

# NYC POVERTY TRACKER SYMPOSIUM



+ *DATA TRAINING*

May 18, 2023

## General Overview of the Project

- Goals
- Core measures and additional topics covered
- Cohorts, timeline, and evolution
- Survey schedule
- Pooling Poverty Tracker cohort data

## Imputation and Weighting

- Imputation methods
- Weighting methods
- Types of weights and how to use them

## Accessing Poverty Tracker Data and Documentation

## Overview of the Poverty Tracker

### Original goals of the project



Get a better measure of poverty in New York City.



Provide a more comprehensive understanding of disadvantage beyond poverty.



Understand the dynamics of poverty and disadvantage how these experiences respond to policy interventions and other life events and circumstances.

## Poverty Tracker Topics Covered: Core Measures

Three Core Measures of Disadvantage

*All Collected on the Annual Poverty Tracker Surveys*



## Poverty Tracker Topics Covered: Core Measures

**Three** Core Measures of Disadvantage

*All Collected on the Annual Poverty Tracker Surveys*



The Poverty Tracker collects all data necessary to measure poverty under the **Supplemental Poverty Measure**.

## Poverty Tracker Topics Covered: Core Measures

### Three Core Measures of Disadvantage

All Collected on the Annual Poverty Tracker Surveys








Measure material hardship in five domains:



## Poverty Tracker Topics Covered: Core Measures

### Five Domains of Material Hardship

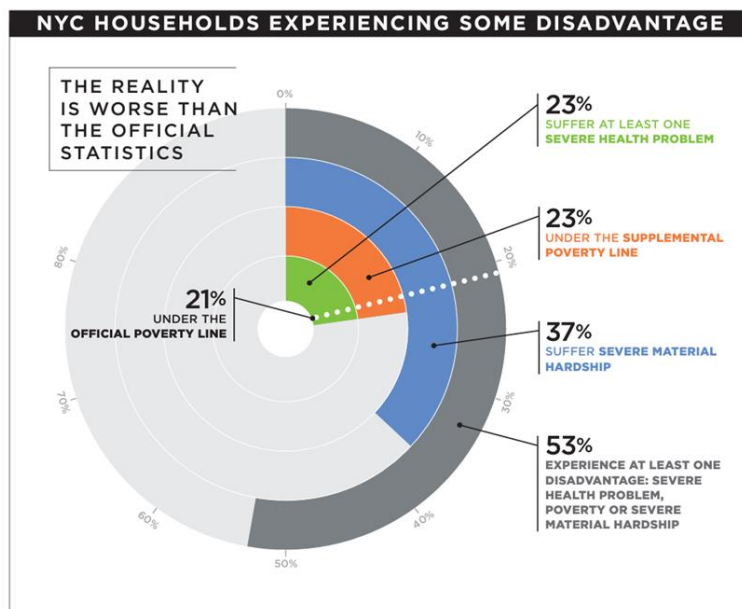
 FOOD	 HOUSING	 BILLS	 FINANCIAL	 MEDICAL
<b>FOOD HARDSHIP:</b> Running out of food or often worrying food would run out without enough money to buy more	<b>HOUSING HARDSHIP:</b> Having to stay in a shelter or other place not meant for regular housing, or having to move in with others due to costs	<b>BILLS HARDSHIP:</b> Having utilities cut off due to a lack of money	<b>FINANCIAL HARDSHIP:</b> Often running out of money between paychecks or pay cycles	<b>MEDICAL HARDSHIP:</b> Not being able to see a medical professional due to cost

## Poverty Tracker Topics Covered: Core Measures

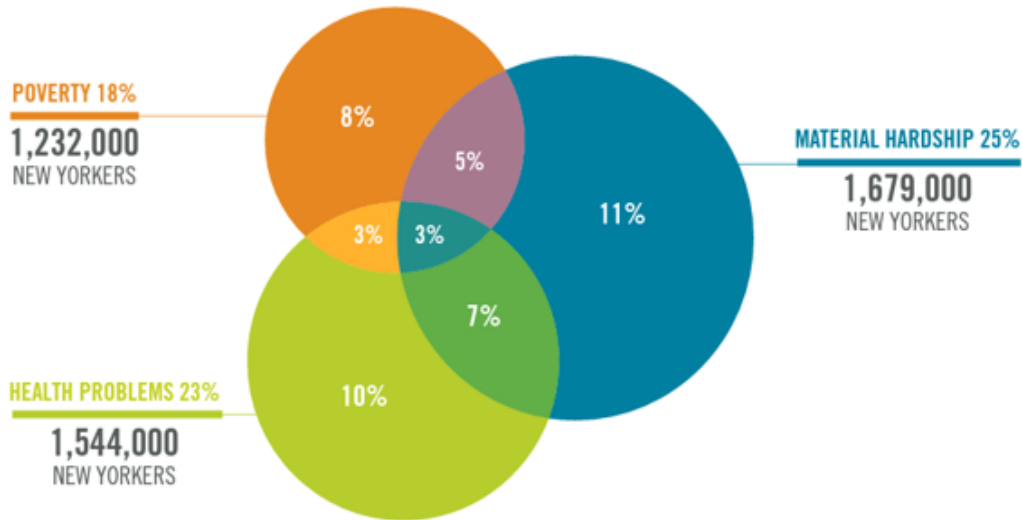
Three Core Measures of Disadvantage  
*All Collected on the Annual Poverty Tracker Surveys*



Health problems defined as having:



Overlapping experiences of disadvantage among adult New Yorkers (2021)



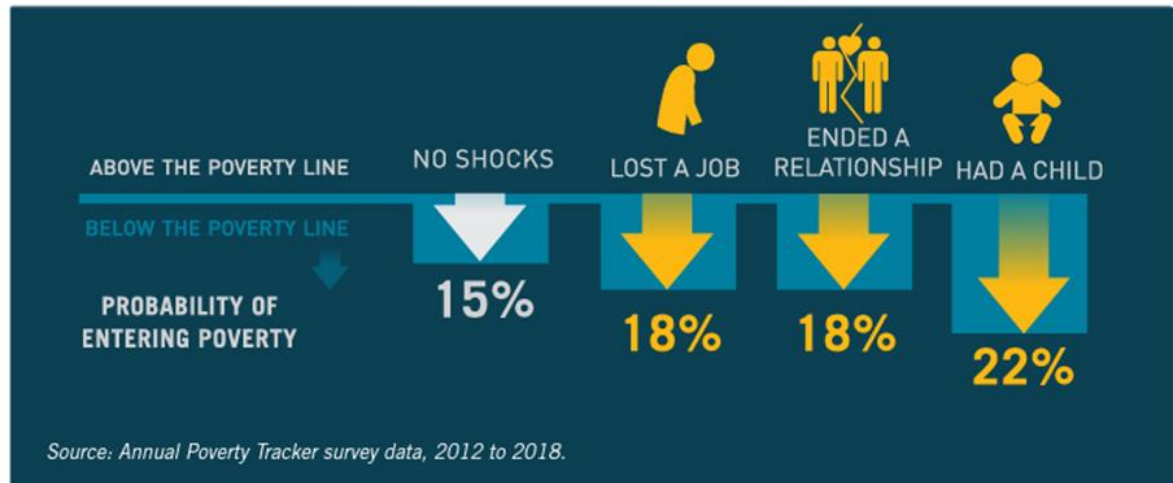
### Poverty Tracker Topics Covered: “Shocks”

In addition to our core measures, the Poverty Tracker includes a series of questions about changes and shocks that a respondent might have experienced, including:

Starting or losing a job	Having a child	Having an accident or injury	Being a victim of a crime
Beginning to receive benefits or losing benefits	Having a major increase or decrease in income	Being arrested or being stopped by police	Lost/broke expensive belongings or having a major unanticipated expense
Changes in household composition and moving	Starting or ending a relationship	Changes in childcare	Having to take time off work to talk with your child’s teacher or guidance counselor

These questions are included on **every survey** for the first three cohorts in reference to the previous three-months, thus tracking various changes in the lives of New Yorkers.

## Likelihood of Falling into Poverty for New York City Adults by Life Event



## Poverty Tracker Topics Covered

Service Use	City Services	Assets & Debts	Housing	Student Loans
Consumption	Employment	Sleep	Immigration	Commuter Benefits
Childcare	Sick Leave	Caretaking	Education History	Child health
Child development	Discrimination	COVID-19	Affording food	Aging
EITC	Moving / Evictions	Paid Sick Leave	Minimum Wage	Policing
Health Care Consumption	Government shutdown	Housing Quality	Fairness & Opportunity	

\*Not exhaustive, please see Poverty Tracker Data User Guide

## Cohorts, Timeline, and Evolution

The study surveys a **representative sample of adult New Yorkers** multiple times a year for a period of up to **six years**. (Originally planned to just survey for two years but later extended to six.)

Since initial launch, the study recruited **five distinct samples** of New Yorkers: **Cohorts 1 through 5** (more details to come!)

The majority of these samples were recruited through a **Random Digit Dial (RDD) methodology**. Periodically includes **supplementary samples**, including:

- Respondents recruited from social service agencies (in the first two cohorts)
- New Yorkers of Chinese-origin (in the fourth and fifth cohorts)

## Cohorts, Timeline, and Evolution

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

### Cohort 1 (2012 -2014)

- **Cohort 1** recruited in **2012**
- Respondents interviewed for up to two years, with the final surveys launching in **2014**
- Baseline sample size: **2,228**
- Subsamples:
  - 1) RDD methodology: **2,002** respondents  
(Incl. oversampling of New Yorkers in high-poverty zip codes)
  - 2) Randomly selected social service participants: **226** respondents  
(Oversample of social service users that may be disproportionately low-income)
- **All** of the **Cohort 1** data is **publicly available** on the CPSP website.



## Cohorts, Timeline, and Evolution

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

### Cohort 1 (2012 -2014)

Baseline launch year: 2012  
Final survey launch year: 2014  
Sample size at baseline: 2,228

### Cohort 2

(2015 -2023)

- **Cohort 2** recruited in **2015**
- **Design change:** Respondents Interviewed for up to six years (instead of two), with the final surveys launched in **2023** (pandemic caused some delays)
- Baseline sample size: **3,908**
- Subsamples:
  - 1) RDD methodology: **3,403** respondents  
(Recruited from pool of 10,000 individuals who completed the NYC DOHMH's 2015 Community Health Survey)
  - 2) Randomly selected social service participants: **505** respondents
- **The first four years** of the **Cohort 2** data are **publicly available** on the CPSP website

## Cohorts, Timeline, and Evolution

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

### Cohort 1 (2012 -2014)

Baseline launch year: 2012  
Final survey launch year: 2014  
Sample size at baseline: 2,228

### Cohort 2 (2015 -2023)

Baseline launch year: 2015  
Final survey launch year: 2023  
Sample size at baseline: 3,908

### Cohort 3

(2017 -2025)

- **Cohort 3** recruited in **2017**
- **Design change:** Moved to rotating cohort design
- Final surveys scheduled for 2025
- Baseline sample size: **853**
- Data available upon request

## Cohorts, Timeline, and Evolution

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

### Cohort 1 (2012 -2014)

Baseline launch year: 2012  
Final survey launch year: 2014  
Sample size at baseline: 2,228

### Cohort 2 (2015 -2023)

Baseline launch year: 2015  
Final survey launch year: 2023  
Sample size at baseline: 3,908

### Cohort 3 (2017 -2025)

Baseline launch year: 2017  
Final survey launch year: 2025  
Sample size at baseline: 853

### Cohort 4

(2020 -2027)

- **Cohort 4** recruited in **2020**
- **Design change:** Introduced Chinese oversample
- Final surveys scheduled for **2027**
- Baseline sample size: **1,912**
- Additional design changes made in 2022 (see Data User Guide)
- Data available upon request

## Cohorts, Timeline, and Evolution

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

### Cohort 1 (2012 -2014)

Baseline launch year: 2012  
Final survey launch year: 2014  
Sample size at baseline: 2,228

### Cohort 2 (2015 -2023)

Baseline launch year: 2015  
Final survey launch year: 2023  
Sample size at baseline: 3,908

### Cohort 3 (2017 -2025)

Baseline launch year: 2017  
Final survey launch year: 2025  
Sample size at baseline: 853

### Cohort 4 (2020 -2027)

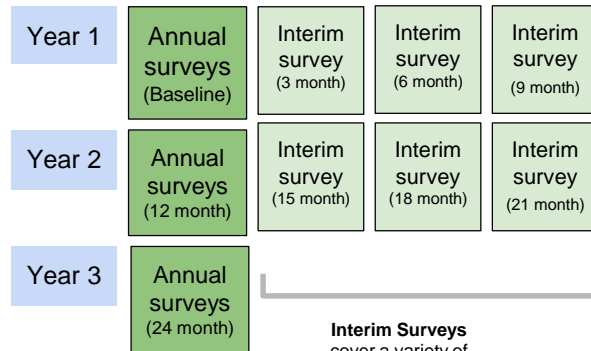
Baseline launch year: 2020  
Final survey launch year: 2027  
Sample size at baseline: 1,912

### Cohort 5 (2022 -2028)

Baseline launch year: 2022  
Final survey launch year: 2028  
Sample size at baseline: 1,548

# Poverty Tracker Survey Schedule

## Cohort 1

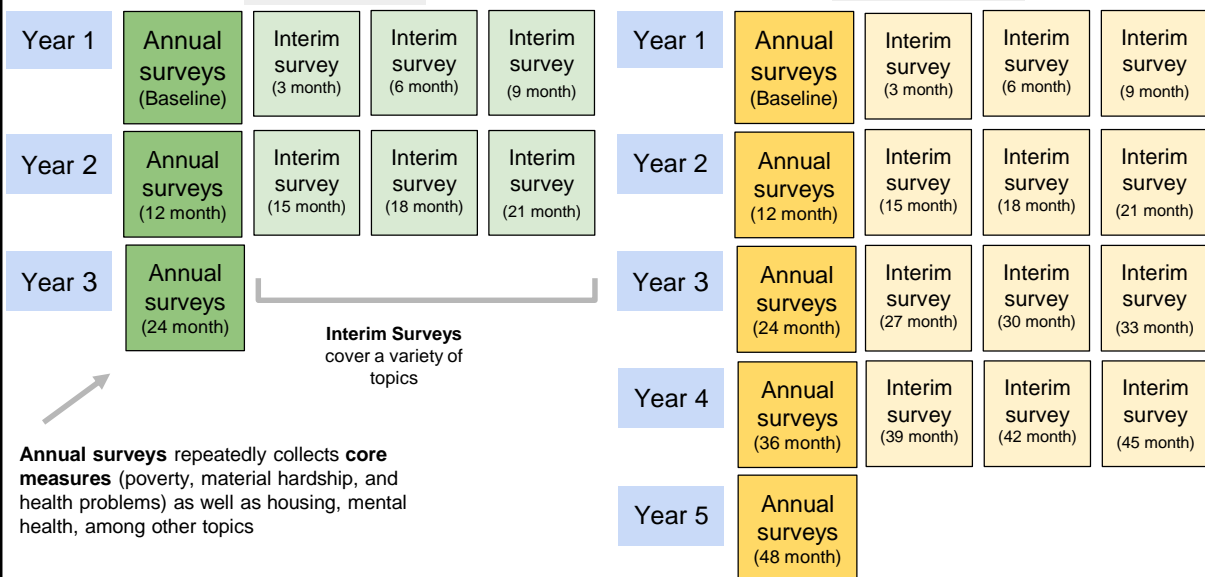


Annual surveys repeatedly collects **core measures** (poverty, material hardship, and health problems) as well as housing, mental health, among other topics

# Poverty Tracker Survey Schedule

## Cohort 1

## Cohort 2



Annual surveys repeatedly collects **core measures** (poverty, material hardship, and health problems) as well as housing, mental health, among other topics

## Poverty Tracker Survey Schedule and Topics

<b>Year 1</b>	<b>Annual Baseline</b> Housing   Childcare   Service Use   Adult Health & Well-Being   Material Hardship   Employment   Financial Well-Being	<b>3-Month</b> Adult health	<b>6-Month</b> Service Use, City Services	<b>9-Month</b> Assets & Debts
<b>Year 2</b>	<b>Annual 12M</b> Housing   Childcare   Service Use   Adult Health & Well-Being   Material Hardship   Employment   Financial Well-Being	<b>15-Month</b> Housing, Consumption	<b>18-Month</b> Employment, Volunteering	<b>21-Month</b> Adult & Child Health, Immigration, Sick Leave
<b>Year 3</b>	<b>Annual 24M</b> Housing   Childcare   Service Use   Adult Health & Well-Being   Material Hardship   Employment   Financial Well-Being	<b>27-Month</b> Housing, Assets & Debts	<b>30-Month</b> Service Use, City Services, Employment	<b>33-Month</b> Fairness & Opportunity, Discrimination
<b>Year 4</b>	<b>Annual 36M</b> Housing   Childcare   Service Use   Adult Health & Well-Being   Material Hardship   Employment   Financial Well-Being	<b>39-Month</b> Adult & Child Health & Well-being, Caretaking	<b>42-Month</b> Housing, Employment, Commuter Benefits	<b>45-Month</b> Housing, Sleep, Education History, Student Loans

\*Not exhaustive, please see Poverty Tracker Data User Guide

## Pooling Poverty Tracker Data from Multiple Cohorts

### Pooling Cohort 1 and 2

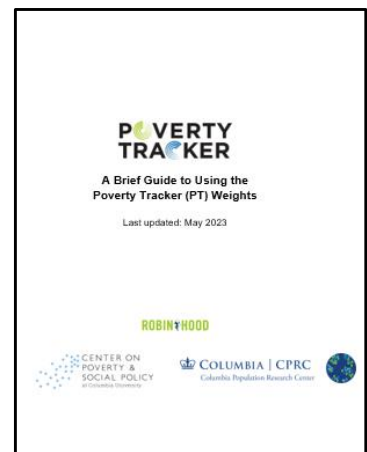
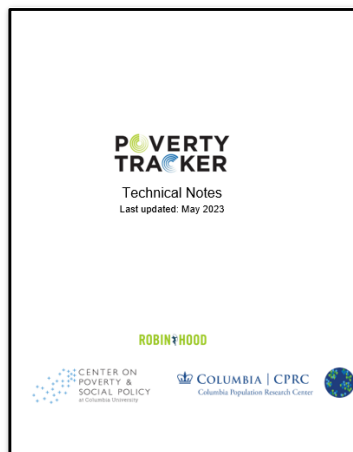
	Year 1				Year 2				Year 3
<b>Cohort 1</b>	Annual surveys (Baseline)	Interim survey (3 month)	Interim survey (6 month)	Interim survey (9 month)	Annual surveys (12 month)	Interim survey (15 month)	Interim survey (18 month)	Interim survey (21 month)	Annual surveys (24 month)
<b>Cohort 2</b>	Annual surveys (Baseline)	Interim survey (3 month)	Interim survey (6 month)	Interim survey (9 month)	Annual surveys (12 month)	Interim survey (15 month)	Interim survey (18 month)	Interim survey (21 month)	Annual surveys (24 month)

**This is just one way to pool the data! Please reach out if you're interested in learning about other approaches!**

# Imputation & Weighting

## Documents

- Technical Notes
- Guide for Using Weights



## Dealing with Missingness

### ***Missing Data***

- **Common in survey research** - respondents might be skeptical about data protection, uncomfortable disclosing personal information, or experience survey fatigue...
- **Going back** to conduct the survey **may not be the best solution** because you'd have to spend twice as much time and money.
- Most commonly, folks **impute** due to issues of power associated with reduced sample size due to missingness.

### ***Imputation***

- Substituting missing information with an **estimated value depending on other available information/data**.
- **Imputation preserves all cases** so that we would be able to analyze "complete" data once all values have been imputed.

## How the Poverty Tracker Deals with Missingness

### ***Missing at Random (MAR)***

- It's an **underlying assumption** (missing at random but not completely at random) for Poverty Tracker imputations where we impute missing values using other information/characteristics in the data.
- MAR means there might be systematic differences between the missing and observed values, but these can be entirely explained by other observed variables.

### ***Multiple Imputation (MI)***

- Simple imputation assume perfect estimation of imputed values and ignore between-imputation variability.
- In contrast, MI generates replacement values ("imputations") for missing data and repeating this procedure many times, resulting in many data sets with replaced missing information.
- Incorporates uncertainty into the standard errors of imputed values by accounting for variability between imputed solutions.

Acock, 2005; Graham, 2009; Hibel, Farkas, & Morgan, 2010; Schafer, 1999

## Variables Imputed in Poverty Tracker Data

### ***Demographics [Baseline]***

- **Demographic** variables (e.g. education, immigration status)

### ***Core Measures [Baseline & Post-Baseline]***

- **Health** (e.g. limiting health condition, mental health)
- **Material hardship** (e.g. housing, bill, medical, financial, food hardships)
- **Income and expenses**
  - Earnings (e.g. respondent/spouse months worked, earnings)
  - Income from other sources (e.g. retirement, disability, welfare, unemployment, SNAP, WIC)
    - Two-step imputation
      - Binary value indicating whether or not received type of income
      - Amount of income
  - Income from other family members
  - Expenses (e.g. childcare, work, medical-related expenses)
- **Housing** (e.g. mortgage, rent)

## Variables Imputed in Poverty Tracker Data

### ***Impute Variables for Weighting***

- **Phone type** (necessary for producing design weights; e.g. cellphone/landline)
- **Service use frequency**

### ***Impute for Other Measures***

- **Assets and debts**

## Weighting

### ***What is a Survey Weight?***

- A value assigned to each case in the data, normally used to adjust statistical parameters/estimates so that inferences from the data are more representative of the target population.
- In this case, survey weight allows us to use Poverty Tracker sample to make statements about the city's population.
- *Example: statements about what share of adult New Yorkers or families are in poverty instead of statements just about the share of the sample.*

## Weights in the Poverty Tracker

Survey weights are used to ensure that the PT sample is representative of adults and poverty units (families) in New York City.

The weighting approach adjusts for **oversampling**, **random over- or under-representation**, **non-response**, and **attrition**.

*For example*, the value of the weight indicates how much each case will count in a statistical procedure. A weight of 2000 in Poverty Tracker data indicates that this weighted case is representative of 2000 New Yorkers.

To achieve this, Poverty Tracker weights are produced by...

- **Step 1:** Adjust for sampling design
- **Step 2:** Adjust for non-response - post-stratify to "population"
- **Step 3:** Adjust post-baseline surveys for sample attrition



## Step 1: Adjust for Sampling Design

### *How Design Weights Adjust for Sampling Design?*

- Design weights compensate for over- or under-sampling of specific cases or for disproportionate stratification.
- *Example:* oversample Chinese New Yorkers 4 times more than White New Yorkers...



### *Design Weights in Poverty Tracker*

- Household size
- Phone availability
- Oversample households in high-poverty neighborhoods (cohort 1)
- Service use frequency

Gelman, & Little, 1998; Lohr, 2009

## Step 2: Adjust for Non-response - Post-stratify to “Population”

### *Post-stratification Weights Adjust for Non-response*

- Post-stratification weights **compensate** for the fact that persons with **certain characteristics** are **not as likely to respond** to the survey (e.g. more females than males). Corrects for departures from known population totals.
- **Requires** the use of **auxiliary information about the population** and may take a number of different variables into account.
- Commonly adjusted respondent characteristics: age, gender, education, race/ethnicity, etc.

### *Post-stratification Weights in Poverty Tracker*

- “**Population**” data: data are weighted to **three-year American Community Survey (ACS)** dataset.
- **Post-stratification variables** include gender, age, education, race/ethnicity, number of children, number of seniors, number of working-aged people, income-to-needs measure, and interactions between many of the demographics and the income-to-needs measure to account for dependencies between these factors.

## Step 3: Adjust Post-Baseline Surveys for Attrition

### *Longitudinal Weights in Poverty Tracker*

Longitudinal weights are computed from two components:

- The weight from the baseline survey
- The weight calculated to adjust for **attrition** between the waves
  - Logistic regression with response to the wave as outcome variable (0=no, 1=yes)
  - Predict probability of responding
  - **attrition** weight = Inverse the probability of responding

## Using Poverty Tracker Weights

Wave	Person-level Weights	Poverty-unit Weights
Baseline	qweight_p	qweight_pu
3-Month	q1weight_p	q1weight_pu
6-Month	q2weight_p	q2weight_pu
... and so on for each wave		

**Person-level** weights: generalize to characteristics of adults in NYC...

*"What percent of adults experienced X in 2015?"* Apply **qweight\_p**

**Poverty-unit** weights: generalize to characteristics of poverty units/families in NYC...

*"What percent of families (poverty units) experienced X in 2015?"* Apply **qweight\_pu**

## Replicate Weights

Replicate weights allow a single sample to simulate multiple samples, thus generating more informed standard error estimates that mimic the theoretical basis of **standard errors** while retaining all information about the complex sample design. These standard errors can then be used to obtain more precise confidence intervals and significance test. [Guide for Using Poverty Tracker Weights]

Wave	Person-level Replicate Weights	Poverty-unit Replicate Weights
<b>Baseline</b>	qweight_p_rep1 ... qweight_p_rep50	qweight_pu_rep1 ... qweight_pu_rep50
<b>3-Month</b>	q1weight_p_rep1 ... q1weight_p_rep50	q1weight_pu_rep1 ... q1weight_pu_rep50
... and so on for each wave		

## Accessing Poverty Tracker Data & Other Resources

## Public Data

Much of the data we've collected over the years is publicly available on the CPSP website.

As of today, you can download the full two years of data from our first cohort (2012 - 2014) and the first four years of data from our second cohort (2015 - 2019). Data collection with the second cohort is ongoing.

Similar resources are available for both cohorts:

- **Data files** in both Stata 14 and CSV format. (Stata file includes labels.)
- Complete copies of all **survey questionnaires** administered to respondents.
- **Codebooks** for all survey waves that list the variables, full questions, answer options, and labels.

## Accessing Public Data: The Process

STEP #1



<https://www.povertycenter.columbia.edu/poverty-tracker-data>

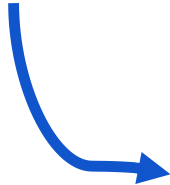
New Users  
Register for public-use data access.  
REGISTER

STEP #2



# Accessing Public Data: The Process

STEP #3



**REGISTRATION - POVERTY TRACKER DATA**

**New Users**  
For any questions regarding the registration or data, please email [povertytracker@columbia.edu](mailto:povertytracker@columbia.edu)

Name \*  
First Name  Last Name

Email Address \*

Affiliated Institution \*  
List your university, school, organization, or business; if none write "not applicable."

Research Interests \*  
Describe what you would like to learn.

Other Notes  
Let us know any additional information pertinent to your research.

Privacy Agreement \*  
 I agree not to make any attempt to identify individuals in the datasets.

**SUBMIT**

# Accessing Public Data: The Process

Password

STEP #4

STEP #5



**Poverty Tracker Data Portal**

<b>Panel 1 (2012-2014)</b> Codebooks Stata 14 DTA CSV Surveys All Files Zip <b>Last updated:</b> August 3rd, 2020	<b>Panel 2 (2015-2017)*</b> Codebooks Stata 14 DTA CSV Surveys All Files Zip <b>Last updated:</b> May 13th, 2021
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\*Panel 2 was followed through 2019. The files available publicly include survey waves through 2017.

## Accessing Public Data: The Process

### STEP #6



#### Returning Users

Log in to access the public-use data.

LOG IN

## Restricted-Use Data

- We collect more data than we publish online. Some variables are deemed sensitive and only made available upon request.
- Sensitive variables include:
  - Non-top-coded income measures
  - Geographic indicators (e.g., zip code and census tract)
  - Open-ended text responses (e.g., “What is the reason you did not seek help with your health issue?”)
  - Information on sexuality, immigration history, salary and wages

## Accessing Restricted-Use Data: The Process

1. **Let us know!** Put your request in the public data registration form or shoot us an email at [povertytracker@columbia.edu](mailto:povertytracker@columbia.edu). Include a brief overview of your research project and variables-of-interest.
2. **Set up a meeting** with a member of the data team to discuss details, timeline, and next steps.
3. **Obtain approval** from Poverty Tracker project directors.
4. **Submit a Data Usage Agreement (DUA) packet.**

## So what's a "DUA"?

- Extended Research Abstract
- Application for Obtaining Restricted Use Data (Cover Page)
- Restricted Use Data License Application
- Supplemental Agreement with Research Staff
- Restricted Use Data Protection Plan
- Copies of CVs for all Research Staff
- Proof of IRB Approval from Researcher's Institution (Proposal + Data Protection Plan)

*Don't worry!! We're here to help!*

## New Public Resources

- **2-Page Overview of the Poverty Tracker**
- **Comprehensive Guide to the Poverty Tracker**
- **Supplemental Guide to Using the Weights**
- **Technical Appendix on Imputation and Weighting**
- **Searchable Question Library Spreadsheet**
  - Includes all questions/variables in the public datasets
  - Organized by survey wave and topic



## Poverty Tracker Data Demonstration



## Poverty Tracker Data Demonstration

- Downloading the Poverty Tracker Data
- Pointers for using the Poverty Tracker data
- Producing summary statistics across survey waves

Example analysis:

*What shocks are correlated with entrances and exits from poverty and hardship?*

## Downloading the Poverty Tracker Data

→ Go to the website: [povertycenter.columbia.edu/poverty-tracker-data](https://povertycenter.columbia.edu/poverty-tracker-data)

<b>Panel 1 (2012-2014   Baseline through 24-month)</b> Codebooks Stata 14 DTA CSV Surveys All Files Zip <b>Last updated:</b> August 3rd, 2020	<b>Panel 2 (2015-2019   Baseline through 48-month)*</b> Codebooks Stata 14 DTA CSV Surveys All Files Zip <b>Last updated:</b> May 17th, 2023 <small>*The files available publicly include survey waves through 2019.</small>
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**Supplementary Materials and Documentation**

Poverty Tracker Two Page Overview  
Data User Guide  
Guide to Using the Poverty Tracker Weights  
Technical Notes on Imputation and Weighting

## Pointers for using the Poverty Tracker data

### **Variable Naming Convention: Prefixes**

**Prefix** indicating the survey on which the data stored in the variable was collected.

Begin with a “**q**” for questionnaire, followed by a number corresponding to a particular survey.

<b>Survey</b>	Baseline	3-month	6-month	9-month	12-month	15-month	18-month	21-month
<b>Prefix</b>	q	q1	q2	q3	q4	q5	q6	q7
<b>Survey</b>	24-month	27-month	30-month	33-month	36-month	39-month	42-month	45-month
<b>Prefix</b>	q8	q9	q10	q11	q12	q13	q14	q15
<b>Survey</b>	48-month	60-month	72-month					
<b>Prefix</b>	q16	q17	q18					

**Note:** This table provides a guide to understanding the variable naming structure in the Poverty Tracker data. A “q” denotes each questionnaire, followed by the associated survey number.

## Pointers for using the Poverty Tracker data

### **Variable Naming Convention: Suffixes**

The variables also have a **suffix** that indicates one of three things:

1. if the variable matches a survey question and has not been imputed;
2. if the variable matches a survey question but was imputed; or
3. if the variable does not match a survey question, but was constructed based on responses to survey questions.

\*You can also use the suffix to identify if it is a top-coded variable because you will see the suffix “**\_tc**” at the end of the variable name.

## Pointers for using the Poverty Tracker data

**Variable Suffix Example 1:** If the variable matches a survey question and has not been imputed

The 3-month and 21-month quarterly surveys ask respondents, ***How would you rate your fatigue on average?*** On both surveys, this is question B9 (the 9th question in Module B).

In the public dataset, the variables representing these questions are:

- *q1b9* for the 3-month survey
- *q7b9* for the 21-month survey

The prefix is *q1* for the responses from the 3-month survey and *q7* for those from the 21-month survey.

Because this variable matches a survey question, the suffix ("*b9*") indicates the question number.

**Warning:** Suffix does not always match question number - please consult codebooks and questionnaires!

## Pointers for using the Poverty Tracker data

**Variable Suffix Example 2:** if the variable matches a survey question but was imputed

Imputes variables concerning income (all forms), hardship, health, assets, debts, or demographics.

Imputed variable names are not associated with their survey question number. They are descriptive.

In the public dataset, the variables representing disability income are:

- *imp\_qincdis\_tc* for the baseline annual survey
- *imp\_q4incdis\_tc* for the 12-month annual survey
- *imp\_q8incdis\_tc* for the 24-month annual survey ... and so on for each annual survey

You can see the complete list of imputed variables in **Poverty Tracker Technical Notes**.

## Pointers for using the Poverty Tracker data

**Variable Suffix Example 3:** if the variable does not match a survey question, but was constructed based on responses to survey questions.

The Poverty Tracker data includes several variables *constructed* using responses to the individual survey questions (e.g. poverty status)

All of the constructed variables also have descriptive names.

For example the variables representing poverty status (measured using the SPM) are:

- *qspmpov* for the responses from the baseline survey
- *q4spmpov* for the responses from the 12-month survey
- *q8spmpov* for the responses from the 24-month survey... and so on for each annual survey

## Questions about this research?

### Contact:

General Inquiries, [povertytracker@columbia.edu](mailto:povertytracker@columbia.edu)

Yajun Jia, Survey Methodologist, [yj2648@columbia.edu](mailto:yj2648@columbia.edu)

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twitter: [@cpsppoverty](https://twitter.com/cpsppoverty)

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## Acknowledgments

*We thank Robin Hood for funding the Poverty Tracker, which provided data for this study.*

*We are grateful to all members of the Poverty Tracker team based at Columbia, past and present!*