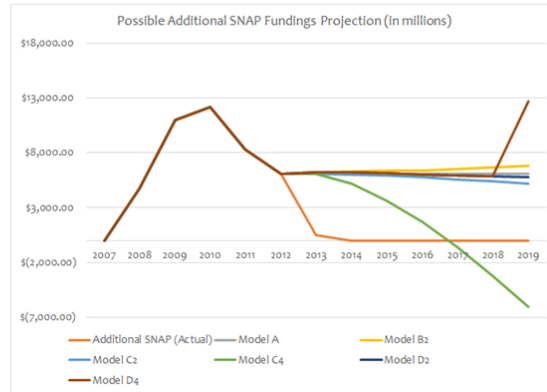
SNAP Modeling Methodology

Our approach starts simply and layers in additional economic information and policy direction.

- Model A: Simplest, assumes constant additional SNAP benefits since 2013
- Model B1 and B2: Adjust for inflation
- Model C1 and C2: Adjust additional SNAP benefits for unemployment rate
- Model C3 and C4: Adjust whole SNAP benefits for improvements in employment
- Model D1 and D2: Adjust for both inflation and unemployment rate
- Model D3 and D4: Adjust for both inflation and unemployment rate and Project for 2020 as an extreme case

SNAP Modeling

We suggest the estimate of the need for additional SNAP grants for 2020 is closer to \$14 billion, greater than the real 2020 dollar amount of the biggest additional SNAP grant of the Great Recession.



Source: SNAP data from USDA, Projections from FPWA Capstone Team

Program 1: Head Start

- Head Start (HS) promotes school readiness by enhancing the social and cognitive development of low-income children aged between two and five through the provision of comprehensive health, educational, nutritional, social and other services.
- ARRA granted HS and EHS \$2.1 billion in funding over 2009 and 2010. This led to both of the HS and EHS programs expand their enrollments by around 20 thousand children in the 2009-2010 school year.
- After ARRA funding expired in 2011, Head Start and EHS lost the 8% increase in funding and the enrollment of children decreased.
- CARES Act granted the Head Start program \$750 million, which is approximately 1/3 of the ARRA grant level.

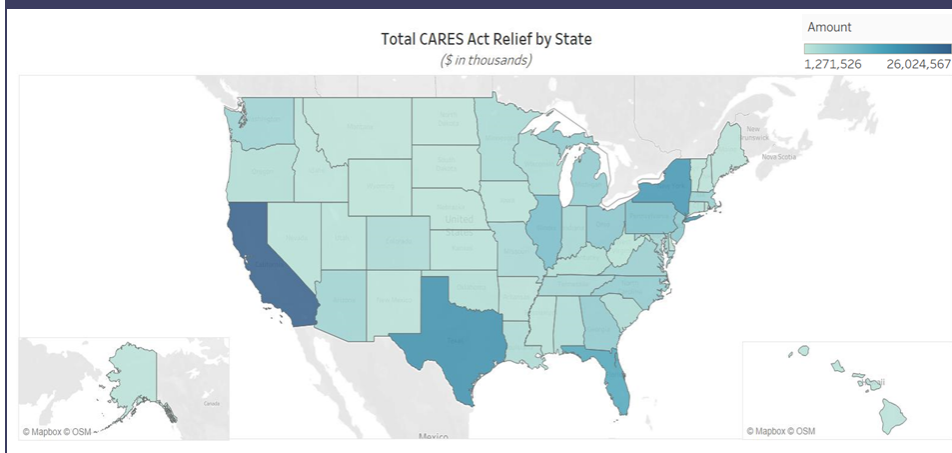
Program 2: SNAP (Supplemental Nutrition Assistance Program)

- SNAP, commonly known as food stamps, helps people with limited income buy food. SNAP provides “direct assistance” where the money flows directly from the federal government to the eligible individual and for SNAP in the form of pre-loaded debit cards to purchase food.
- ARRA increased spending on SNAP by \$43 billion over a 10-year period, which makes the SNAP program reached even more participants than usual, providing 15 percent of Americans with the resources to purchase food.
- After the recession ended, SNAP rules reduced the maximum family benefit and limited states’ ability to waive work requirements, reducing SNAP as a crucial safety net.
- CARES allocated an additional SNAP amount of \$15 billion to remain available until September 30, 2021.

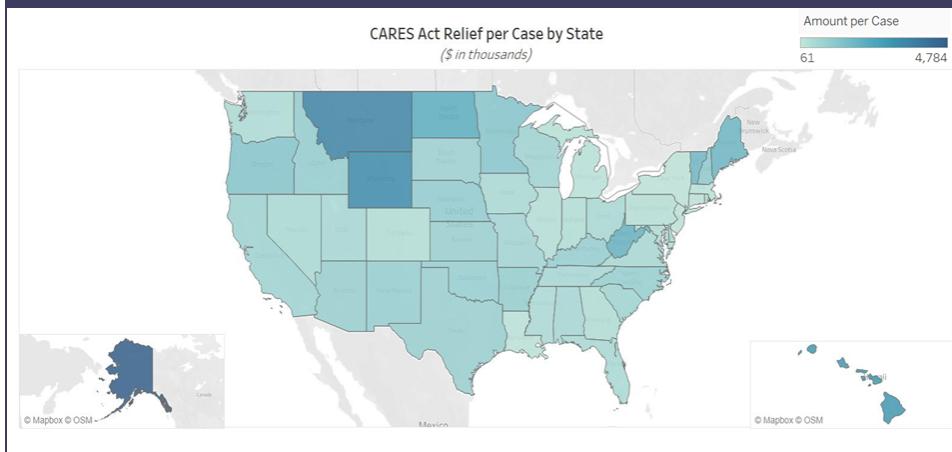
Program 3: Unemployment Benefit

- Unemployment insurance is a joint state-federal program that provides cash benefits to eligible workers who become unemployed through no fault of their own and meet certain other eligibility requirements.
- ARRA:
 - Added Federal Additional Compensation (FAC)
 - Extended the Emergency Unemployment Compensation Program (EUC)
 - Extended the Railroad Unemployment Insurance (RRUI) Benefits
 - Suspended income tax on first \$2,400 of unemployment benefits
 - Incentivized state to modernize its unemployment program
 - Transferred fund for administration of State Unemployment Program
- CARES:
 - Increases unemployment benefits
 - Expands the unemployment benefit coverage

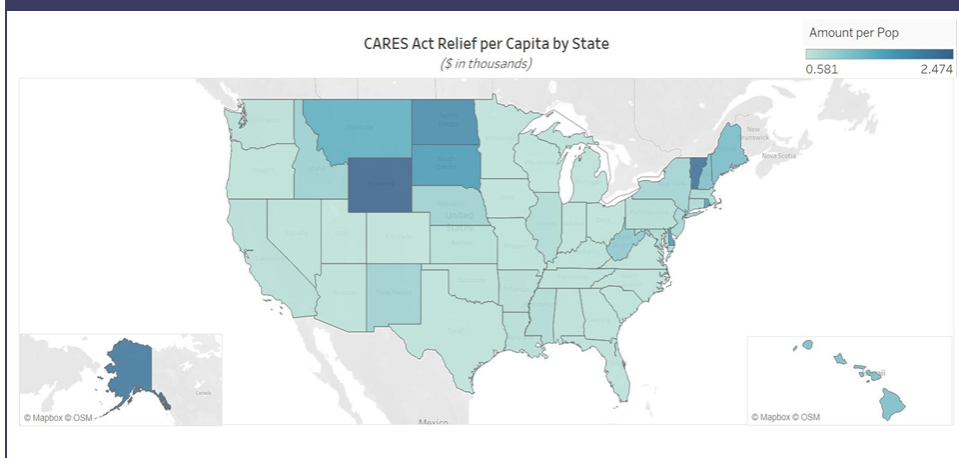
Total Amount of CARES Act Relief Fund by State



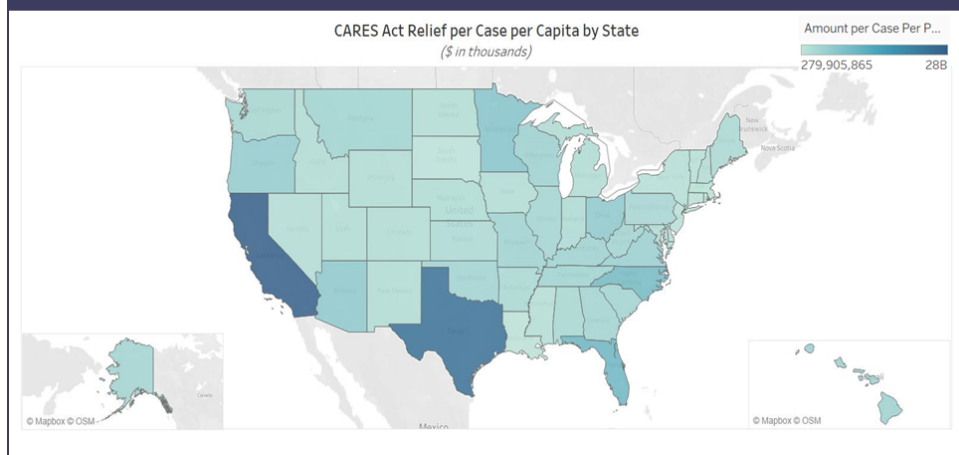
CARES Act Relief Fund per Case by State



CARES Act Relief Fund per Capita by State



CARES Act Relief Fund per Case per Capita by State



1. Poverty

Meyer, B. D., & Sullivan, J. X. (2012). Identifying the Disadvantaged: Official Poverty, Consumption Poverty, and the New Supplemental Poverty Measure. *Journal of Economic Perspectives*, 26(3), 111–136. doi: 10.1257/jep.26.3.111

Three different methods of measuring poverty, the official poverty measure, the supplemental poverty measure, and a consumption-based measure of poverty, are described and compared. The official poverty measurement has two main flaws: first, it defines resources as pretax income only; second, it has inadequate thresholds for different family sizes. The supplemental poverty measure differs from the official poverty measure in two significant ways: its definition of income is more conceptually closer to resources available for consumption and it includes a more defensible adjustment of family size and composition. Both the official poverty measure and the supplemental poverty measure are income-based measures. The last consumption-based measure has an advantage in better predicting deprivation than income and it is more accurately reported than income for the most disadvantaged families.

Sherman, Arloc (2009). Stimulus Keeping 6 Million Americans Out of Poverty in 2009, Estimates Show. Center on Budget and Policy Priorities. Retrieved from <https://www.cbpp.org/research/stimulus-keeping-6-million-americans-out-of-poverty-in-2009-estimates-show>

This study was published by the Center on Budget and Policy Priorities in 2009. It estimated that ARRA had kept 6.2 millions of Americans out of poverty in 2009, among which 419,000 residents were New Yorkers. These estimates are conservative in the sense that they do not include the poverty impact of many of ARRA's provisions for direct assistance to households. The estimates focus on 7 stimulus provisions: making work pay credit, child tax credit expansion, EITC expansions, food stamp increase, unemployment insurance extension, unemployment ins: additional \$25/week, \$250 one time payment to elderly people and people with disabilities. This study includes two simulations. It first simulated the economy in 2009 and then simulated the selected income-support provision of ARRA. Details of simulations are given in this article.

Trisi, Danilo & Saenz, Matt (2020). Deep Poverty Among Children Rose in TANF's First Decade, Then Fell as Other Programs Strengthened. Center on Budget and Policy Priorities. Retrieved from https://www.cbpp.org/research/poverty-and-inequality/deep-poverty-among-children-rose-in-tanfs-first-decade-then-fell-as?utm_source=CBPP+Email+Updates&utm_campaign=8fc2529435-EMAIL_CAMPAIGN_2020_02_27_04_25&utm_medium=email&utm_term=0_ee3f6da374-8fc2529435-111251949

Deep poverty is defined as living below half the poverty line, or below just \$14,000 a year for a typical family of four in 2018. This study found that the deep poverty rate among children rose in the decade after the 1996 law that created the TANF program. The reason is that the number of families receiving cash assistance fell by 2.7 million from 1995 to 2005, largely due to the 1996 law's policies taking away cash assistance when a parent didn't meet a work requirement. The same law also imposed large cut on

SNAP, further weakening the safety net for families with the least income.. However, in the same decade, the overall children poverty rate decreased by 5.9 percent. This shows a shift in the focus of government's assistance. In the next 10 years (2005 to 2016), the deep poverty rate among children fell from 3.5 percent to 2.7 percent. This is largely because SNAP became more effective. This study also shows that the SNAP program protects children from poverty more than any other programs.

2. Wages

Dupor, B., & Mccrory, P. B. (2014). Fiscal Policy Spillovers: Points of Employment to Places of Residence. doi: 10.20955/wp.2014.029 Retrieved from

<https://doi.org/10.20955/wp.2014.029>

The paper evaluated the effects of cross-regional spillover effects from ARRA spending. Results show that stimulus from ARRA spending increased employment and wage payments in places two to three counties away, as long as these areas were sufficiently connected (measured by commuting patterns). One dollar injection of spending had a direct wage bill effect of \$0.98 and a spillover effect of \$0.48. Every one million dollar of spending increased roughly 10.26 jobs as direct effect and 8.5 jobs as indirect. One limitation of this study is that it didn't consider the spillover effects on trade in goods among counties and on mismatch between the location of government spending and the location where taxes are collected.

Wage bill data and employment data are from Quarterly Census of Employment and Wages (QCEW), which covers approximately 98% of U.S. jobs. Wages are measured by total wages received by employees in a given quarter, including bonuses, stock options, severance pay, profit distributions, cash value of meals and lodging, tips and other gratuities, and in some states, employer contributions to certain deferred compensation plans such as 401 (k) plans.

Jay Shambaugh, Ryan Nunn, Patrick Liu, and Greg Nantz (2017). Thirteen Facts about Wage Growth. Retrieved from

<https://www.brookings.edu/research/thirteen-facts-about-wage-growth/>

Wages depend on workers' productivity, share of economic output that is channeled to compensation, and the division of wage and non-wage compensation. Economic and policy changes are both important for the division. Change in technological progress, and globalization would drive change in wages. Policies that support labor productivity growth including mobility policies, non-compete reform and licensing reform could increase both productivity and wages.

Wages can be measured at an hourly, daily, weekly or annual frequency. In different contexts, one might refer to average wages or to median wages. Median wages correspond more closely to the experience of a typical worker. This paper alternates between various wage definitions, with an emphasis on real wages or compensation when differences between the definitions matter a lot. The reason why they care about real wages and compensation is that they describe changes in the purchasing power of workers.

Mishell, L., Bivens, J., Gould, E., & Shierholz, H. (2019). Updated Appendix B: Wage measurement. In *The State of Working America* (pp. 465-474). *Cornell University Press*. Retrieved March 4, 2020, from www.jstor.org/stable/10.7591/j.cttq42t8.12

The Economic Policy Institute measures wages and benefits using government data sources. Current Population Survey (CPS), federal government and other authorities measure wages differently. Main measurement includes hourly wage, annual wage with work hour and compensation which includes wages and benefits. The CPS employed top-coding to preserve the confidentiality of respondents and added race and education into the reported tables and results.

3. Spending

Vogel, C., Michaels, C., & Wileden, L. (2011). *The End of an ARRA*. *Center for an Urban Future*. Retrieved March 4, 2020, from <https://nycfuture.org/research/end-of-an-arra>

The report looks at how the funds were spent in ARRA and the impact of ending this policy in New York during a time of significant unemployment. This government fiscal stimulus injected liquidity into a stalling economy and maintained critical services that allowed individuals and communities to survive through the recession. NYC received more than \$7 billion in Recovery Act funds. These funds went toward failing schools, community development block grants, building retrofits and a much-needed temporary increase in the federal match for Medicaid, among many other things.

New York (NY). (2019). *Comprehensive annual financial report: For the fiscal year ended June 30*. New York, NY: City of New York. Retrieved March 4, 2020, from <https://comptroller.nyc.gov/reports/comprehensive-annual-financial-reports/>

In accordance with New York City Charter §93(l), the Comprehensive Annual Financial Report (CAFR) is published within four months after the close of each fiscal year. The CAFR provides information such as government-wide and fund financial statements, notes to financial statements and required supplemental information, and General and Capital Fund Detailed Schedules of Revenues and Expenditures.

Dahl, M. (2018). *A Review of CBO's Estimate of the Effects of the Recovery Act on Snap*. Washington DC: Congressional Budget Office. <https://www.cbo.gov/publication/54864>

The report explains the methods that CBO used in February 2009 to estimate additional federal spending as a result of the provision in ARRA that raised the maximum SNAP benefit. It also provides details about the factors that contributed to CBO's underestimate of that spending. In particular, CBO's estimate of ARRA-related spending on SNAP benefits in February 2009 was substantially below the actual amount over the 2009–2013 period due substantially high CBO's baseline projections.

Feyrer, J., & Sacerdote, B. (2011). *Did the stimulus stimulate? Real time estimates of the effects of the American Recovery and Reinvestment Act* (No. w16759). National Bureau of Economic Research. Retrieved March 4, 2020, from <https://www.nber.org/papers/w16759>

This report uses state and county level variation to examine the impact of the American Recovery and Reinvestment Act on employment. Their cross-state analysis suggests that one additional job was created by each \$170,000 in stimulus spending. Using time series analysis at the state level showed a smaller response with a per job cost of about \$400,000. Results show Keynesian multipliers between 0.5 and 1.0, this is lower than those assumed by the government. The results do not differentiate for different types of spending. Grants to states for education do not reflect any additional jobs created. The programs in ARRA for low income households and infrastructure spending positively impacted the economy. Estimates (not including education spending) showed fiscal policy multipliers of approximately 2.0 with per job cost of under \$100,000.

Andrea Bubula

Senior Lecturer in the Discipline of International and Public Affairs, SIPA

Interview Summary:

Difficulties of this project:

1. The fact that economic conditions change every year such as unemployment rate, GDP, inflation etc. must be incorporated in the research.
2. The effects of ARRA spending would be different every year even though we assume the amount of ARRA spending to be the same.

Suggestions:

1. One of the models that can be used is Computable General Equilibrium (CGE). CGE models are widely used by governmental organizations and academic institutions to analyze the economic wide effects of events such as climate change, tax policies, and immigration. A CGE model is a system of equations that describe an economy as a whole and the interactions among its parts. It is based on equations derived directly from economic theory. CGE model databases typically use data from official national accounts such as gtap.org. One of the sample research using the CGE model is Tax Policy Reform in the US in the early 1960s, Policy Evaluation with Computable General Equilibrium Models by Fossati, Amedeo, Wiegard, and Wolfgang.
2. Evaluate both transitory and permanent effects of ARRA on poverty, wages, and spending.
3. Use a graphical way to present the change in variables (before ARRA, during ARRA, and after the end of ARRA v.s. Hypothetical scenario with ARRA)
4. Analysis of the hypothetical scenario could refer to a literature review, but be careful with the publishing year of the paper since most of them were published in 2009 and 2010.
5. Find a counterfactual case and do quantitative analysis using regression before and after cases to see the effect.
6. State your assumptions when controlling for other factors. For example, the effect of ARRA spending on reducing the unemployment rate would be less when we are close to full employment.

	Assumption 1	Assumption 2	Assumption 3
Wage			
Unemployment Rate			

Resources for academic papers:

1. brookings.edu
2. voxeu.org

Chris Wimer
Director Center on Poverty and Social Policy, Columbia University

Interview Summary:

The Robin Hood Foundation partnered with the Center on Poverty and Social Policy to develop the Poverty Tracker. The Poverty tracker Surveys adults on income, material hardship, and health. They start with the Supplemental Poverty Measure for a NYC framework and also include robust survey data to track more comprehensively the portrait of family resources. NYC has much higher costs of living including housing. They look at pre-tax cash benefits and other forms of income missed by the federal benchmarks. These include food stamps, income tax breaks, housing and school benefits. They consider material hardship as an inability to meet routine costs such as utility bills, rent, and experiencing food insecurity. They use self-reported health measures. The tracker also uses a different definition of family. The official measure considers unmarried couples as not a family. The poverty tracker assumes that cohabiting couples are a family sharing resources and dependence.

Chris explained that when you create data analysis there are assumptions that are necessary to model the data. He gave a few examples. When asking about wages it is often reported as an annual amount. They then have to make assumptions on the back end. Maybe they convert the report with the assumption of dividing the amount by 40 hours per week and compare it to minimum wage, is it higher, lower, or at that figure? They have changed in the new survey to asking participants to describe earnings in the usual typical hours or today, right now earnings. Either way they have to extrapolate with an assumption. With spending, they ask about food stamps. If a family member reports \$1200 in food benefits over the year, they currently assume that the benefit is distributed monthly over the number of family members but this may not be correct. They want accurate data but also to make reporting not complicated for survey participants.

For microdata they look at particular factors. They use the population and census data. They connect that data to their smaller survey sample. They find the Earned Income Credit (EIC) to be a variable on earnings. The census reflects policy changes. Once it was by number of children, now it is “more than 2.” They recommended we use tax calculators and assume the 2009 levels to recalculate poverty levels in 2012 which included the improved EIC. These considerations helped us think more specifically about the assumptions Professor Bubula referred to in his interview.

Arloc Sherman
Senior Director and Senior Fellow, Center on Budget and Policy Priorities

Interview Summary:

The Center on Budget and Policy Priorities wrote a paper on a study published in 2009. It estimated that ARRA had kept 6.2 million of Americans out of poverty in 2009, among which 419,000 residents were New Yorkers. These estimates are conservative in the sense that they do not include the poverty impact of many of ARRA’s provisions for direct assistance to households. The estimates focus on 7 stimulus provisions: making work pay credit, child tax credit expansion, EITC expansions, food stamp increase, unemployment insurance extension,

unemployment ins: additional \$25/week, \$250 one-time payment to elderly people and people with disabilities. This study includes two simulations. It first simulated the economy in 2009 and then simulated the selected income-support provision of ARRA. Details of simulations are given in this article.

Arloc spoke with us about the methodology he used to generate the simulations, challenges in modeling data sets, and other programs he would have liked to consider. He shared that he was not able to sort out revenue sharing funds. That is was hard to follow through to poverty consequences. He recommended taking a completely different approach, what happens when money ripples through the economy (a Wharton Business School model). He reported that estimates done at the time by Mark Zandi did estimate total ARRA spending and how many jobs were saved. He noted that it was quicker to spend than a middle-class payroll deduction, Unemployment effects hard to turn into poverty rates when modeling. How can we separate the effect of one specific initiative on poverty reduction from the overall economic recovery? He said this was difficult and that it was important to bracket what you did and didn't include in a model.

For data, he shared that in the census micro data, they modeled the expected benefit under the policy added to individual family income, increasing benefits by 13% every month. If census said they received, they added the fixed dollar amount (say \$60 per month for household). Though when you model the extra SNAP benefits, see how it compares to the actual total dollars. It will be less than actual spending. Typically, the census under reports (50%) of actual benefit.

Specific policies examined and recommendations for future work are summarized below:

- CBPP examined 6 policies as of 2010: higher SNAP benefits, regular Unemployment Insurance (UI), extended weeks of UI, an expanded EITC, an expanded Child Tax Credit, the Making Work Pay Tax Credit. (2009 had an additional (7th) Economic recovery payment) could be modeled in census bureau data.
 - Emergency homeless relief (1bil) also, state agency Medicaid spending meant to be spread,
 - UI look at NYC in a worse economic year would have had an impact (project to contemporary circumstances) Simple calculation: modeling ARRA policy to add a fixed dollar amount to every week of benefits paid. Income unemployment tracked with week total. Roughly calculate additional income. Congress currently considering reviving.
 - Modeling extended UI was trickier. Used calculations and modeled up to try and make subgroup scale up.
- Some of those policies (expanded EITC and CTC) have already been made permanent.
- Some others (higher and longer UI benefits) were incredibly important at the time but might not have made nearly so much difference in the latest survey data because of the better economy, e.g., the number of long-term jobless individuals has fallen by five-sixths since mid-2010. (COVID-19 may soon cause unemployment numbers to start rising again.)

- Fortunately, two policies that expired and that would be likely to make a big difference in today's data if they still existed – higher SNAP and the MWP credit – are relatively easy to model in household survey data, at least at a crude level.
 - MWP shows in census from that era, variable goes away when expired after 2 years (2009, 2010 tax years, income years 2009, 2010 sometimes means the year prior)
 - SNAP and MWP ARRA benefit increase was simple but impactful (certain amount for adults, certain for children)

- CBPP completely left out some other crucial ARRA policies from this particular analysis. The most notable is probably higher FMAP matching rates as a way of sharing federal revenue with states. These were really pivotal in pushing back against state revenue losses, state layoffs, and soaring higher unmet need for state services. They didn't fit easily in this kind of family-income modeling exercise. But they'd be a crucial part of, say, a policy response to COVID-19.

Comparison of COVID-19 and the Great Recession: Small Businesses and Unemployment

The economic downturn caused by the COVID-19 pandemic is reminiscent of the Great Recession. Here are some similarities and differences between the last recession and the current one, particularly from the financial and policy-making perspectives.

Though the underlying causes of the two economic slowdowns are different, both crises are global. The subprime problem of 2008 in one country triggered a domino effect worldwide.¹ Today's pandemic is widespread as viruses do not respect national borders. Both cases require that policymakers around the world cooperate and take collective action.

In both crises, the magnitude of economic devastation was profound on small business sectors. During the Great Recession, small businesses lost many more jobs than their share of total employment. Small businesses accounted for 45 percent of total employment and 62 percent of the net job loss.²

The disruption suffered by small businesses is alarming under the current pandemic. Based on the NFIB Research Center's latest survey, 76 percent of small businesses are negatively impacted by the COVID-19.³ Another Goldman Sachs survey of more than 1,500 small business owners found that more than 50 percent of them said they didn't think they could continue operating their business for more than three months amid the current conditions.⁴ While there are fiscal policy responses underway, progress on that front is slow.

Despite the shared similarities above, the current downturn may well be worse than the Great Recession. Roughly 8.7 million jobs disappeared during the Great Recession, with losses spreading out over multiple years.⁵ By comparison, it is predicted by J.P. Morgan that around 8.5 million jobs could be lost by this summer, a timeline of just three months.⁶ With non-essential businesses still closed six weeks into the current shutdown, it will be much more difficult for unemployed workers to find new jobs. Even after the coronavirus outbreak is under control, the employment rate will likely struggle to rebound when many of the small businesses close permanently for the lack of financing.

¹ World Economic Forum. "Great Recession Showed Countries Can't Fight the Coronavirus Economic Crisis Alone."

² Brookings. "What the Great Recession Can Tell us about the COVID-19 Small Business Crisis."

³ National Federation of Independent Business. "NFIB Study: COVID-19 IMPACT on Small Businesses."

⁴ CNBC. "How Small Business Owners are Coping with COVID-19 Pandemic: 'It Was My Civic Duty to Be a Part of the Solution'."

⁵ The Atlantic. "The Economic Devastation Is Going to Be Worse than You Think."

⁶ Ibid.

Nine Facts about the Great Recession and Tools for Fighting the Next Downturn

by Diane Whitmore Schanzenbach, Ryan Nunn, Lauren Bauer, David Boddy, and Greg Nantz

A brief summary of the report:

In May of 2016, The Hamilton Project, a Brookings Institute initiative, looked back on the Great Recession of 2007-2009 and created a summary of essential understandings and recommendations based on the federal response. Reviewing their findings at a time of the COVID-19 pandemic can remind us of the importance of creating sound fiscal policy, supported by evidence, to help us all get back on our feet when the economy has experienced a shock.

The authors describe how different groups of workers were affected by the Great Recession, what works to financially stimulate the economy, what could be done differently in future recessions, and the preparedness of states financially for the next downturn.

They summarized their findings into nine facts:

1. The recession between 2007 and 2009 represented the greatest economic disaster since great depression
 - A recession is measured by decline in GDP (Gross Domestic Product, a measure of total goods and services produced by an economy).
 - The 2008 Great Recession was the most severe recession in terms of depth and duration in the postwar period.

2. Unemployment struck men and the young hardest.
 - Men experienced steeper declines in unemployment as well as people with lower levels of education (especially young people with less than a high school education or no college degree).

3. Fiscal stimulus reduced the length and depth of recession.
 - Fiscal stimulus measures are actions by the government (Department of Treasury or Ministry of Finance) to expand the economy such as by increasing government spending and cutting tax.
 - Blinder and Zandi (2015) estimate that the fiscal stimulus has successfully turned the economic contraction in 2009 into growth. They also estimate that without fiscal stimulus the economy would have reached the prerecession level one year longer than it did with the stimulus.

4. The Federal Funds Rate (the interest rate at which institutions lend deposits at the Federal Reserve to other institutions overnight) is low and can't be reduced much farther

- A reduction in the federal funds rate lowers interest rates throughout the economy, encouraging businesses to invest and employ more workers and encouraging consumers to spend more, consequently lowering the unemployment rate.
 - When the federal funds rate is already at a low level it is difficult to use conventional monetary policy to positively impact the economy. However, as the unemployment rate shows a declining trend since 2011, the Fed started increasing the rate again in December 2015. Prior COVID-19 crisis, the Fed Funds Rate had reached 2.25 percent.
5. Many Government spending programs proved highly effective.
- Fiscal multiplier measures the effectiveness of fiscal stimulus by providing an estimate of the increased output caused by a given increase in government spending or a reduction in taxes.
 - Multipliers are usually high when the spending program or tax cut targets lower income people because they tend to spend the fiscal incentive on their consumption.
 - Blinder and Zandi estimate that spending multipliers on programs such as SNAP (Supplemental Nutrition Assistance Program), work-share program, and extension of UI (Unemployment Insurance) benefits were all greater than one during recession.
6. Well-targeted tax cuts can stimulate the economy.
- Tax cuts are also useful to stimulate the economy even though the multipliers created are usually lower than government spending increase.
 - Tax cuts aimed at lower income individuals have a higher stimulus effect than those aimed at higher income ones because lower income individuals are more likely to spend what they receive.
7. Automatic stabilizers generate substantial and well-timed stimulus.
- Programs that automatically expand without Congress' authorization during the economic downturn respond quickly to economic deterioration and work as stabilizers.
 - These include programs that have built in rules for including new participants based on income throughout the year like SNAP, UI benefits, and Medicaid benefits (subsidized healthcare).
8. Safety net programs varied widely in their effectiveness as automatic stabilizers during the recession.
- Some safety net programs have rules for eligibility that allow them to serve more participants during economic downturn (like SNAP and UI).
 - Some safety net programs do not have rules that allow them to expand and contract with the economy because they are funded through a block grant with a fixed value (like the TANF program — which supports poor families with cash assistance, resources for child care, and work-related services, among others).

- A program that serves more participants automatically is quicker to respond to a recession than one that is distributed by a block grant.
9. Insufficiently financed rainy-day funds left the majority of states unprepared.
- States are meant to set funds aside to use in a future downturn in the economy which is called rainy-day funds or budget stabilization funds.
 - Many states have not set aside enough money to weather even a 10% drop for one year without making drastic cuts to programs and services. This means they are not prepared for a future recession and will need tremendous federal government support.

The nine lessons learned from the Great Recession have direct implications for the current economic crisis due to COVID-19. Spending on sound policy has been shown to positively influence a faster recovery. Designing safety net programs to automatically expand and contract with economic changes has been shown to positively impact the recipients and the economy. Policy makers could learn from the useful and not so useful policy decisions of the last recession. They can enact policy and make changes to existing spending programs that could help individuals and businesses now and in the future.

Reference (all graphs from the report)

“Nine Facts about the Great Recession and Tools for Fighting the Next Downturn,” with Ryan Nunn, Lauren Bauer, David Boddy and Greg Nantz. The Hamilton Project at the Brookings Institution, May 2016.

https://www.brookings.edu/wp-content/uploads/2016/07/fiscal_facts.pdf

Head Start

Primary Agency: Department of Youth and Community Development (DYCD)

ARRA Funding: \$2.1 Billion

Head Start (HS) promotes school readiness by enhancing the social and cognitive development of low-income children aged between two and five through the provision of comprehensive health, educational, nutritional, social and other services. In addition, it also aims to involve parents in their children's learning and to help parents make progress toward their educational, literacy and employment goals. This program is authorized by the Improving Head Start for School Readiness Act of 2007. Instead of being administered through government agencies, the HS program is delivered through local public and private local nonprofit and for-profit agencies that meet federal requirements. As of 2020, Head Start is being delivered through 1,700 agencies across the U.S. The Early Head Start (EHS) program is similar to Head Start but it serves pregnant women and families with children under age 3. On average around 60% of children enrolled in HS and EHS programs are non-white and more than 30% of children enrolled are living in poverty.

At the height of the Great Recession, in 2009, federal stimulus in the form of The American Recovery and Reinvestment Act (ARRA) granted HS and EHS \$2.1 billion in funding over 2009 and 2010. This led to both of the HS and EHS programs having an 8 percent increase in their 2009 and 2010 funding levels which resulted in the programs expanding their enrollments by around 20 thousand children in the 2009-2010 school year.

After ARRA funding expired in 2011, Head Start and EHS lost the 8% increase in funding and the enrollment of children decreased. Fewer and fewer children have had access to these programs since. As a comparison, in 2018-2019, the total funded HS and EHS programs had around 816 thousand slots available, which was significantly lower than previous 984 thousand slots available in 2009-2010. [transition word]

Studies have shown that enrolling in these programs has both long term and short benefits for the children. The benefits include but are not limited to better academic and social progress, increased likelihood of graduating from high school, and increased parent engagement in children's learning. These skills in all youth are critical to our future and elusive for many children living in poverty. As the COVID-19 pandemic took place in 2020, the Coronavirus Aid, Relief, and Economic Security (CARES) Act granted the Head Start program \$750 million, which is approximately $\frac{1}{3}$ of the ARRA grant level. In NYC the COVID-19 virus disproportionately affected Black and Hispanic community members. This leads to the question whether this aid can sufficiently serve underserved children.

Unemployment Insurance Benefits

Unemployment insurance is a joint state-federal program that provides cash benefits to eligible workers who become unemployed through no fault of their own and meet certain other eligibility requirements. Each state administers a separate unemployment insurance program, but all states follow the same guidelines established by federal law. The three eligibility requirements to collect unemployment benefits in New York are:

- Past earnings must meet certain minimum thresholds.
- Must be unemployed through no fault of your own, as defined by New York law.
- Must be available to work.

ARRA changed unemployment benefits in six key ways.

- Added Federal Additional Compensation (FAC)
 - \$25 extra per week per person
 - Estimated cost is \$8.8 billion
- Extended the Emergency Unemployment Compensation Program (EUC)
 - Regular UI program: up to 26 weeks of benefits to eligible claimants
 - Federal-State Extended Benefit (EB): up to 13 or 20 weeks to claimants who have exhausted regular UI
 - Temporary Federal Benefit (TFB): a person can collect EUC for an additional 20-33 weeks in 2009 and into the first five months of 2010
 - These benefits are state by state and depend on the state's unemployment rate
 - Estimated cost is \$27 billion
- Extended the Railroad Unemployment Insurance (RRUI) Benefits
 - Additional 13 weeks benefits to railroad workers
 - The maximum allocated cost was \$20 million
- Suspended income tax on first \$2,400 of unemployment benefits
 - Estimated cost is \$4.7 billion
- Incentivized state to modernize its unemployment program
 - Total cost was \$7 billion
- Transferred fund for administration of State Unemployment Program
 - Total cost was \$500 million

The CARES Act was enacted on March 27, 2020. It provides \$260 billion in expanded unemployment insurance. The CARES Act changes unemployment benefits as described below:

- Increases unemployment benefits through Pandemic Unemployment Compensation (PUC)
 - \$600 extra per week per eligible workers
 - Expansion of coverage for 13 weeks that will end in July 31
- Expands the unemployment benefit coverage
 - Expansion of the eligibility to many previously uncovered workers such as self-employed, part-time workers, and gig workers.
 - The benefits cover weeks of unemployment, partial unemployment, or inability to work caused by COVID-19 during the period January 27, 2020 through December 31, 2020.

The Center on Budget and Policy Priorities estimated that the expansion of unemployment insurance benefits kept 3.4 million people out of poverty.

Supplemental Nutrition Assistance Program (SNAP)

CARES Act Funding vs. Great Recession Relief Funding

Primary Agency: Federal SNAP funds support ACS and DSS.

ARRA Funding: \$43 billion increase

CARES Act Funding: \$15.81 billion in reserve

The Supplemental Nutrition Assistance Program (SNAP), commonly known as food stamps, helps people with limited income buy food. SNAP provides “direct assistance” where:

- the money flows directly from the federal government to the eligible individual,
- the money is in the form of pre-loaded debit cards to purchase food.

Because SNAP is available to all eligible Americans based on income, SNAP usually serves a range of poor and near-poor individuals, including the elderly, disabled, families with children, caregivers, workers, and the unemployed.

As part of the American Recovery and Reinvestment Act of 2009 (ARRA) economic stimulus bill, Congress increased spending on SNAP by \$43 billion over a 10-year period. ARRA provided additional resources to increase SNAP maximum benefit levels and immediately waived work requirements that had caused some potential recipients to be ineligible.

- a work requirement waiver let Americans stay on SNAP if they could not find work, because there were no jobs to be had

The increase in the SNAP maximum benefit proved to be the most stimulative type of spending during the recession.

- a family of four saw a 13.6 percent increase in maximum benefits, from \$588 under the TFP to \$668 under the ARRA (which year?)

During the Great Recession, the SNAP program reached even more participants than usual, providing 15 percent of Americans with the resources to purchase food.

After the recession ended, SNAP rules reduced the maximum family benefit and limited states’ ability to waive work requirements, reducing SNAP as a crucial safety net. Since FY 2010, SNAP grants have fallen by \$17 million (8 percent) after adjusting for inflation.

Modeling SNAP Benefits as though the Recovery Act was made Permanent: Methodology for a Spreadsheet and Several Policy Scenarios

[Spreadsheet link](#)

The Supplemental Nutrition Assistance Program (SNAP, formerly known as “food stamps”) has been serving to reduce participants’ hardship of getting access to nutritious food since the 1960s. In 2009, policymakers included additional SNAP benefits into the Recovery Act to further assist individuals in need. However, when the additional grants ended in 2013, it led to a big drop in the SNAP total benefit. To predict the SNAP benefits under the hypothetical scenario where the Recovery Act was made permanent, we use the additional SNAP benefits from 2009 to 2013 provided by the Recovery Act and macroeconomic factors including inflation and unemployment after 2013.

To model what SNAP benefits would look like if the Recovery Act was made permanent, we predict additional SNAP funding under several possible policy scenarios. Here we describe the methodology and thought process behind the modeling. Our approach starts simply and layers in additional economic information in subsequent models.

The spreadsheet is a working document with eleven scenarios. Columns A to K contains SNAP, ARRA, and economic data with their sources, as well as some calculations of ours for inflation and unemployment compared to a couple of benchmark years. Column O to Y contains all scenarios that are grouped under four models. All models are based on constant additional benefits since 2013. Model A is the simplest one without any adjustment. Model B comprises B1 and B2 with adjusted inflation value. Model C consists of C1 to C4, adjusting for the unemployment rate. Finally, Model D consists of D1 to D4 adjusting for both inflation and unemployment rate.

Our simplest model, Model A in column O, assumes constant additional benefits since 2013. The ease of understanding this model is its greatest positive. In general, using this model for policy would mean a gradual decline in real benefits as inflation would gradually erode the spending power. For more volatile times, Model A ignores the impact of the overall environment, especially external shocks like the COVID-19 pandemic.

The inflation rate measures the overall price changes over time. Adjusting for inflation is essential in determining the benefits. With adjusted inflation value, the benefit represents a constant real value to maintain its purchasing power. In Model B, the constant additional benefit is adjusted for inflation, Model B1 by the inflation rate at t (current year) whereas Model B2 by the inflation rate at $t-1$ (one year before). With this model, we see a gradual increase in the additional SNAP benefits. Model B2 is more practical because policymakers wouldn’t know the current year’s inflation until afterward.

The unemployment rate measures job scarcity and usually increases when the economy is experiencing a downturn. Policymakers might want to include more benefits in the stimulus package when more people are suffering from losing their jobs. In Model C, we adjust the constant additional SNAP benefit by the change in the unemployment rate from 2013, which was the last year of additional SNAP benefit. Model C1 is based on the difference between the unemployment rate at t (current year) and the unemployment rate in 2013 whereas Model C2 is based on the

difference between the unemployment rate at t-1 (one year before) and the unemployment rate in 2013. In these models, the predicted value of additional SNAP benefits decreases as the unemployment rate decreases.

Our group has had internal debates about how unemployment should impact SNAP grants. Models C1 and C2 adjust the additional SNAP benefits from the ARRA. Models C3 and C4 try adjusting the whole SNAP benefit for improvements in employment, rather than just the additional benefits with current year information and previous year inflation respectively. They are interesting because they relate the unemployment rate to the overall SNAP program rather than to the incremental ARRA funding for SNAP. However, because the total SNAP benefit is relatively much bigger than additional benefit. The value of predicted additional benefits became negative started in 2017 for Model C3 and 2018 for Model C4.

To capture the impact of both inflation and the unemployment rate, we add the inflation effects of Model B1 and B2 to the unemployment effects in Model C1 and C2 to create Model D1 and D2. Model D1 uses current year data and D2 uses data from one year prior. These models incorporate a more comprehensive impact of multiple macroeconomic conditions. However, they fail to capture the impact of the current big shock in the economy. The COVID-19 pandemic has a strong and immediate exogenous impact on the economy; it is not considered in all the models so far.

Model D3 is actually the same with model D2 but with adjustments considering the shock in 2020. The unemployment rate was widely predicted to be 13% in early April and we use 0% inflation to reflect the economic slowdown. Using 2013 as the baseline for unemployment (as we have been for all of the models), we estimate a need for \$6.2 billion for 2020 additional SNAP benefits. That seems small relative to the effect of the current pandemic. In Model D4 especially for the year 2020, we use 2011 data for both additional SNAP benefits and unemployment rate baseline because 2011 represents the year of peak additional SNAP benefits. Model D4 works better in more stable times (from 2014 to 2019) and deals with 2020 as an extreme exception, leading to an estimate of \$12.7 billion in the need of additional SNAP benefits in the current situation.

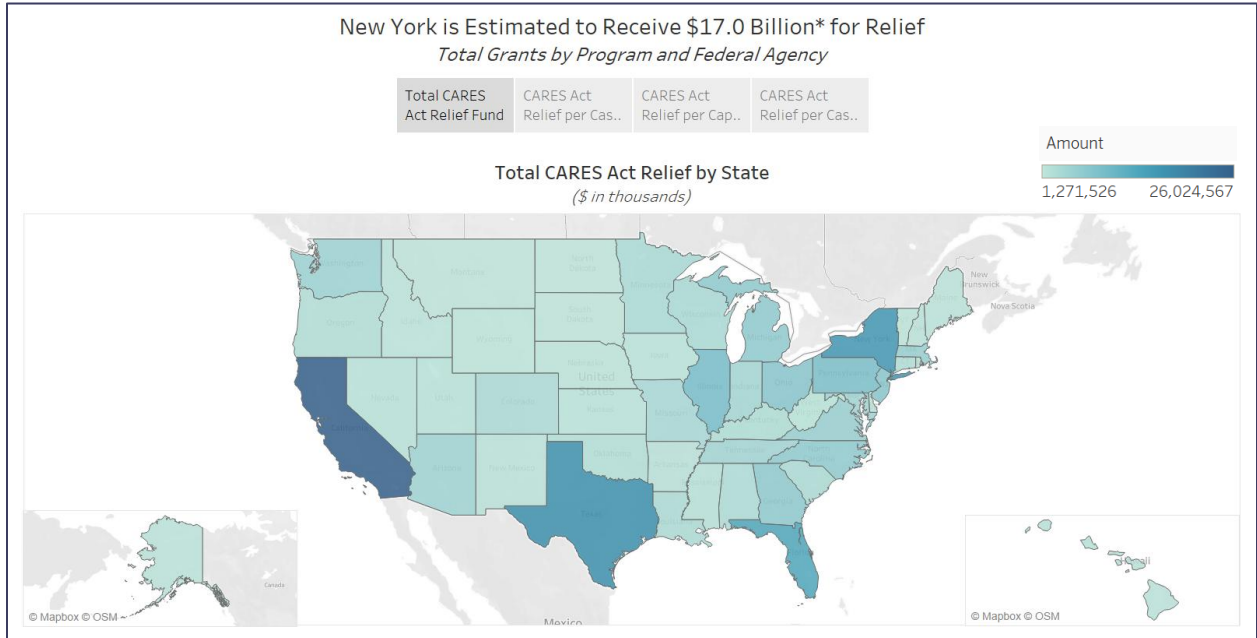
In Model A to D3 (excluding C3 and C4), the projections on additional SNAP grant calculations in 2020 are relatively close to each other, ranging from \$5.2 billion to \$6.8 billion. Models C3 and C4 suggest that between 2013 and 2019 the economy had improved so much that SNAP funding could have been decreased.

The projected need for grants in 2020 in Model D4, \$12.7 billion, is almost double the amount of other projections due to the surge in the unemployment rate under COVID-19. We think even that is not sufficient in the current environment. We suggest that the estimate of the need for SNAP grants for 2020 is closer to \$14 billion, which is the real 2020 dollar amount of the biggest additional SNAP grant of the Great Recession (from 2011). It is widely predicted that the economic downturn in 2020 will be more serious than that during the Great Recession as the economic shock affect both demand and supply sides.

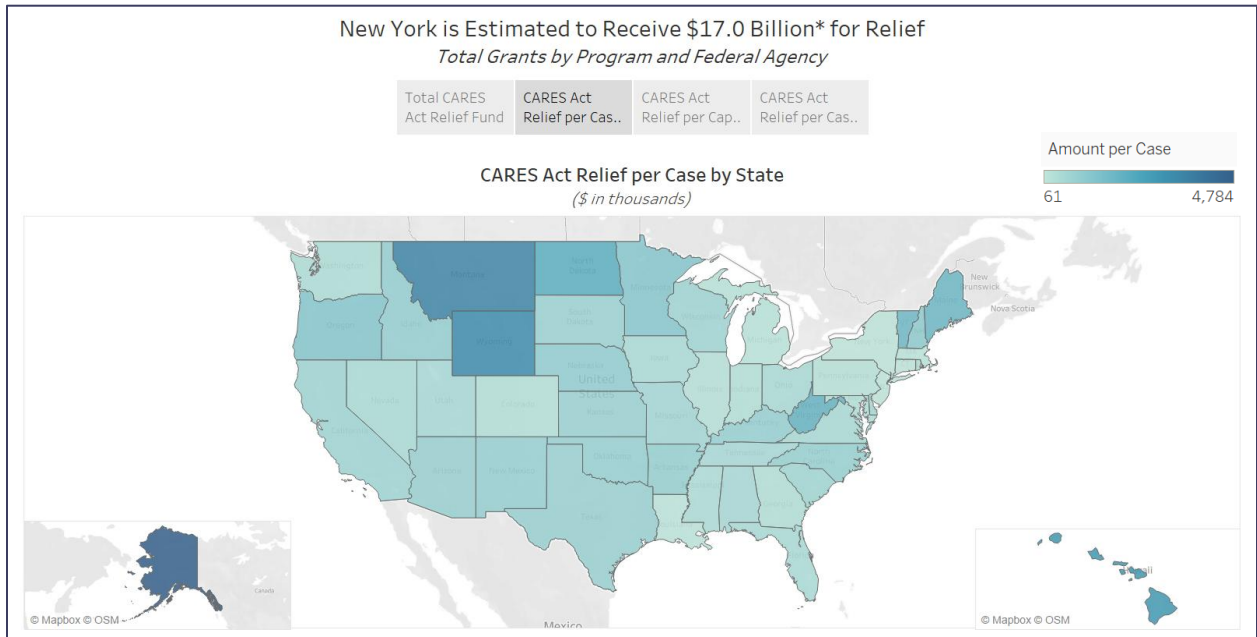
Source: SNAP data from USDA, FPWA Capstone Team Analysis

Mapping CARES Act Initial Relief Fund

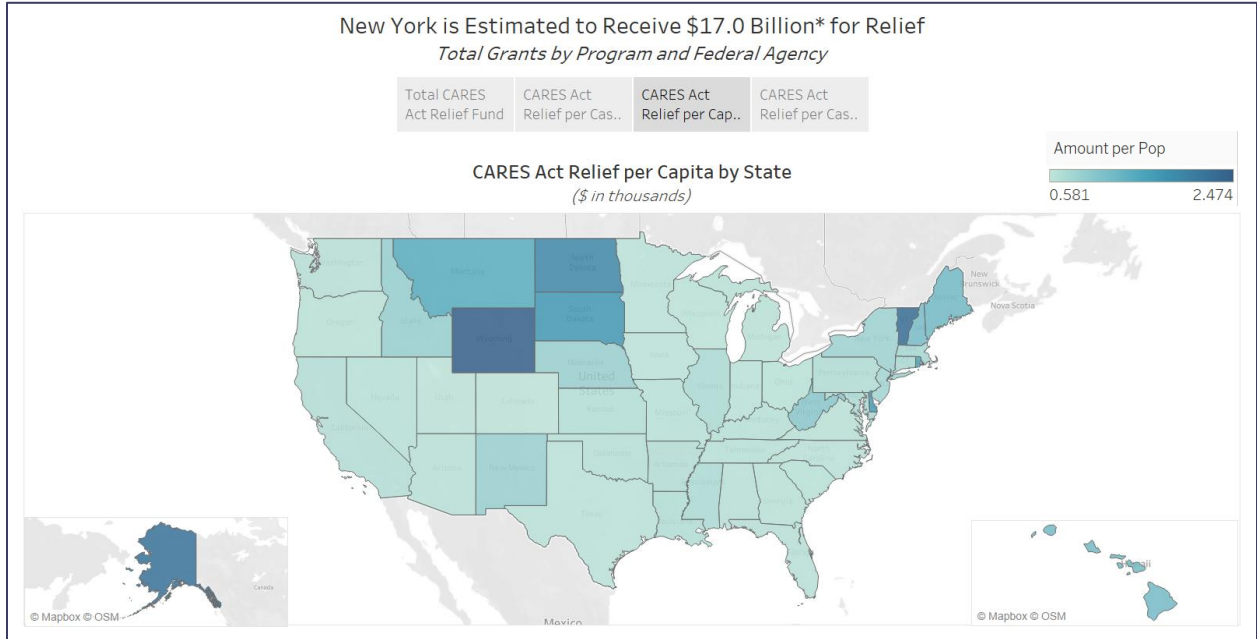
1. Total CARES Act Initial Relief by State



2. Total CARES Act Initial Relief per Case by State



3. Total CARES Act Initial Relief per Capita by State



4. Total CARES Act Initial Relief per Case per Capita by State

