New York City Government Poverty Measure 2005–2016

An Annual Report from the Office of the Mayor

Appendix D: The NYCgov Tax Model

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NYC Opportunity

Appendix D

The NYCgov Tax Model

Low-income families, especially those with children, often find that their refundable tax credits are greater than the taxes they owe. The result is that many low-income families have a negative tax rate – they receive more from the income tax system than they pay into it. The expansion of tax credits to low-income families, as well as to those more well off, has been a key component of federal economic stimulus programs since 2008. Tax programs remain an increasingly important component of the resources available to families to meet their needs. At the same time, all working families are also subject to payroll taxes under the Federal Insurance Contribution Act (FICA). FICA payments offset some of the gains derived from income tax credits. But even when payroll taxes are accounted for, the total tax effect on income leads to a reduction in the NYCgov poverty rate.

The Tax Model

The American Community Survey (ACS), our primary source of data, does not include information about taxes. NYCgov, therefore, has created a tax simulation model. The first task in estimating taxes is to create tax filing units within ACS households. The model then applies the tax code to estimate taxes owed and tax credits received for New York City tax filers.

Creating Tax Filing Units

ACS households consist of all people residing in the same housing unit. Within the household, each member is identified only through their relationship to the person answering the ACS questionnaire. This person is designated as the reference person and is usually, but not always, the primary owner or renter of the household. The remaining residents of the household may form a complex network of relationships. Occupants may include a family embodying several generations; families unrelated to the respondent; and one or more unrelated individuals, including roomers and boarders. Because residents are only identified in relation to the reference person, we cannot always see how they may be related to each other. For tax purposes, this presents a challenge. We need to use the information available in the ACS to estimate how many tax returns are filed from each household, and identify who on each return is the filer (along with their spouse and dependents). NYCgov addresses this problem by first dividing ACS households into Minimal Household Units (MHUs) that create a richer set of information about how people in the household are related to each other. For example, two boarders individually listed as married will be linked together using age and other demographic characteristics. The children of unmarried partners (unless they are coded as children of the respondent) are identified in a similar manner and are then coded as the child of a specific parent.[1] The tax model then identifies MHU members who are tax filers, along with their spouses and dependent(s). Additional decisions are made about allocating children and indigent household members to filers as dependents. Based on these decisions, each tax filer is then given a status of Married Filing Joint, Head of Household, Single, or Married Filing Separate.[2]

The Tax Calculator

A simulated federal, New York State, and New York City tax return is prepared for each tax filing unit based on income and other data provided in the ACS.[3] We identify adjusted gross income (AGI) for the tax unit, which is the sum of all earned income, interest income, and other income sources. Social Security income is included to the extent it is taxable. Personal exemptions and standard deductions are then subtracted from AGI to find taxable income. The federal tax liability on that income is calculated and then, going through the steps of a federal 1040 tax return, we compute each of the tax credits for those filers that are eligible. Once the 1040 is completed, an IT-201 New York State tax return is modeled, which relies on income and credit calculations from the federal return. Computation of the IT-201 generates New York State and New York City tax liabilities and credits. In a final step, FICA, or payroll taxes, are applied to all wage and salary income, and self-employment taxes are deducted from self-employment earnings.

Tax Policy

The poverty rates reported in this report are affected by changes in the tax code. NYCgov poverty rates for the years 2008 to 2012 contain deductions, credits, or expansion of existing credits that were a key feature of the Bush and Obama administrations' economic stimulus programs. In 2014, the Affordable Care Act

1 The MHU methodology is derived from Jeffery Passel, "Editing Family Data in Census 2000 Public-Use Microdata Samples: Creating Minimal Household Units (MHUs)." August 23, 2002. The application of Passel's method to the NYCgov model is explained in Vicky Virgin, "Creating the CEO Poverty Unit: An Evaluation Using the CPS ASEC". June 2011. Available at: http://www1.nyc.gov/assets/opportunity/pdf/poverty_unit_analysis_ceo_2011.pdf

2 The ACS does not provide enough information to identify widows, the other filing status used by the IRS.

3 Due to a lack of data in the ACS, tax estimates for middle to higher income households are less accurate than estimates for lower income households. We do not estimate itemized deductions, capital gains, and other tax items more common to higher income returns. For this reason, we confine our analysis to filers with AGI under $50,000.

Individual Responsibility Mandate, a tax penalty, was activated, and several new income tax credits were enacted at the local level. We describe these policy initiatives in detail below:

- **Recovery Rebate Tax Credit for Individuals:** A one-time tax rebate included in the Economic Stimulus Act of 2008. The credit was based on information provided in the 2007 tax return, to be paid out in 2008. The maximum payment was $600 for single filers, $1,200 for married filers, and an additional $300 per qualifying child.[4]

- **Additional Standard Deduction for Real Estate:** Passed as part of the Housing Assistance Act of 2008 and extended for 2009 by the Emergency Economic Stabilization Act of 2009. Filers who took the standard deduction (all filers in the NYCgov tax model) and were homeowners could claim an additional standard deduction of up to $500 ($1,000 for married filers) against their local property taxes.

- **Additional Child Tax Credit:** The Additional Child Tax Credit is a refundable supplement to the Child Tax Credit. Prior to passage of the Emergency Economic Stabilization Act of 2008, the credit required a minimum earned income of over $12,050 in 2008 and $12,550 in 2009. The Act lowered the income threshold to $8,500 for 2008 and reduced it again to $3,000 in 2009. The result is that more filers with lower incomes receive a refundable credit.

- **Making Work Pay Tax Credit (MWP):** A credit of up to $400 ($800 for married filers). The NYCgov model added MWP as a refundable tax credit in 2009 and 2010. In 2009, the Economic Recovery Payment was deducted from the MWP for eligible recipients (see below).

- **Economic Recovery Payment:** A payment of $250 distributed in 2009 to recipients of Social Security or Supplemental Security Income (SSI) payments and Veterans or Railroad Retirement benefits. The ACS allows us to identify only Social Security and SSI recipients. Although not technically a tax credit, we included this payment as a tax offset.

- **Expansion of the Earned Income Tax Credit (EITC):** Two changes occurred in 2009. First, the increased maximum credit for married filers accelerated the already ongoing elimination of the marriage penalty in the EITC. Second, a third tier of credits was added to allow filers with more than two children to claim a larger credit. The maximum possible credit for a married couple with three children was $4,824 in 2008. In 2016, the maximum credit for this family rose to $6,269.

4 The Economic Stimulus Act became law in early 2008, just as returns were being filed for 2007 taxes. It was paid as a tax refund, using 2007 income as an estimate for 2008 income. Filers who had already sent in a tax return could claim the rebate retroactively, carrying it into calendar year 2009. Filers whose 2008 income generated a different credit than the one based on their 2007 returns had to reconcile the difference in their 2008 return (filed in early 2009). We assume that all filers received the credit in calendar year 2008, at an amount based on the model's 2008 estimates. We include no rebate credit in 2009. We assume this overestimates the amount of credit actually awarded in 2008 and underestimates it for 2009.

- **College Tuition Credits:** The tuition credit in the NYCgov model combines the Lifetime Learning Credit and, prior to 2009, the Hope Credit for college students in the tax unit. In 2009, the Hope Credit was replaced by the American Opportunity Credit. The newer credit is up to 40 percent refundable.

- **Payroll Tax Cut:** The Making Work Pay Tax Credit expired and was replaced by a 2 percentage point cut in the payroll (FICA) tax in 2011 and 2012. For most filers in the NYCgov model, this represented a cut in the tax rate for the Social Security portion of FICA from 6.2 to 4.2 percent of earned income.[5]

- **Health Care Individual Responsibility Mandate:** Included as part of the Affordable Care Act (ACA) in 2010 and effective with the 2014 tax year. This is a penalty payment for failing to acquire minimum essential health care coverage. The ACA also includes a tax credit for lower income families who purchase health care coverage. This credit is included in the price structure of public plans available in New York City. We include it in the premium costs of medical out-of-pocket expenses. (See Appendix H.)

- **The American Tax Reform Act of 2012:** Extended some of the changes described above to 2017. The expanded Additional Child Tax Credit, the third child tier in the EITC, and the American Opportunity Credit were all extended. The elimination of the marriage penalty from EITC rates was made permanent.

Other changes occurred at the local level:

- **School Tax Relief Credit:** A credit against income tax for New York City residents and funded by New York State. This credit was reduced significantly in 2009.

- **New York State and New York City Earned Income Credit:** No legislative change was made to these credits, but they are calculated at 30 percent and 5 percent of the federal EITC, respectively. Thus, changes at the federal level beginning in 2009 resulted in an expansion of the state and city EITC.

- **New York State Family Tax Relief Credit:** A refundable credit of $350 for taxpayers with one or more dependents under age 17, an adjusted gross income between $40,000 and $300,000, and a tax liability greater than zero.

- **Enhanced Real Property Tax Credit:** A refundable credit for homeowners and renters in NYC beginning in tax year 2014. For homeowners, the credit applies to excess real property tax above a percentage of household gross income, capped at $500. For renters, real property tax is assumed to be 15.75 percent of annual rent and the credit is applied accordingly.

5 The replacement of the MWP Tax Credit with the Payroll Tax Cut was less effective for filers close to, or just below, the poverty line. For an explanation, see the CEO Poverty Measure, 2005–2011, New York, NY: Center for Economic Opportunity, 2013, pp. 61-62.

Taxes in Detail

This section compares tax liabilities and tax credits from 2012 to 2016. Table D.1 and Table D.2 divide tax filers into two groups: Panel A consists of those filers with AGI from $1 to $25,000 and Panel B consists of filers with AGI from $25,001 to $50,000. This divides filers into those who are most likely to be poor, with incomes close to or below the poverty threshold, and those filers with incomes close to or somewhat above the poverty line. The division roughly illustrates the impact of tax programs as income rises.

Major Tax Components

Table D.1 shows the major components of the tax model. Taxable Income is AGI after standard deductions and exemptions. Pre-Credit Liability is the total federal, state, and city income taxes due on taxable income before any credits are applied. Federal, state, and city credits are the sum of tax credits received from each level of government. The Net Income Tax Effect is the total effect of the income tax system on resources. A positive value for Net Income Tax Effect indicates that tax credit refunds are greater than the taxes owed. In other words, the tax system generates a net gain to the taxpayer. A negative number indicates a net loss to the taxpayer since taxes paid are greater than taxes refunded.

Panel A of Table D.1 shows that filers with AGI up to $25,000 have a positive value for their Net Income Tax Effect for each of the years shown, representing a net gain to NYCgov's measure of family income after taxes. Filers with AGI over $25,000 and up to $50,000, shown in Panel B, have an annual net loss to their household resources after income taxes in all years.

In addition to income taxes, FICA (payroll taxes for Social Security and Medicare) is another piece of the total tax picture. The combined rate for both is 7.65 percent of wages, with the exception of 2011 and 2012 when the combined rate was 5.65 percent.

The final line of each panel, Net Income Tax + Net FICA Effect, shows the combined effect of income and payroll taxes, including tax credits. Again, a positive number represents a net gain to the taxpayer and a negative number a net loss to the taxpayer.

Individual tax credits from 2010 to 2016 are detailed in Table D.2. Total Tax Relief is the sum of all credits. The Earned Income Tax Credit (EITC) provided at federal, state, and city levels is the biggest of the refundable tax credits with close to 700,000 filers receiving a total credit of $2.4 billion in 2016 (not shown in table). We include the Health Care Responsibility Mandate, effectively a tax penalty, in this table as a negative tax credit (beginning in 2014).

Taxes and the Poverty Rate

The poverty rate would be higher in the absence of net taxation. For low-income New Yorkers, payroll and income taxes are offset by tax credits large enough to allow the tax system to create an addition to their total resources. Table D.3 illustrates the impact of taxation on the poverty rate. The table compares poverty rates calculated net of the tax effect against poverty rates calculated with total NYCgov income, including a tax effect. Some of the income tax benefit is offset by mandatory payroll taxes. The marginal effect of FICA increases the poverty rate on average by 2.2 percentage points from 2012 to 2016, yet taxes still have an overall positive effect on household resources. Measuring the combined effect of payroll and income taxes, we find a 1.2 percentage point decline in the NYCgov poverty rate in 2016. In the absence of payroll and income taxes, the NYCgov poverty rate of 19.5 percent in 2016 would have been 20.7 percent.

Table D.1
Components of Net Income Tax Effect, 2012–2016
Total Dollar Value ($1,000s)

	2012	2013	2014	2015	2016	2012–2016	2015–2016
A. Adjusted Gross Income, $1 - $25,000						**Percentage Change**	
Adjusted Gross Income	16,050,919	15,960,865	15,274,542	15,405,127	15,267,262	-4.9%	-0.9%
Taxable Income	4,046,988	4,002,862	3,777,638	3,743,513	3,761,591	-7.1%	0.5%
Pre-Credit Liability	885,342	865,463	820,894	814,385	811,092	-8.4%	-0.4%
Federal Credits*	1,761,032	1,694,450	1,700,945	1,717,083	1,645,165	-6.6%	-4.2%
State Credits	512,457	494,866	497,249	504,256	477,712	-6.8%	-5.3%
City Credits	152,902	149,345	178,842	183,512	176,895	15.7%	-3.6%
Net Income Tax Effect**	1,541,048	1,473,198	1,556,142	1,590,466	1,440,251	-6.5%	-9.4%
Payroll Tax (FICA)	791,306	1,082,635	1,063,874	1,074,803	1,061,873	34.2%	-1.2%
Net Income Tax + Net FICA Effect	**749,742**	**390,564**	**492,268**	**515,663**	**378,378**	**-49.5%**	**-26.6%**
B. Adjusted Gross Income, $25,001 - $50,000						**Percentage Change**	
Adjusted Gross Income	34,052,106	34,656,453	35,541,044	35,429,434	35,587,247	4.5%	0.4%
Taxable Income	20,082,899	20,094,838	20,421,046	20,244,797	20,423,740	1.7%	0.9%
Pre-Credit Liability	4,481,333	4,482,489	4,531,370	4,501,124	4,533,745	1.2%	0.7%
Federal Credits*	1,019,805	1,131,548	1,104,386	1,144,582	1,115,969	9.4%	-2.5%
State Credits	284,847	306,542	325,891	343,062	327,769	15.1%	-4.5%
City Credits	95,427	101,095	129,181	137,714	137,570	44.2%	-0.1%
Net Income Tax Effect**	-3,081,254	-2,943,304	-2,971,911	-2,875,765	-3,005,309	-2.5%	4.5%
Payroll Tax (FICA)***	2,629,931	2,540,607	2,458,788	2,496,569	2,595,869	-1.3%	4.0%
Net Income Tax + Net FICA Effect	**-5,676,388**	**-5,712,020**	**-5,471,055**	**-5,357,288**	**-5,520,381**	**-2.7%**	**3.0%**

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
* Net of Affordable Care Act Penalty in 2014.
** Net income tax differs slightly from pre-credit liability net of credits due to rounding and limits on some nonrefundable credits by tax liability; the sign of net income tax effect indicates effect of taxes on household income. A negative tax is the same as a positive effect on household income.
*** A 2 percent FICA tax cut is included in FICA for 2011 and 2012.

Table D.2, Panel A

Selected Tax Credits, 2012–2016

Total Dollar Value (in $1,000s)

A. Adjusted Gross Income, $1 - $25,000							
Federal	**2012**	**2013**	**2014**	**2015**	**2016**	**Percentage Change**	
						2012–2016	**2015–2016**
Child and Dependent Care Credit	415	682	646	450	476	14.9%	5.7%
Child Tax Credit (+ACTC)*	327,503	306,122	310,898	311,425	302,158	-7.7%	-3.0%
Elderly and Dependent Credit	912	1,036	890	1,201	725	-20.5%	-39.6%
Education Credit**	117,436	109,852	101,029	108,803	94,139	-19.8%	-13.5%
Earned Income Credit, Federal	1,316,004	1,278,543	1,299,870	1,325,599	1,248,552	-5.1%	-5.8%
Making Work Pay Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Payroll Tax Cut	225,739	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Affordable Care Act Penalty	N.A.	N.A.	-15,353	-38,919	-61,354	N.A.	57.6%
New York State							
Household Credit	38,698	37,220	35,381	34,290	34,122	-11.8%	-0.5%
Child and Dependent Care Credit	456	751	711	496	524	14.9%	5.7%
Child Tax Credit	20,208	15,163	16,229	14,120	14,268	-29.4%	1.0%
Tuition Credit	104,172	104,507	100,392	106,530	99,231	-4.7%	-6.9%
Real Property Tax Credit	3,330	2,844	2,741	2,598	2,324	-30.2%	-10.5%
Earned Income Credit, NY State	376,435	366,907	373,917	381,870	359,426	-4.5%	-5.9%
Family Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
New York City							
Household Credit	9,998	8,631	8,546	7,811	7,205	-27.9%	-7.8%
School Tax Credit (STAR)	101,588	101,959	100,295	99,886	97,300	-4.2%	-2.6%
Expanded Real Property Tax Credit	N.A.	N.A.	47,360	52,090	53,150	N.A.	2.0%
Child and Dependent Care Credit	257	490	381	267	237	-7.9%	-11.2%
Earned Income Credit, NYC	65,800	63,927	64,994	66,280	62,428	-5.1%	-5.8%
Total Tax Relief	**2,708,950**	**2,398,634**	**2,448,928**	**2,474,796**	**2,314,911**	**-14.5%**	**-6.5%**

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
* Includes refundable additional child tax credit.
** Combines American Opportunity Credit and Hope Credit in 2007–2008; American Opportunity Credit and Lifetime Learning Credit in 2009 and following years.
Notes: N.A. - Not applicable in that tax year. The sum of nonrefundable credits may be limited by total tax liability at the level of individual filers.

Table D.2, Panel B

Selected Tax Credits, 2012–2016

Total Dollar Value (in $1,000s)

B. Adjusted Gross Income $25,001 - $50,000							
Federal	**2012**	**2013**	**2014**	**2015**	**2016**	**Percentage Change**	
						2012–2016	**2015–2016**
Child and Dependent Care Credit	9,706	8,580	9,649	7,573	7,384	-23.9%	-2.5%
Child Tax Credit (+ACTC)*	353,272	377,503	366,241	371,003	349,726	-1.0%	-5.7%
Elderly and Dependent Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Education Credit**	205,105	207,786	199,269	192,107	191,585	-6.6%	-0.3%
Earned Income Credit, Federal	451,723	537,680	541,611	608,850	567,275	25.6%	-6.8%
Making Work Pay Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Payroll Tax Cut	575,826	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Affordable Care Act Penalty	N.A.	N.A.	-12,384	-34,951	-52,871	N.A.	51.3%
New York State							
Household Credit	6,758	6,756	6,721	7,088	6,573	-2.7%	-7.3%
Child and Dependent Care Credit	9,965	8,881	9,928	7,869	7,597	-23.8%	-3.5%
Child Tax Credit	72,674	72,391	71,110	71,212	64,874	-10.7%	-8.9%
Tuition Credit	64,093	61,614	64,332	64,070	67,900	5.9%	6.0%
Real Property Tax Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Earned Income Credit, NY State	131,356	156,901	158,402	178,241	166,231	26.6%	-6.7%
Family Credit	N.A.	N.A.	15,398	14,580	14,595	N.A.	0.1%
New York City							
Household Credit	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
School Tax Credit (STAR)	72,623	73,299	75,623	74,926	74,816	3.0%	-0.1%
Expanded Real Property Tax Credit	N.A.	N.A.	26,154	31,555	34,092	N.A.	8.0%
Child and Dependent Care Credit	218	912	323	791	299	37.0%	-62.2%
Earned Income Credit, NYC	22,586	26,884	27,081	30,442	28,364	25.6%	-6.8%
Total Tax Relief	**1,975,905**	**1,539,186**	**1,559,459**	**1,625,358**	**1,528,437**	**-22.6%**	**-6.0%**

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.
* Includes refundable additional child tax credit.
** Combines American Opportunity Credit and Hope Credit in 2007–2008; American Opportunity Credit and Lifetime Learning Credit in 2009 and following years.
Notes: N.A. - Not applicable in that tax year. The sum of nonrefundable credits may be limited by total tax liability at the level of individual filers.

Table D.3

Impact of Net Taxes on Poverty Rates, 2012–2016

(Numbers are Percent of the Population)

A. Poverty Rates	**2012**	**2013**	**2014**	**2015**	**2016**
Total NYCgov Income	20.7	20.7	20.6	19.9	19.5
Net of:					
Income Taxes	24.4	24.6	24.5	23.8	22.7
FICA (Payroll Taxes)	19.0	18.5	18.3	17.7	17.0
Income Taxes and FICA	22.7	22.5	22.2	21.8	20.7
B. Marginal Effects	**2012**	**2013**	**2014**	**2015**	**2016**
Income Taxes	-3.7	-3.9	-4.0	-3.9	-3.3
FICA (Payroll Taxes)	1.7	2.2	2.3	2.2	2.5
Income Taxes and FICA	-2.0	-1.8	-1.6	-1.9	-1.2

Source: American Community Survey Public Use Micro Sample as augmented by NYC Opportunity.