The Costs and Benefits of Expanding the Empire State Child Tax Credit in New York City

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Income is an important driver of children's wellbeing and eventual long-term success. But the United States does not currently guarantee income support universally to children. Under the federal tax code, the U.S. provides a Child Tax Credit of $2,000 per child for almost 2/3 of American children. But roughly a third of children live in families whose incomes are too low to receive the full credit, and 1 in 10 children qualify for no benefit at all. In New York City, the Empire State Child Tax Credit supplements the federal credit with up to $330 for children age 4-17, but lower-income families are left out from the full credit (receiving a $100 credit instead), as are children under age 4. In this research brief, we summarize and extend results from our study of "A Cost Benefit Analysis of a Child Allowance"[1] to document the costs and benefits of increasing the value of the Empire State Child Tax Credit to $1,000 per child for all children in New York City under age 17, with the exception of children in high-income families.

Key Findings

• High quality research finds that cash and near-cash benefits increase children's health, education, and future earnings and decrease health, child protection, and criminal justice costs.

• The value to society that flows from these impacts is equal to nearly nine times the annual costs.

• Expanding the Empire State Tax Credit to $1,000 per child for all children in New York City under 17, with the exception of high-income families, would cost about $1.1 billion and would generate about $9.8 billion in benefits to society.

We estimate costs with a micro-simulation analysis. We estimate benefits with a comprehensive literature review of the highest quality evidence on the causal effects of income transfers on: children's future earnings; involvement with child protection and criminal justice services; and, both children's and their parents' health and longevity. Future benefits and costs are discounted using an interest rate of 3%.

Initial net fiscal costs of the expansion in New York City equals nearly $1.1 billion per year. The present discounted value of current and future benefits for society equals roughly $9.8 billion, or nearly 10 times initial costs. Recipients of the transfer gain $10.1 billion per year. Taxpayers recoup 63% ($668 million) of their initial investment of $1.1 billion.

1   Garfinkel, I., Sariscsany, L., Ananat, E., Collyer, S., & Wimer, C. (2021). *The costs and benefits of a child allowance. CPSP Discussion Paper.*

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Table 1 presents results from the micro-simulation analysis of the expanded Empire State Child Tax Credit in New York City. The micro-simulation model and data are described in greater detail in "A Cost Benefit Analysis of a Child Allowance". Of the $1.1 billion per year in initial spending, about 69% would go to children in families making less than $50,000, another 24% to those in families earning $50,000 to $100,000, and the remainder to those in higher-income families. The distribution of the benefit payments is important because both common sense and research suggest that children and parents in middle- and upper-income families see their outcomes improve less from an equal increase in family income than do children and parents in low-income families.

Table 1: Annual Cost and Benefits in New York City of the Empire State Child Tax Credit Expansion, by Income Class *(in $Millions)*

	Costs	Benefits per family
Overall	$1,056	$1,055
Low Income: Under $50,000	$ 728	$1,353
Moderate Income: 50,000 to 100,000	$ 255	$1,182
Higher Income: $100,000 +	$ 73	$ 295

Note: In this analysis, we refer to tax units (including tax filers and their dependents) as families. We categorized income levels using the Adjusted Gross Income amount of the family (i.e., tax unit), as calculated by TAXSIM27. Feenberg, Daniel Richard, and Elizabeth Coutts, An Introduction to the TAXSIM Model, Journal of Policy Analysis and Management vol 12 no 1, Winter 1993, pages 189-194.

Source: Authors' calculations using the 2017-2019 Current Population Survey

While the initial costs may appear large, they are small compared to the very large monetary benefits that would eventually accrue to recipients and society from investing in children. Our analysis is based on a systematic review of only the most rigorous studies that establish the causal effects of existing cash and near-cash transfers, such as Food Stamps and the EITC, on children and parents in **low-income families.** We found 20 studies that met our stringent criteria. The search process and stringent criteria are described in full in "A Cost-Benefit Analysis of a Child Allowance." For child beneficiaries we found studies that document impacts on birth weight, neo-natal mortality, health status during childhood and adulthood, educational attainment, earnings, longevity, and involvement with child protective services and criminal justice services. For parents, we found studies on health, mental health, and longevity. We standardize the findings across studies to reflect the effects of an increase in family income of $1,000 per year. Appendix Table A1 summarizes the impact estimates from the studies reviewed and Appendix C lists the full citations to the studies.

With one exception, all the studies find positive impacts. Most find statistically significant impacts. With the exceptions of child protective services, criminal justice services, and parent longevity, there are at least two studies for each impact. Together, the impact estimates present a strong and coherent set of results; child allowances are a winning investment in our children's future mobility.

Table 2 presents the present discounted value of aggregate benefits and costs of the Empire State Child Tax Credit expansion in New York City. Converting the impact estimates in Appendix Table A1 to the estimates of the present discounted value of costs and benefits in Table 2 involved additional calculations and data as described in Appendix A.

Table 2: Present Discounted Value of Aggregate Monetary Benefits and Costs of the Empire State Child Tax Credit Expansion in New York City: Using Mean Impact Estimates *(in $Millions)*

	Beneficiary +	Taxpayers =	Society
Increased future earnings of child beneficiaries[a]	$ 966.3	0	$ 966.3
Increased future tax payments by child beneficiaries	-$ 202.9	$ 202.9	0
Decreased neo-natal mortality	$ 7.7	0	$ 7.7
Increased children's health and longevity	$ 8,061.9	0	$ 8,061.9
Increased parent health and longevity	$ 208.8	0	$ 208.8
Reduced other transfer costs	-$ 12.8	$ 12.8	0
Reduced expenditures on child protection	0	$ 113.8	$ 113.8
Increased safety from reductions in crime	0	$ 67.6	$ 67.6
Reduced expenditures on children's and parents' health care costs[b]	$ 42.2	$ 379.8	$ 422.0
Decreased parent tax payments	$ 15.0	-$ 15.0	0
Child Tax Credit transfers	$ 1,056.5	-$ 1,056.5	0
Administrative costs	0	-$ 4.2	-$ 4.2
Excess burden for taxpayers[c]		-$ 89.6	-$ 89.6
Total	$ 10,142.6	-$ 388.3	$ 9,754.3

Note: a. Based on administrative costs of Social Security benefits, we set administrative costs to .4% of gross costs of the allowance.

b. Reductions in health care expenditures reduce both out-of-pocket costs to beneficiaries and public and private insurance costs to taxpayers. Out-of-pocket medical expenditures are about 2% of GDP and insurance costs about 18% of GDP (Center for Medicare & Medicaid Services (2018)). Thus, we allocate 10% (2/20) of benefits to beneficiaries and 90% (18/20) to taxpayers.

c. Excess burden is assumed to be equal to 30% of net decrease in the present discounted value of taxes.

Table 2 shows that children's future earnings in adulthood increase by nearly $1 billion, approximately $203 million of which is recouped by taxpayers in the form of higher tax payments from these higher earnings. The extraordinarily high total benefits for beneficiaries, and society as a whole, are driven primarily by increases in children's health—over $8 billion for a $1.1 billion initial expenditure. Considered as a health investment alone, a child allowance is a remarkably good investment. These improvements in health, in turn, drive taxpayer savings of over $375 million in health care costs. Taxpayers also experience gains of $114 million and $68 million respectively from reductions in child protective service use and criminal justice costs. The present discounted value of current and future benefits for society equals roughly $10 billion, or nearly ten times initial costs. Recipients of the transfer gain $10.1 billion. Taxpayers recoup 63% ($668 million) of their initial investment of $1.1 billion.

We also conducted several sensitivity analyses. (See Appendix B and Appendix Table B1). The sensitivity analyses indicate that there is a fair range of uncertainty about precisely how good an investment expanding the Empire State Child Tax Credit in New York City represents. But in the current context, the most plausible estimates range from the expanded Empire State Child Tax Credit being a very good to the credit being an extraordinarily good investment in our city's future.

Appendix A: Conversion of Impact Estimates to Present Discounted Values

Table A1: Estimated Impacts of a $1,000 Increase in Household Income as a Result of a Cash or Near-cash Transfer

Panel A: Impact studies used for the calculation of benefits		Panel B: Supplementary impact studies	
Author	*Impact*	*Author*	*Impact*
Children's earnings		**Birthweight**	
Price & Song (2018)	-0.14%	Hoynes et al. (2015)	0.05%*
Bailey et al. (2020)	0.35%*	Kehrer & Wolin (1979)	0.91%+
Bastian and Michelmore (2018)	0.37%+	Almond et al. (2011)	2.20%+
Aizer et al. (2016)	1.27%*	Markowitz et al. (2017)	3.62%*
Hoynes et al. (2016)	1.30%		
Children's health		**Child educational attainment**	
Bailey et al. (2020)	0.04%	Thompson (2019)	0.04%*
Averett and wang (2018)	0.28%	Bastian & Michelmore (2018)	0.05%*
Hoynes et al. (2016)	0.33%*	Maxfield (2013)	0.06%*
		Akee et al. (2010)	0.07%-0.14%+
Child longevity			
Bailey et al. (2020)	0.05 years*	Michelmore (2014)	0.21%*
Aizer et al. (2016)	0.11 years*	Aizer et al. (2016)	0.37%
Crime		**Child receiving high school diploma**	
Bailey et al. (2020)	-0.02%*	Thompson (2019)	0.01%*
		Akee et al. (2010)	0.01%-0.64%+
Child protection		Bastian & Michelmore (2018)	0.16%*
Berger et al. (2017)	0.27 pp	Michelmore (2014)	0.62%*
		Maxfield (2013)	0.70%*
Parent health		**Parent mental health**	
Larrimore (2008)	0.27 pp	Averett and Wang (2018)	0.28%
Morgan et al. (2020)	0.33 pp*	Gangopadhyaya et al. (2020)	0.96%*
Evans & Garthwaite (2014)	0.97 pp	Boyd-Swan et al. (2016)	2.85%*
Parent longevity			
Bailey et al. (2020)	0.02%*		

Notes: *Results were statistically significant + Includes both statistically significant and non-significant results for two or more measures of the same outcome

Table A2: Present Discounted Value of Monetary Benefits and Costs of a Child Tax Credit Per $1,000 Increase in Household Income: Using Mean Impact Estimates

	Beneficiary	+ Taxpayers	= Society
Increased future earnings of child beneficiaries[a]	$ 1,129	0	$ 1,129
Increased future tax payments by child beneficiaries	-$ 237	$ 237	0
Decreased neo-natal mortality	$ 9	0	$ 9
Increased children's health and longevity	$ 9,419	0	$ 9,419
Increased parent health and longevity	$ 244	0	$ 244
Reduced other transfer costs	-$ 15	$ 15	0
Reduced expenditures on child protection	0	$ 133	$ 133
Increased safety from reductions in crime	0	$ 79	$ 79
Reduced expenditures on children's and parents' health care costs[b]	$ 49	$ 444	$ 493
Decreased parent tax payments	$ 15	-$ 15	0
Child Tax Credit transfers	$ 1,000	-$ 1,000	0
Administrative costs	0	-$ 4	-$ 4
Excess burden for taxpayers[c]		-$ 33	-$ 33
Total	$ 11,613	-$ 145	$ 11,469

Note: a. Based on administrative costs of Social Security benefits, we set administrative costs to .4% of gross costs of the allowance. b. Reductions in health care expenditures reduce both out-of-pocket costs to beneficiaries and public and private insurance costs to taxpayers. Out-of-pocket medical expenditures are about 2% of GDP and insurance costs about 18% of GDP (Center for Medicare & Medicaid Services (2018)). Thus, we allocate 10% (2/20) of benefits to beneficiaries and 90% (18/20) to taxpayers. c. Excess burden is assumed to be equal to 30% of net decrease in the present discounted value of taxes.

In this appendix, we describe how we convert the impact estimates presented in Table A1 above to the estimates of benefits and costs in Table A2 and Table 2 in the text. First, although they are equally as important as other benefits, we do not include children's birthweight, children's educational attainment, or parent mental health in our calculation of benefits because it would involve double counting (since we measure downstream outcomes including child mortality and longevity, child earnings, and adult overall health). Second, where we had more than one estimate of impact, we used the means of the impacts. Third, based on research on the proportion of income that is paid in all forms of taxes,[2] we assumed that 21% of the increase in children's future earnings would be paid in future taxes.

We find that among the poorest 40% of households, 21% of the increase in earnings would be paid in federal, state, and local taxes (personal and corporate income, payroll, property, sales, excise, and estate taxes). We also used CBO estimates of the value of life–$10 million–and of a health-quality-adjusted year of life of $128,000 to value the health impacts to child and parent recipients.[3]

2   Wamhoff, S. & Gardner, M. (2019). Who pays taxes in America in 2019? Institute on Taxation and Economic Policy. https://itep.org/who-pays-taxes-in-america-in-2019/

3   To obtain the value of a healthy year, we divide the value of life—$10 million—by average life span in the US, which is now 78. The UN recommends valuing a health-quality-adjusted year at between 1 and 3 times GDP, which in the US would be between $63,000 and $196,000. We use $128,000 because it falls in the middle of the range.

To convert the health impacts for child and parent recipients to reductions in future health expenditures, based on empirical analyses of the relationship of health to health expenditures, we assume that a 1% increase in health leads to a .90% reduction in health expenditures.[4] We used similar types of supplementary literature to value reductions in child protective services and criminal justice costs.

Table A2 presents the costs and benefits of increasing household incomes of low-income families by $1,000. We find that increasing household incomes by $1,000 would result in $11,613 in benefits per child per year to recipients and $11,469 to society as a whole. Taxpayers themselves receive back over 80% of their initial $1,000 investment in each low-income child.

Finally, we convert the estimates of costs and benefits per $1,000 increase in income for low-income families to aggregate city-level benefits and costs for the expanded Empire State Child Tax Credit in New York City. The initial cost from the simulation reported in Table 1 is $1.1 billion. Average benefits per tax unit are $1,055. We therefore multiply our estimates of benefits and costs for a $1,000 increase in household income by the ratio of $1,055/$1,000.

Children across the income distribution would see income gains under the expanded Empire State Tax Credit. Research finds that the return to income on long-term outcomes for children is smaller for middle- and higher-income families relative to low-income families[5], meaning that the impact of the expansion on the outcomes would be greatest for low-income families. However, the literature on how much smaller gains for middle- and upper-income families is sparse. To adjust for the different impacts by family income levels, we assume that children and parents with incomes below $50,000 get the full benefits that have been well-identified for low-income families described in Table A2, while those with incomes between $50,000 and $100,000 get half the full benefits, and those with income above $100,000 get no benefit in terms of improved outcomes from the expanded child tax credit.

Appendix B: Sensitivity Analyses

The top panel of Table B1 examines alternative assumptions in our calculations one at a time. Each row presents the results of one deviation from our baseline assumptions. We order the results by lowest (generated by our most restrictive set of alternative assumptions) to highest (generated by our least restrictive set of alternative assumptions) social benefits. Our main results for recipients and society as a whole are driven by the high value—$10 million per life according to the CBO, or $128,000 per healthy year—that we as a society place on health and life. If we made a much more restrictive valuation of health and life, at only 1/10th that value, the health benefits would be only 1/10th as large, and benefits as a whole to society decline from over $9.8 billion to $2.3 billion. Similarly, using the smallest positive estimates of impacts instead of average estimates reduces social benefits to $2.8 billion. Assuming a steeper decline in return to additional income, i.e., that families with incomes below $37,500 get 100% of the return, families

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4   Desalvo, K. B., Jones, T. M., Peabody, J., Mcdonald, J., Fihn, S., Fan, V., He, J., & Muntner, P. (2009). *Health Care Expenditure Prediction With a Single Item, Self-Rated Health Measure. Medical Care, 47(4), 440–447*; Chern, J., Wan, T. T. H., & Begun, J. W. (2002). *A Structural Equation Modeling Approach to Examining the Predictive Power of Determinants of Individuals' Health Expenditures. Journal of Medical Systems, 26(4), 323–336*; Lima, V. D., & Kopec, J. A. (2005). *Quantifying the effect of health status on health care utilization using a preference-based health measure. Social Science and Medicine, 60, 515–524*. *https://doi.org/10.1016/j.socscimed.2004.05.024*.

5   Løken et al. (2012), using a natural experiment in Norway, find that effects of increases in family income on long-term child outcomes drop to zero for families with incomes above approximately $100,000 in current US dollars.

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with incomes between $37,500 and $75,000 get half the return, and families with incomes above $75,000 get nothing; or discounting benefits by 5% instead of 3%; or that a 1% increase in health reduces health care expenditures by 0.19%, rather than 0.9%; or assuming deadweight loss equals 50% rather than 30% of the present discounted value of initial costs—all result in smaller effects. Total benefits with these assumptions range from $5.9 billion to $9.7 billion, or about 6 to 10 times costs. All results remain positive—benefits exceed costs. Only a combination of multiple very restrictive assumptions can drive the benefits estimate to be somewhat lower than costs.

On the other hand, the less restrictive assumption that a 1% increase in health reduces health care expenditures by 1.5%, rather than .9%, increases the benefits to society only slightly but increases the benefits to taxpayers from savings in health care expenditures substantially, taxpayers experience long-term savings of nearly $200 million. If returns to the transfer decline less steeply then we assume as family resources increase, then social benefits increase to $10.6 billion. Discounting future benefits by 1% rather than 3% or using maximum rather than mean impact estimates, by way of contrast, increases the value of future benefits to recipients, taxpayers and society as whole substantially--to between $15.4 and $19.2 billion.

Table B1: Sensitivity Analysis Results *(in $Billions)*

Panel A: One at a Time Variations			
	Beneficiary	**Taxpayers**	**Society**
Lower-bound VSL & QALY (More restrictive)	$2.7	-$ 0.4	$2.3
Minimum positive benefits (More restrictive)	$3.7	-$ 0.9	$2.8
Discount rate of 5% (More restrictive)	$6.7	-$ 0.8	$5.9
Steeper benefit decline—37.5–75K (More restrictive)	$9.0	-$ 0.5	$8.5
Smaller health expenditure elasticity—.19% (More restrictive)	$10.1	-$ 0.8	$9.3
Baseline with greater deadweight loss—50% (More restrictive)	$10.1	-$ 0.4	$9.7
Baseline	$10.1	-$ 0.4	$9.8
Larger health expenditure elasticity—150% (Less restrictive)	$10.2	-$ 0.1	$10.1
Less steep benefit decline—62.5–125K (Less restrictive)	$10.9	-$ 0.3	$10.6
Maximum Benefits (Less restrictive)	$15.2	$ 0.2	$15.4
Discount rate of 1% (Less restrictive)	$18.9	$ 0.3	$19.2
Panel B: Four Extreme and Near-Extreme Combinations			
Most Restrictive	$1.4	-$ 1.3	$0.1
Most restrictive except value of health and 1% interest rate	$6.3	-$ 1.0	$5.3
Least restrictive, except benefit decline—50–100K	$28.6	$ 2.4	$31.0
Least restrictive	$31.0	$ 2.7	$33.7

Panel B presents four combinations of extreme and near-extreme assumptions. The first row presents the results using the most restrictive assumptions: a mere 10% of the CBO values for life and health, 5% discount rate, minimum impacts, steepest benefit decline with family income, 50% deadweight loss, and an 0.19 elasticity of health expenditures with respect to health. Not surprisingly, with this combination of assumptions the benefits are lower than the costs.

Nonetheless, the second near-extreme result is illuminating: if all the most restrictive assumptions are combined except for the low value of life and the 5% discount rate—and we use instead the CBO value and a 1% interest rate—then the social benefits are actually quite large, at over five times the fiscal costs. In view of the fact that there is no apparent reason to use such a low value of life and health, and given that the real rate of interest is now below 1%, these results suggest that in the current economic context, even the most restrictive assumptions suggest a child allowance is a very good investment.

The 3rd and 4th rows present results for the least restrictive assumptions. When combining less-restrictive assumptions—maximum impacts, less steep decline in returns as family income increases, a 1.5 elasticity of health expenditures with respect to health, and a 1% discount rate—benefits are $33.7 billion, or 33 times costs. Even taxpayers enjoy long-term savings of $2.7 billion. The near-extreme example, which tightens the assumption about which families benefit from the allowance, results in benefits 31 times costs and taxpayers enjoy long-term savings of $2.4 billion.

In short, Table B1 demonstrates that though there is a fair range of uncertainty about precisely how good an investment the expanded Empire State Child Tax Credit is in New York City, the most plausible estimates range from the expansion being a very good investment to being an extraordinarily good investment in our State's future.

Appendix C: Full Citations

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