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The Cost of Eviction and Unpaid Bills of Financially Insecure Families for City Budgets

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Appendixes

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2019 Addendum

This technical addendum describes the data sources used to generate estimates of the impact of residents' financial insecurity on city budgets in the 2019 series of factsheets "Cost of Resident Financial Insecurity to Cities." It is designed as a supplement to the original technical appendix (pages 16–33 of this document), which details the logic models, theoretical underpinnings, and initial data sources used in both the 2017 and 2019 versions.

Establishing the Base Population

In determining the number of households in each city who may experience an income or expense disruption in 2019, we follow the same assumptions as we did in 2017. We use 26 percent of households as a lower bound (e.g., the share of households who may experience an income disruption) and 60 percent as an upper bound (e.g., the share of households who may experience an expense disruption). Though these parameters remain the same, we use US Census Bureau counts of households in each city from the 2017 American Community Survey (ACS) (appendix table A.1).[1] These household counts are used, along with the share of households who may experience income or expense disruptions, to produce the range of households that would theoretically experience income or expense disruptions that year.

As was described in the original 2017 technical appendix, we might expect that the range of households affected by income or expense disruptions to be theoretically lower in cities with stronger economies (indicated by an unemployment rate below the national rate) and higher in cities with weaker economies (indicated by an unemployment rate above the national rate, which was 3.9 percent in 2018). We use city-specific unemployment data from the Bureau of Labor Statistics (BLS) in 2018 (appendix table A.1) and multiply the range of households affected by income and expense disruptions by the ratio of the city-specific unemployment rate relative to the national rate.[2]

Additionally, we use the same nonretirement savings threshold as 2017 ($2,000) to define financially healthy residents. Research suggests that families with a savings cushion as little as $250 to $749 are less likely to be evicted or miss a housing or utility payment when income disruptions occur (McKernan et al. 2016). Families with higher savings of over $2,000 are more financially resilient than middle-income families without savings and experience less hardship (McKernan et al. 2016). As a result, we use $2,000 as the threshold for measuring financially resilient residents in this analysis.

APPENDIX TABLE A.1

City Estimates Used to Calculate Cost of Household Financial Insecurity in 2019

	Households (#)	Owner-occupied housing units (%)	Unemploy-ment rate (%)	Estimated households with less than $2,000 liquid savings (%)	Annual spending per homeless family ($)	Annual payment for publicly operated utilities per household ($)	Median annual property taxes per homeowner household ($)	Total municipal budget ($)	Residents with subprime credit scores (%)
Chicago	1,047,695	44.9	4.2	61.5	5,192.78	746.90	3,883	10,440,508,000	35
Columbus	355,414	44.7	3.9	56.9	2,143.95	1,461.27	2,751	1,672,124,338	38
Dallas	513,084	39.4	3.7	64.7	9,152.66	766.61	3,344	2,628,674,441	43
Houston	837,686	42.8	4.2	61.8	329.96	955.84	3,006	5,220,434,243	38
Los Angeles	1,384,851	36.6	4.7	61.3	3,468.39	1,781.52	4,140	9,292,134,656	30
Miami	170,005	28.9	3.8	72.8	1,438.03	531.96	3,032	1,060,940,000	31
New Orleans	154,560	47.2	5.0	65.2	8,452.45	2,032.48	1,752	1,111,684,717	43
New York City	3,159,674	32.7	4.1	60.6	58,282.28	1,068.19	4,822	85,238,681,837	20
San Francisco	360,323	36.5	2.4	46.6	45,045.48	2,599.40	6,734	10,119,078,000	13
Seattle	329,671	47.1	3.2	46.2	6,814.26	4,716.96	5,011	6,009,434,024	15
Data source	2017 ACS	2017 ACS	2018 BLS	2015 SIPP and 2017 ACS	Various sources	Various sources	2017 ACS	2017–18, 2018 city budgets	2018 credit bureau data

Estimating the Share of Households in Each City with Nonretirement Savings below $2,000

To estimate the share of households in each city with nonretirement savings below $2,000, we use the Survey of Income and Program Participation (SIPP)/ACS model developed for the original analysis. We use updated 2017 ACS 1-year estimates from the US Census Bureau to calculate the number of households in each city with low levels of savings (nonretirement savings below $2,000) in 2019.

Estimating the Cost of Eviction

In estimating the cost of resident eviction to cities, we use the same methodology as in 2017. We first calculate the number of households in each city with an income or expense disruption using the methods detailed in "Establishing the Base Population." This number is multiplied by the eviction rates from the SIPP for households with less than $2,000 in savings (1.30 percent) and more than $2,000 in savings (0.09 percent). These rates are unchanged from the original data release in 2017.

We then take this estimate of the number of households evicted because of low savings when experiencing an income or expense disruption and multiply it by the amount the city spends per homeless household to generate an estimate of the cost to the city of evicted residents. As described in the logic model presented in the original analysis (pages 19–20), this generates a range of estimates of the cost to cities of households having less than $2,000 in savings and therefore becoming evicted and using city homeless services.

City-specific budget data are used for the cost spent per homeless household. These data are from fiscal year 2017–18 budgets or 2018 budgets (see "Homelessness Cost Estimates" for individual city data sources).

Estimating the Cost of Unpaid Utility Bills

In 2018, five cities taxed residential electricity usage: Chicago, Dallas, Houston, Los Angeles, and New York City. All 10 had publicly owned water utility companies, but only Columbus, San Francisco, and Seattle had publicly owned electricity companies.

Using three steps developed for the original analysis, we estimate the cost to cities when households are unable to pay their utility bills following an income or expense disruption.

First, we calculate the number of households in each city with an income or expense disruption using the methods detailed in "Establishing the Base Population." This number is multiplied by missed utility payment rates from the SIPP for households with less than $2,000 in savings (22.2 percent) and more than $2,000 in savings (7.1 percent). These rates are unchanged from the original data release in 2017.

We then take these estimates of the number of households in each city who missed utility payments because of their low savings when experiencing an income or expense disruption and multiply it by the cost to each city of a household missing its utility bills. This cost to cities is calculated by multiplying the yearly amount each household pays toward publicly operated utilities and utility taxes by the average number of months in a year that households who missed payments reported not paying (about six months) to produce a prorated annual amount left unpaid. The average number of months that households missed payments remains unchanged from the original data release in 2017. As originally stated in the previous rationale for the logic model (see page 22), this produces a range of estimates of lost utility revenue to the city, including taxes.

City-specific data on the yearly amount each household pays toward publicly operated utilities and utility taxes are gleaned from local-level data detailed in "Utility Payment Estimates." Only applicable bills for publicly operated utilities and taxes are counted in calculating the cost to each city of a household missing its utility bills.

Estimating the Cost of Missed Property Tax Payments

In estimating the cost of missed property tax payments to cities, we follow the model established in 2017. First, we calculate the number of households in each city with an income or expense disruption using the methods detailed in "Establishing the Base Population." The resulting homeowner household count is multiplied by the percentage of mortgage-paying homeowners who missed mortgage payments in the SIPP and had less than $2,000 in savings (21.3 percent) and more than $2,000 in savings (6.6 percent). These percentages remain unchanged from the original data release in 2017.

We then take these estimates of the number of homeowner households who missed property tax payments because of their low savings when experiencing an income or expense disruption and multiply it by the cost to the city of a household's missed property tax payments. These data are from 2017 Census Bureau ACS estimates, reported in appendix table A.1. Medians were used, as in the original data release in 2017, to minimize skew from high-value homes.[3] As stated in the original rationale for the logic model (see page 24), this produces a range of estimates of lost property tax revenue to the city.

Estimating the Total Cost of Eviction, Unpaid Utility Bills, and Missed Property Tax Payments

As in the original data release in 2017, we sum the cost to cities from residents' evictions, missed property taxes, and missed utility payments to calculate a final cost to cities of residents' financial insecurity. This calculation is done for both income disruptions (lower-bound) and expense disruptions (upper-bound).

City-Level Data

To derive final costs to cities of residents' financial insecurity, several data sources are used to produce the estimates of the cost of homelessness and the cost of missed utility bills. Property tax data are not described in this section because these estimates are all from the 2017 American Community Survey (appendix table A.1). The following describes the sources and assumptions behind the homelessness and utility bill estimates.

Homelessness Cost Estimates

To determine how much each city spent per homeless family in 2018, we use the number of homeless households and the budget for homeless spending in the city. The following section describes the data sources and assumptions made for each city's estimate of the cost of caring for a homeless family.

Chicago. The count of people experiencing homelessness in Chicago comes from the 2018 Homeless Point-in-Time count and survey report prepared by the Nathalie P. Voorhees Center for Neighborhood & Community Improvement at the University of Illinois at Chicago (Nathalie P. Voorhees Center 2018). We use household-level calculations from this survey to make comparisons consistent across cities.

Chicago budget data on homeless spending come from the 2018 budget appropriations data portal.[4] The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

Columbus. The count of people experiencing homelessness in Columbus comes from the Annual Homeless Assessment Report (AHAR) to Congress and its point-in-time (PIT) estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless

were single, so the remaining 33 percent of the people in the Columbus count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Columbus budget data on homeless spending comes from the 2018 budget and includes multiple homelessness-related line items (City of Columbus 2017).[5] The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

Dallas. The count of people experiencing homelessness in Dallas comes from the 2018 Dallas and Collin Counties point-in-time homeless count results (Metro Dallas Homeless Alliance 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation using information about household composition from the 2018 AHAR to Congress. The 2018 AHAR PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the Dallas count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Dallas budget data on homeless spending come from the city's 2017–18 adopted budget for the Office of Homeless Solutions (City of Dallas 2017). The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

Houston. The count of people experiencing homelessness in Houston comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the Houston count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Houston budget data on homeless spending come from the 2017–18 Proposed Operating Budget, which was adopted (City of Houston 2017). The dollar amount from the budget (i.e., a portion of spending in the Department of Housing and Community Development) is divided by the household count to approximate the money the city spent per homeless household in 2018.

Los Angeles. The count of people experiencing homelessness in Los Angeles comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the

people in the Los Angeles count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Los Angeles budget data on homeless spending come from the 2018 budget appropriations data portal.[6] The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

Miami. The count of people experiencing homelessness in Miami comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the Miami count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Miami budget data on homeless spending comes from the city's 2017–18 Adopted Operating Budget for the Department of Veterans Affairs and Homeless Services (City of Miami 2017). The dollar amount from the budget is divided by the household count to approximate the money the city spent in 2018 per homeless household.

New Orleans. The count of people experiencing homelessness in New Orleans comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the New Orleans count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

New Orleans budget data on homeless spending come from multiple line items from the 2018 Annual Operating Budget (City of New Orleans 2017).[7] The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

New York City. The count of people experiencing homelessness in New York City comes from the AHAR to Congress and PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the New York City count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

New York City budget data on homeless spending come from the adopted 2019 budget, as reported by the Interagency Homeless Accountability Council.[8] The dollar amount from the budget is divided by the household count to approximate the money the city per homeless household spent per homeless household in 2019.

San Francisco. The count of people experiencing homelessness in San Francisco comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the San Francisco count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

San Francisco budget data on homeless spending come from the 2018 budget appropriations data portal.[9] The dollar amount from the budget is divided by the household count to approximate the money the city spent in 2018 per homeless household.

Seattle. The count of people experiencing homeless in Seattle comes from the AHAR to Congress and its PIT estimates for 2018 (Henry et al. 2018). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2018 PIT survey found that 67 percent of the homeless were single, so the remaining 33 percent of the people in the Seattle count are divided by 3.2 (the average size of families experiencing homelessness) to approximate families (Henry et al. 2018).

Seattle budget data on homeless spending come from the 2018 budget appropriations data portal.[10] The dollar amount from the budget is divided by the household count to approximate the money the city spent per homeless household in 2018.

Utility Payment Estimates

To determine how much money each city might lose in utility revenue in 2018, we collect data about the public utilities in each city. In 2018, five cities taxed residential electricity usage: Chicago, Dallas, Houston, Los Angeles, and New York City. All 10 had publicly owned water utility companies, but only three, Columbus, San Francisco, and Seattle, had publicly owned electricity companies. Only applicable bills for publicly operated utilities and taxes are counted in calculating the cost to each city of a household missing its utility bills.

The following section describes the data sources and assumptions we make for each city's estimate of lost revenue because of missed payments for utility bills.

Chicago. Annual water and sewer bill estimates in 2018 in Chicago are from local newspaper sources.[11] Monthly trash fees collected by the city of $9.50 are added to this average water and sewage bill to estimate the average household cost of public utilities.[12]

Chicago does not have a public electric company, but it charges its residents a 0.628 cent utility tax on their electricity usage for the first 2,000 kilowatt hours (kwh) per month.[13] The average monthly residential electricity usage in Illinois in 2018 was 755 kwh, so the municipal tax paid each year is calculated based on these data points.[14] The cost of these utility taxes for electricity is added to the estimated household cost of public utilities to estimate costs to the city of a household missing utility bills.

Columbus. Annual water and sewer bill estimates in 2018 are from average bills for a family of four as reported by the Department of Public Utilities of the City of Columbus.[15]

Columbus has a small public electric company that serves approximately 14,000 residential customers.[16] The average electric bill in the City of Columbus was $95.00 in 2019 as reported by the Public Utilities Commission of Ohio (2019). The electricity estimate for Columbus is calculated for the 14,000 public electricity users, rather than the whole population. This is added to the average water and sewer bill estimate to estimate costs to the city of a household missing utility bills.

Dallas. Annual water and sewer bill estimates in Dallas are calculated using local newspaper data on the average water usage in Dallas in 2012 (110 gallons of water per day per household) and city-reported water and sewer billing rates for 2018.[17] Monthly $27.26 trash fees collected by the city are added to this average water and sewage bill to estimate the average household cost of public utilities.[18]

Dallas does not have a public electric or gas company, but it charges its residents a 1 percent utility tax on their usage.[19] The average monthly residential gas bill in 2017 was $28.81.[20] The average monthly residential electricity bill in deregulated Texas energy markets (like Dallas and Houston) was $240.00 in 2018, so the municipal tax paid each year is calculated based on these data points.[21] The cost of these utility taxes for electricity and gas is added to the estimated household cost of public utilities to estimate costs to the city of a household missing utility bills.

Houston. Annual water and sewer bill estimates in Houston are calculated using typical water usage estimates from Circle of Blue for 2016 (6,000 gallons per household per month) and 2018 city water and sewage rates.[22]

Houston does not have a public electric or gas company but it charges its residents a 1 percent utility tax on their usage.[23] The average monthly residential gas bill in 2013 was $40.33.[24] The average monthly residential electricity bill in deregulated Texas energy markets (like Dallas and Houston) was $240.00 in 2018, so the municipal tax paid each year is calculated based on these data points.[25] The cost of these utility taxes for electricity and gas is added to the estimated household cost of public utilities to estimate costs to the city of a household missing utility bills.

Los Angeles. Annual water and sewer bill estimates in 2018 in Los Angeles are from local newspaper sources.[26] Monthly trash fees collected by the city of $36.32 for single homes and duplexes are added to this average water and sewage bill to estimate the average household cost of public utilities.[27]

Los Angeles does not have a public electric or gas company, but it charges its residents a 10 percent utility tax on their usage.[28] The average monthly residential gas bill in California in 2019 was $35.00.[29] The average monthly residential electricity bill among homeowners in 2017 was $85.00, so the municipal tax paid each year is calculated based on these data points.[30] The cost of these utility taxes for electricity and gas is added to the estimated household cost of public utilities to estimate costs to the city of a household missing utility bills.

Miami. Annual water and sewer bill estimates in 2018 in Miami are from the Miami-Dade Water and Sewer Department, based on consumption of 5,200 gallons of water per household per month.[31] Miami does not have a public electric or gas company, and it does not charge its residents a utility tax on their usage. As a result, the cost to the city of a household missing its utility bill includes only water and sewer data, as it is the only publicly operated utility.

New Orleans. Annual water and sewer bill estimates in New Orleans are calculated using average 2014 water usage estimates of 7,480 gallons per household per month and 2018 city water and sewage rates.[32] Monthly $24.00 trash fees collected by the city are added to this average water and sewage bill to estimate the average household cost of public utilities.[33] New Orleans does not have a public electric or gas company and it does not charge its residents a utility tax on their usage. As a result, the cost to the city of a household missing its utility bill includes only water and sewer data, as it is the only publicly operated utility.

New York City. Annual water and sewer bill estimates in 2017 in New York City are from local newspaper data.[34]

New York City does not have a public electric or gas company, but it charges its residents a 2.35 percent utility tax on their usage (New York City Independent Budget Office). The average monthly

residential gas bill in 2018 was $164.51.[35] The average monthly residential electricity bill among homeowners in 2018 was $77.30, so the municipal tax paid each year is calculated based on these data points.[36] The cost of these utility taxes for electricity and gas is added to the estimated household cost of public utilities to estimate costs to the city of a household missing utility bills.

San Francisco. Annual water and sewer bill estimates in 2018 in San Francisco are from local newspaper data, citing the San Francisco Public Utilities Commission.[37] Monthly $40.04 trash fees collected by the city are also counted.[38]

The City of San Francisco has a publicly owned electric company with an average bill of $70.99, as reported by Clean Power SF, the public utility company.[39] It serves approximately 96 percent of all customers in the city.[40] The electricity estimate for San Francisco is calculated for these public electricity users, rather than the whole population. This amount is added to the average water and sewer bill estimate to estimate costs to the city of a household missing utility bills.

Seattle. Annual water and sewer bill estimates in Seattle are calculated using typical household water usage estimates for 2016 from Circle of Blue (3,740 gallons per household per month) and 2018 city water and sewage rates from Seattle Public Utilities.[41] Monthly trash fees of $37.15, assuming a trash can size of 32 gallons, collected by the city are also counted.[42]

The City of Seattle has a publicly owned electric company with an average bill of $188.00 for homes as reported by Seattle Light, the public utility company.[43] This bill is added to the average water and sewer bill estimate to estimate the costs to the city of a household missing utility bills.

Notes

1 City-specific household counts come from "Households and Families: 2017 American Community Survey 1-Year Estimates," US Census Bureau, American Fact Finder, accessed October 15, 2019, https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t#none.

2 City-specific unemployment rates for 2018 come from "Local Area Unemployment Statistics: Unemployment Rates for the 50 Largest Cities," Bureau of Labor Statistics, last updated April 19, 2019, https://www.bls.gov/lau/lacilg18.htm. Data for New Orleans, which is also a county (Orleans Parish), come from "Labor Force Data by County, 2019 Annual Averages," Bureau of Labor Statistics, last updated April 19, 2019, https://www.bls.gov/lau/laucnty18.txt. The national unemployment rate for 2018 (3.9 percent) comes from "Databases, Tables, and Calculators by Subject: Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, accessed October 15, 2019, https://data.bls.gov/timeseries/LNU04000000?years_option=all_years&periods_option=specific_periods&periods=Annual+Data.

3 All property tax data come from "Mortgage Status by Median Real Estate Taxes Paid (Dollars): Universe: Owner-Occupied Housing Units, 2017 American Community Survey 1-Year Estimates," US Census Bureau, American Fact Finder, accessed October 15, 2019, https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?

refresh=t#none. Detailed information on the choice of median property values can be found in the 2017 section of this appendix. The 2017 property tax estimates used 2015 ACS data.

[4] "Budget-2018 Budget Ordinance-Appropriations," City of Chicago, accessed October 15, 2019, https://data.cityofchicago.org/Administration-Finance/Budget-2018-Budget-Ordinance-Appropriations/6g7p-xnsy/data.

[5] Includes portions of the funding for the Community Development Block Grant Housing, Finance and Management, Continuum of Care, Rebuilding Lines, and Social Services Programs.

[6] "Expense Budget 2018," City of Los Angeles, accessed October 15, 2019, http://openbudget.lacity.org/#!/year/2018/operating/0/program_priority.

[7] Includes items for homeless healthcare services, homeless evaluation, low-barrier shelters, emergency shelter programs, and shelter plus care.

[8] "2018 IHAC Final Report," Interagency Homeless Accountability Council, accessed October 15, 2019, https://www1.nyc.gov/assets/dhs/downloads/pdf/2018_ihac_final_report.pdf.

[9] Removed capital budget and spending from net total budget spending to ensure consistency with other city budgets, which only include operating budget costs. "City and County of San Francisco: SF Open Book Budget," City and County of San Francisco, accessed October 15, 2019, http://openbook.sfgov.org/.

[10] Removed capital budget and spending on homeless initiatives to ensure consistency with other city budgets, which only include operating budget costs. "Division of Homeless Strategy and Investment broken down by Service," City of Seattle, accessed October 15, 2019, http://openbudget.seattle.gov/#!/year/2018/operating/0/program/Division+of+Homeless+Strategy+and+Investment/0/service?vis=barChart.

[11] "Chicago's Water Prices Are Skyrocketing Faster Than Oher Great Lakes Cities," WBEZ, accessed October 15, 2019, https://www.wbez.org/shows/wbez-news/chicagos-water-prices-are-skyrocketing-faster-than-other-great-lakes-cities/69951240-ea15-40c7-a649-5b6787e35b6b.

[12] "Garbage Fee," City of Chicago, accessed October 15, 2019, https://www.chicago.gov/city/en/depts/fin/provdrs/city-of-chicago-garbage-fee-webpage.html

[13] "Rider Tax: Municipal and State Tax Additions," Commonwealth Edison Company, accessed October 15, 2019, https://www.comed.com/SiteCollectionDocuments/MyAccount/MyBillUsage/CurrentRates/18_RiderTAX.pdf

[14] "How Much Electricity on Average Do Homes in Your State Use?" Electric Choice, accessed October 15, 2019, https://www.electricchoice.com/blog/electricity-on-average-do-homes/

[15] "Average Bill," Department of Public Utilities of the City of Columbus, accessed October 15, 2019 https://www.columbus.gov/Templates/Detail.aspx?id=2147500552

[16] "Power FAQs: Electricity," City of Columbus, accessed October 15, 2019, https://www.columbus.gov/utilities/customers/Power-FAQ-s/.

[17] "In Dallas Area, High Water Use Can Be Tied to Affluence," *Dallas News*, accessed October 15, 2019, https://www.dallasnews.com/news/news/2012/07/28/in-dallas-area-high-water-use-can-be-tied-to-affluence; "Monthly Payment Rates," Dallas Water Utilities, accessed October 15, 2019, https://dallascityhall.com/departments/waterutilities/DCH%20Documents/monthly_rate_sheet.pdf.

[18] "Sanitation Services Frequently Asked Questions," City of Dallas, accessed October 15, 2019, https://dallascityhall.com/departments/sanitation/pages/faqs_refuse.aspx.

[19] This falls technically under Texas's city sales and use tax. "City Sales and Use Tax," Texas Comptroller, accessed October 15, 2019, https://comptroller.texas.gov/taxes/sales/city.php.

[20] "Atmos Rate Case: Proposed Settlement," City of Dallas, accessed October 15, 2019, https://dallascityhall.com/government/Council%20Meeting%20Documents/c_atmos-rate-case-proposed-settlement_combined_020718.pdf.

[21] "Here's How You Can Lower Your Electric Bill, but Make Sure You Read the Fine Print," *Fort Worth Star-Telegram*, accessed October 15, 2019, https://www.star-telegram.com/news/business/article195970484.html.

[22] "Infographic: Average U.S. Household Water Use and Bills, 2015-16," Brett Walton, Circle of Blue, accessed October 15, 2019, https://www.circleofblue.org/2016/water-management/pricing/infographic-average-u-s-

household-water-use-bills-2015-16/; "2018 Water and Sewer Rates," Custom Account Services at Houston Public Works, accessed October 15, 2019, https://houtonwater20.helpdocsonline.com/utility-rates.

[23] This falls technically under Texas's city sales and use tax. "City Sales and Use Tax," https://comptroller.texas.gov/taxes/sales/city.php.

[24] "Twenty-Five Texas Cities Average Annual Natural Gas Consumption Residential," CPS Energy, accessed October 15, 2019, https://www.rrc.state.tx.us/media/27231/25-avg-ann-con-res-2014.pdf.

[25] "Here's How You Can Lower Your Electric Bill," *Fort Worth Star-Telegram.*

[26] "Californians Are Struggling to Pay for Rising Water Rates," Water Deeply, accessed October 15, 2019, https://www.newsdeeply.com/water/articles/2018/02/27/californians-are-struggling-to-pay-for-rising-water-rates.

[27] "LASAN Billing," City of Los Angeles, accessed October 15, 2019, https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-au-r-b?_adf.ctrl-state=12za655teg_5&_afrLoop=6368478913008211#!

[28] "Utilities Subject to Tax," City of Los Angeles, accessed October 15, 2019, http://www.uutinfo.org/uutinfo_city_info/los_angeles/uutinfo_los_angeles.htm

[29] "Most & Least Energy-Expensive States," Adam McCann, WalletHub, accessed October 15, 2019, https://wallethub.com/edu/energy-costs-by-state/4833/

[30] "What Is the Average Electricity Bill in Los Angeles?" Understand Solar, accessed October 15, 2019, https://understandsolar.com/average-electricity-bill-los-angeles/

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2017 Appendix

The financial health of cities depends on financially secure residents. Previous research has shown that families with even a small amount of readily available savings—from $250 to $749 in assets—are less likely to be evicted, miss a housing or utility payment, or receive public benefits when income disruptions occur (McKernan et al. 2016). But 36 percent of American families have less than $250 in nonretirement savings. Additionally, 30 percent of Americans have subprime credit scores, which limit access to credit during a crisis (Elliott, Ratcliffe, and Kalish 2016). Because many American families have low levels of savings and subprime credit scores, they are vulnerable to financial disruptions.

The precarious financial health of American families has spillover costs for cities. When families are evicted or cannot make housing or utility payments, cities lose revenue in missed property taxes and lost utility revenue and bear additional expenditures through providing services to the homeless. To quantify these links, we build upon this prior research to create 10 city-specific fact sheets (Chicago, Columbus, Dallas, Houston, Los Angeles, Miami, New Orleans, New York City, San Francisco, and Seattle) to show the cost of family financial insecurity to each city's budget. This document presents the logic, assumptions, and data behind these fact sheets.

Logic, Assumptions, and Data

The logic models illustrate the steps involved to calculate the cost of household financial insecurity to cities, drawing upon national- and city-level data, including data from the US Census Bureau, the Bureau of Labor Statistics, and city budget estimates. We also generate household-level estimates of savings and of the risk of eviction and missed utility or mortgage payments among households with less than $2,000 in nonretirement savings. The following section describes each stage in the logic models, from *establishing the base population* of households with income or expense disruptions in each city, to *determining the percentage of households in each city with assets below $2,000*, to *estimating the cost of eviction, unpaid utility bills, and missed property tax payments* for each city. The costs to cities for each outcome (i.e., eviction, missed mortgage payments, and unpaid utility bills) are estimated through separate logic models and are then combined to produce a cost to the city government's bottom line.

Establishing the Base Population

The first step in the logic model (stage 1), regardless of the household outcome being studied (i.e., eviction, missed mortgage payment, or unpaid utility bills) is to determine the number of households in each city likely to experience income or expense disruption. Based on Urban's prior work using data from the 2008 panel of the Survey of Income and Program Participation (SIPP), 26 percent of households experience an income disruption each year because of an involuntary job loss, the onset of a health-related work limitation, or an income drop of 50 percent or more (McKernan et al. 2016). Other research finds that 60 percent of American households annually experience a financial shock—including income and expense disruptions—such as a car or home repair, illness or injury that included a hospital visit, or a loss of income from unemployment, a pay cut, or reduced hours (Pew 2015). We use 26 percent as a lower-bound estimate for income disruptions and 60 percent as an upper-bound estimate for experiencing a financial shock, which includes income *and* expense disruptions. Both the lower- and upper-bound percentages are multiplied by the 2015 US Census Bureau counts of households in each city from the American Community Survey, or ACS (appendix table A.2).[1] The resulting counts are used to produce the range of households that would theoretically experience income or expense disruptions that year.

APPENDIX TABLE A.2

City Estimates Used to Calculate Cost of Household Financial Insecurity

	Households	Owner-occupied housing units (%)	Unemployment rate (%)	Estimated share of households with less than $2,000 liquid savings (%)	Annual spending per homeless family ($)	Annual utilities revenue per household ($)	Annual median property taxes per homeowner household ($)
Chicago	1,053,229	43.8	6.4	61.5	1,457	1,092	3,590
Columbus	344,839	44.5	4.1	56.9	3,828	1,530	2,612
Dallas	495,362	41.4	4.1	64.7	6,983	1,320	3,119
Houston	849,974	41.4	4.3	61.8	11,627	1,824	2,841
Los Angeles	1,360,164	36.0	7.1	61.3	464	2,673	3,841
Miami	171,720	28.2	6.1	72.8	13,336	1,090	2,652
New Orleans	156,591	46.3	6.5	65.2	1,926	1,219	1,689
New York City	3,129,147	31.6	5.7	60.6	15,459	1,836	4,256
San Francisco	356,916	35.8	3.6	46.6	20,162	3,120	5,976
Seattle	311,038	46.6	4.1	46.2	4,704	4,411	4,199
Sources:	2015 ACS one-year data	2015 ACS one-year data	BLS 2015	Urban Institute model using data from 2013 SIPP and 2014 ACS	Various sources (2014 and 2015)	Various sources 2015	2015 ACS one-year data

Note: The various sources used to estimate annual homeless spending and utilities revenue in each city are described in the "City-Level Data" section.

Finally, cities have different local economies, so the range of households affected by income or expense disruptions would be theoretically lower in cities with stronger economies (unemployment rates below the national rate) and higher in cities with weaker economies (unemployment rates above the national rate, which was 5.3 percent in 2015). The range of households affected by income and expense disruptions was multiplied by the ratio of the city-specific unemployment rate relative to the national rate, from 2015 Bureau of Labor Statistics (BLS) data (appendix table A.2).[2] This produces a final unemployment rate–adjusted range of the percentage and number of households in each city that we estimate experience income or expense disruptions. These estimates are then used to calculate the cost to the city of households becoming evicted, missing mortgage payments, and not paying utility bills.

Estimating the Share of Households in Each City with Nonretirement Savings below $2,000

Fifty-two percent of households nationwide have less than $2,000 in nonretirement savings (McKernan et al. 2016). But some cities have residents who are more economically secure than those in other cities, suggesting that savings may vary, too. This study estimates the share of households that have less than $2,000 in nonretirement liquid assets for our 10 cities through a two-step data analysis using SIPP and ACS data (appendix table A.2). First, we use national-level SIPP data from the 2008 panel (specifically from data collected in 2011) to estimate with a logit regression model the relationship between whether a household has more or less than $2,000 in liquid assets and household demographic and economic factors. The model includes age, income, family composition, education level, immigration status, homeownership, race/ethnicity, employment status, and disability status. Then, we use the resulting national-level coefficients from the SIPP model and city-specific household-level ACS data from 2014 to predict the share of households in each city that have less than $2,000 in savings. The resulting percentages from the SIPP/ACS model are then used in each subsequent logic model (i.e., eviction, unpaid utility bills, and missed property tax payments) to calculate the number of households in each city with low levels of savings.

Estimating the Cost of Eviction

Eviction could be prevented if households had a better savings cushion to pay their rent during difficult financial times. When families are evicted, they may become homeless, and this presents a significant cost to cities. The logic model for eviction illustrates how the number of households who would have

been evicted after an income or expense disruption because of low savings is estimated and what the cost to each city would be for these evictions.

As the logic model shows, there are three stages for estimating the cost to cities from evictions of financially insecure residents (appendix figure A.1). The model for evictions takes the percentage of households in the city that experience an income or expense disruption (calculated in stage 1), estimates how many households would have been evicted after an income disruption or financial shock because they lacked $2,000 in available savings (stage 2), then uses that number to calculate the cost to the city because of eviction-related homelessness (stage 3).

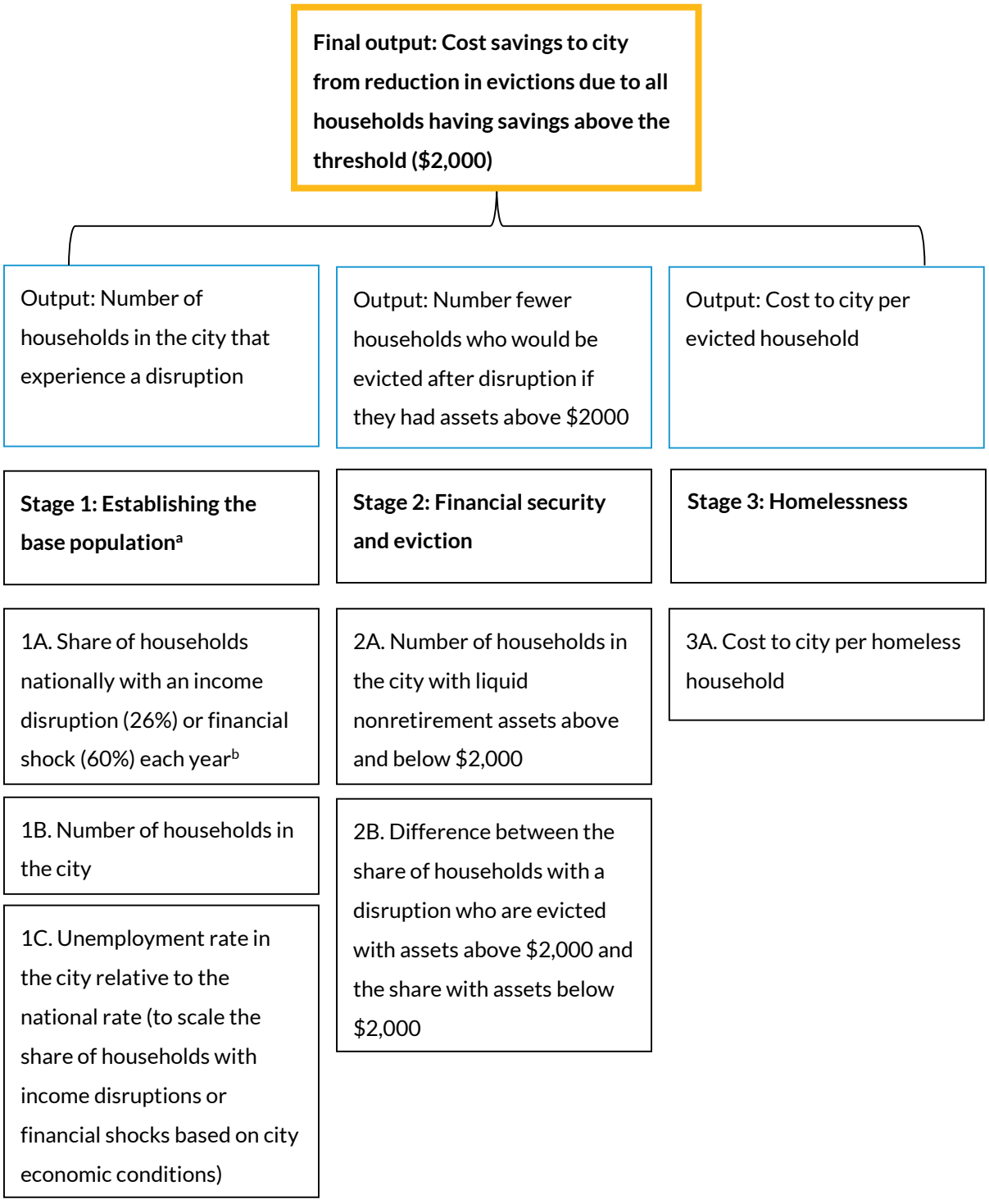
Stage 2 in the eviction model—calculating the number of households evicted because they lacked $2,000 in savings—has multiple steps. First, the share of households with savings below $2,000 with income or expense disruptions is calculated, first by multiplying the city's household count by the percentage who had an income disruption (calculated in stage 1), and then by the percentage having liquid assets below $2,000 (calculated in the SIPP/ACS model). This produced a count of households in each city with assets above and below $2,000 for those with an income disruption (26 percent) at the lower bound and a financial shock (60 percent) at the upper bound.

The resulting household counts are then multiplied by eviction rates from the SIPP for households having less than $2,000 in savings (1.3 percent) and more than $2,000 in savings (0.09 percent). The difference of these two counts produced the number of households in each city who had less than $2,000 in liquid savings and were evicted because of their low savings when experiencing income disruptions (lower bound) or financial shocks (upper bound).

While stage 2 in the logic model is used to calculate the households evicted because of low savings, stage 3 calculates the cost to the city. The final cost estimate for each city is produced by multiplying the amount the city spends per homeless household by the lower- and upper-bound counts of households with less than $2,000 in savings who were evicted because of an income disruption or financial shock (calculated in stage 2).[3] The result is a range of estimates of the cost to cities of households having less than $2,000 in savings and therefore becoming evicted and using city homeless services. These estimates are later used, along with the cost of unpaid utility bills and missed mortgage payments, to produce a final cost to cities of residents' financial insecurity (see "Estimating the Total Cost of Eviction, Unpaid Utility Bills, and Missed Property Tax Payments.")

APPENDIX FIGURE A.1

Cost to Cities of Eviction Logic Model



[a] Stage 1 is calculated in the same way across all three logic models.

[b] Only renters can become evicted, but all households are included in 2B. Therefore, all households are included in 1A and 1B.

Estimating the Cost of Unpaid Utility Bills

Unpaid utility bills reflect financial distress among households who do not have enough money to pay for basic needs each month. When households cannot pay their utility bills, public utilities may have difficulty covering their operating costs, which affects city budgets. Los Angeles and Chicago tax residential electricity usage, so when bills to the public electricity company are unpaid, the city loses revenue. The logic model for unpaid utility bills illustrates how the number of households who could not make payments after income or expense disruptions is estimated and how much that costs cities.

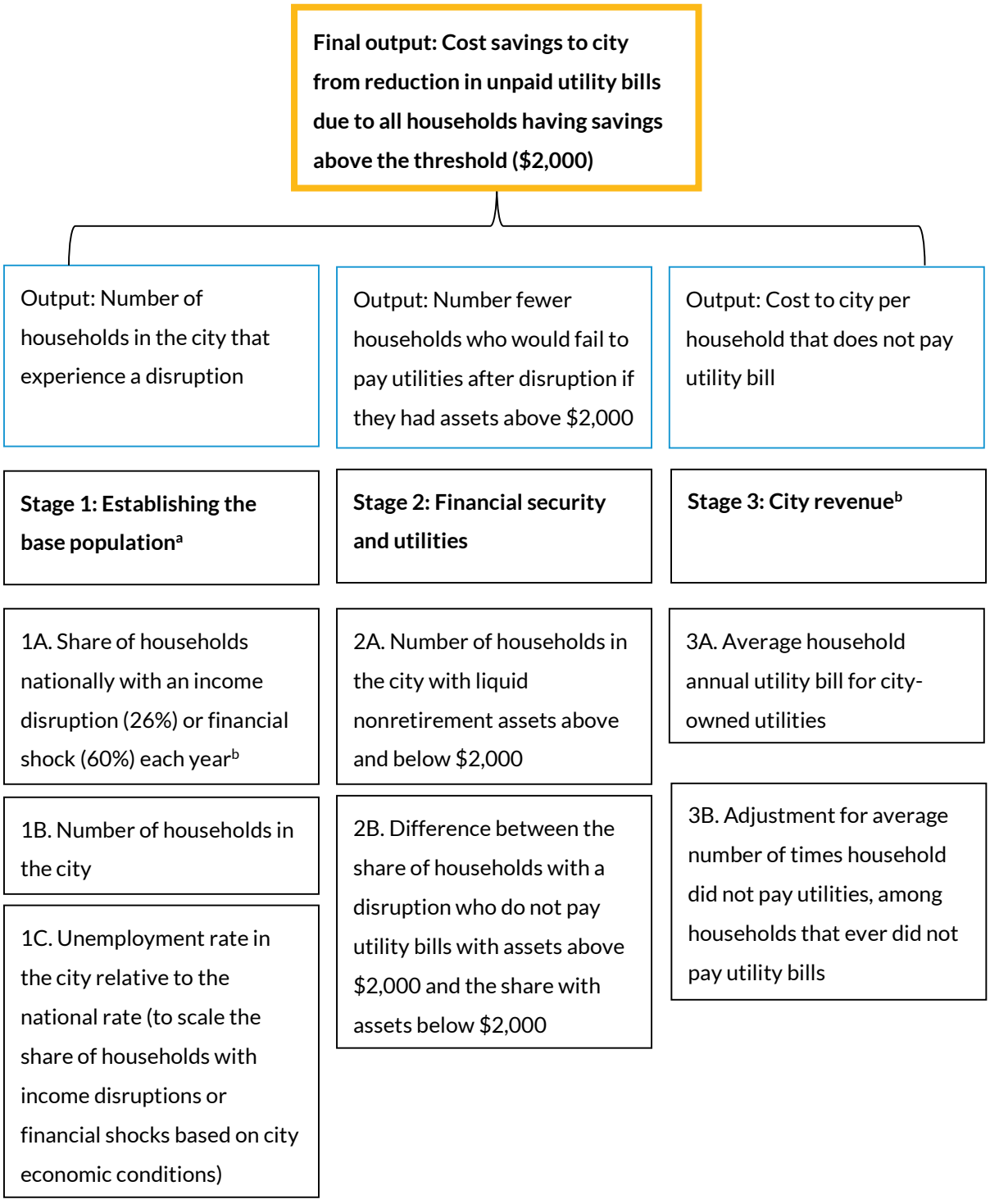
As the logic model shows, there are three stages for estimating the cost to cities from unpaid utility bills of financially insecure residents (appendix figure A.2). The model for unpaid utility bills takes the percentage of city households that experience a disruption (calculated in stage 1), estimates how many households could not pay utilities bills after an income disruption or financial shock because they lacked $2,000 in available savings (stage 2), then uses that number to calculate the cost to the city because of such unpaid bills (stage 3).

Stage 2 in the utilities model—calculating the number of households who missed utility payments because they lacked $2,000 in savings—has multiple steps. First, the number of households with savings below $2,000 with income or expense disruptions is calculated (see "Estimating the Cost of Eviction" for additional details). The resulting household counts are then multiplied by missed utility payment rates from the SIPP for households having less than $2,000 in savings (22.2 percent) and more than $2,000 in savings (7.1 percent). The difference of these two counts produces the number of households in each city who had less than $2,000 in liquid savings and missed utility payments because of their low savings when experiencing income disruptions (lower bound) or financial shocks (upper bound).

While stage 2 in the model describes how the households who missed utility payments because of low savings are calculated, stage 3 describes how the cost to the city is calculated. The final cost estimate for each city is produced by multiplying the yearly amount each household pays toward publicly operated utilities by the average number of months in a year that households who missed payments reported not paying (about six months) to produce a prorated annual amount left unpaid.[4] This estimate is then multiplied by the lower- and upper-bound counts of households with less than $2,000 in savings who did not pay utility bills because of an income disruption or financial shock (calculated in stage 2) to produce a range of lost utility revenue for the city. For Los Angeles and Chicago, the only two cities profiled that tax their residents' electricity usage, the average yearly utility tax revenue collected per household is also added to the calculations.

APPENDIX FIGURE A.2

Cost to Cities of Unpaid Utilities Bills Logic Model



[a] Stage 1 is calculated in the same way across all three logic models.

[b] Not all cities receive revenue from the same utilities, though all cities studied have some public utilities.

Estimating the Cost of Missed Property Tax Payments

When homeowners have difficulty paying their property taxes, it typically reflects tremendous financial stress and puts homeowners at risk of losing their home. When households cannot pay their property taxes, city budgets are often affected because so much of city revenue comes from property taxes. The logic model for missed property tax payments is used to calculate the number of homeowners who could not pay their property taxes after an income or expense disruption and how much that costs cities.

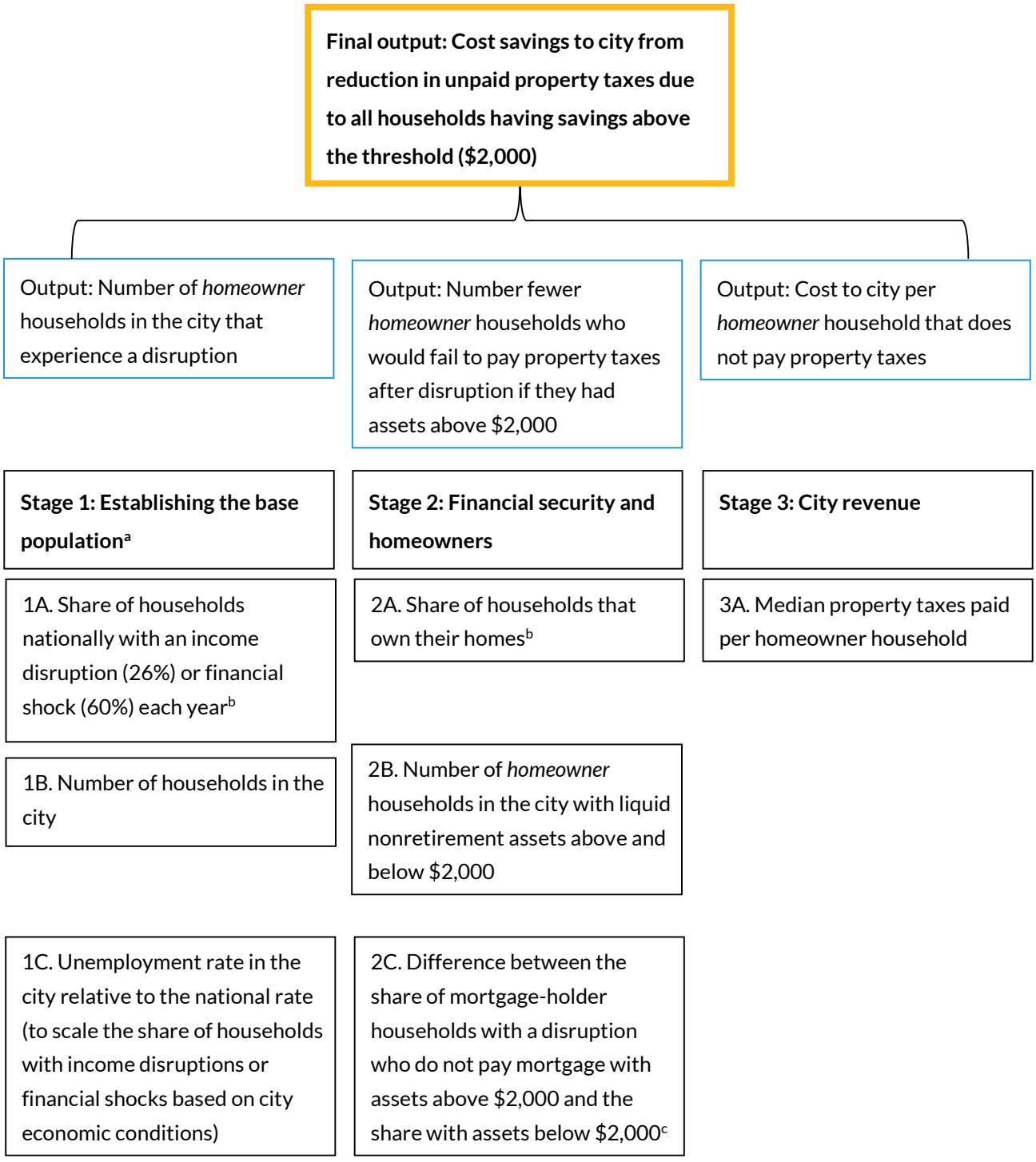
The logic model for missed property taxes takes the percentage of households in each city that experience a disruption (calculated in stage 1), estimates how many homeowners with and without mortgages could not pay their property taxes after an income disruption or financial shock because they lacked $2,000 in available savings (stage 2), and then uses those numbers to calculate the cost to the city because homeowners did not pay property taxes (stage 3; see appendix figure A.3).

Stage 2 in the property taxes model—calculating the number of homeowner households who missed property tax payments because they lacked $2,000 in savings—has multiple steps. First, the share of homeowner households (mortgage and nonmortgage holders) with savings below $2,000 with income or expense disruptions is calculated (see "Estimating the Cost of Eviction" for additional details). The resulting household counts are then multiplied by the percentage of mortgage-paying homeowners who missed mortgage payments in the SIPP and had less than $2,000 in savings (21.3 percent) and more than $2,000 in savings (6.6 percent).[5] In doing so, we derive estimates that assume all homeowners miss their property tax payments at the same rate at which mortgage holders miss their mortgage payments. Therefore, the difference of these two counts produces the number of households in each city who had less than $2,000 in liquid savings and missed property tax payments because of their low savings when experiencing income disruptions (lower bound) or financial shocks (upper bound).

While stage 2 in the model describes how the homeowner households in each city who missed mortgage (and property tax) payments because of low savings is calculated, stage 3 describes how the cost to the city is calculated. The final cost estimate for each city is produced by multiplying homeowners with low liquid savings who missed paying property taxes by the median yearly amount homeowners paid toward property taxes (from the 2015 ACS 1-year estimates, reported in appendix table A.1; medians were used here instead of averages to minimize skew from high-value homes).[6] These estimates are produced for both the upper- and lower-bound estimates for income or expense disruptions (stage 2) to produce a range of the cost of lost property tax revenue for the city.

APPENDIX FIGURE A.3

Cost to Cities of Unpaid Property Taxes Logic Model



[a] Stage 1 is calculated in the same way across all three logic models.

[b] Models include homeowners only; failure to pay rent is not hypothesized to affect property taxes at a meaningful magnitude.

[c] Includes mortgage holders only; homeowners who own their homes outright do not have monthly housing payments.

Estimating the Total Cost of Eviction, Unpaid Utility Bills, and Missed Property Tax Payments

Finally, to calculate a final cost to cities' budgets because of eviction, missed property taxes, and missed utility payments, all city subtotals are added together for both the lower- and upper-bound estimates. Thus, a range of costs is produced inclusive of the three factors (eviction, unpaid utility bills, and missed property tax payments) for each city.

City-Level Data

To derive final costs to cities of residents' financial insecurity, several data sources are used to produce the estimates of the cost of homelessness and the cost of missed utility bills. Property tax data are not described in this section because these estimates are all from the American Community Survey. The following describes the sources and assumptions behind the homelessness and utility bill estimates.

Homelessness Cost Estimates

To determine how much each city spent per homeless family in 2014–15, we use the number of homeless and the budget for homeless spending in the city. The following section describes the data sources and assumptions made for each city's estimate of the cost of caring for a homeless family.

Chicago. The count of homeless people in Chicago comes from the Annual Homeless Assessment Report (AHAR) to Congress and its point-in-time (PIT) estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the Chicago count are divided by two to approximate families. The number of homeless family units in Chicago is 82 percent of the number of homeless individuals.

Chicago budget data on homeless spending comes from the 2015 budget appropriations data portal and includes the line items for homeless services for youth and homeless services from the local budget.[7] The resulting dollar amount from the budget is divided by the household count to approximate the money the city spent in 2014–15 per homeless household.

Columbus. The City of Columbus does not list homeless spending in its 2014–15 fiscal year budget. The estimate for the money it spent per temporarily homeless family came from Spellman and coauthors (2010, 5–3).

Dallas. The 2014–15 Dallas budget provides the calculated estimate of the money spent per homeless family in the fiscal year 2015 proposed budget book (City of Dallas 2014).

Houston. The City of Houston does not list homeless spending in its 2014–15 fiscal year budget. The estimate for the money it spent per temporarily homeless family came from Spellman and coauthors (2010, 5–11).

Los Angeles. The count of homeless in Los Angeles (i.e., the city and county) comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the Los Angeles count are divided by two to approximate families. The number of homeless family units in Los Angeles is 82 percent of the number of homeless individuals.

Los Angeles budget data on homeless spending comes from the 2014–15 fiscal year adopted budget (City of Los Angeles 2014, 185 and 401). The dollar amount from the budget is divided by the household count to approximate the money spent in 2014–15 per homeless household.

Miami. The count of homeless in Miami (i.e., the city of Miami and Miami-Dade County) comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the Miami count are divided by two to approximate families. The number of homeless family units in Miami is 82 percent of the number of homeless individuals.

Miami budget data on homeless spending comes from the 2014–15 adopted budget and includes all expenditures for the homeless trust listed on page 163, with the exception of the domestic violence board line item.[8]

New Orleans. The count of homeless in New Orleans (specifically New Orleans and Jefferson Parish) comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the New Orleans count are divided by two to approximate families. The number of homeless family units in New Orleans is 82 percent of the number of homeless individuals.

New Orleans budget data on homeless spending come from the 2015 budget and includes expenses for homeless health care services from the operating budget book (City of New Orleans 2014, 264).

New York City. The count of homeless in New York City comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the New York City count are divided by two to approximate families. The number of homeless family units in New York City is 82 percent of the number of homeless individuals.

New York City budget data on homeless spending came from the 2015 adopted budget (Council of the City of New York 2015, 2).

San Francisco. The count of homeless in San Francisco comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the San Francisco count are divided by two to approximate families. The number of homeless family units in San Francisco is 82 percent of the number of homeless individuals.

San Francisco budget data on homeless spending comes from the 2014–15 adopted budget (City and County of San Francisco 2014, 161).

Seattle. The count of homeless in Seattle (i.e., the city of Seattle and King County) comes from the AHAR to Congress and its PIT estimates for 2015 (Henry et al. 2015). To approximate the number of households affected, the census count is converted from individuals to a household approximation. The 2015 PIT survey found that 64 percent of the homeless were single, so the remaining 36 percent of the people in the Seattle count are divided by two to approximate families. The number of homeless family units in Seattle is 82 percent of the number of homeless individuals.

Seattle budget data on homeless spending comes from the 2015 adopted budget information for emergency and transitional services (City of Seattle 2015, 197).

Utility Payment Estimates

To determine how much money each city might lose in utility revenue in 2015, we collect data about the public utilities in each city. The following section describes the data sources and assumptions we make for each city's estimate of lost revenue because of missed payments for water and electric utility bills.

Chicago. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[9] These usage estimates are then combined with city-specific rate information to estimate an average household cost.

Chicago does not have a public electric company, but charges its residents a utility tax on its usage of 0.628 cents for the first 2,000 kilowatt hours (kwh) per month. The average monthly residential electricity usage in Illinois in 2015 was 719 kwh, and the bill was $89.91,[10] so the municipal tax paid each year is calculated based on these data points.

Columbus. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[11] These usage estimates are then combined with city-specific rate information to estimate an average household cost.

Columbus has a small public electric company that serves approximately 14,000 residential customers.[12] The average monthly residential electricity usage in Ohio in 2015 was 877 kwh,[13] and residential public utility customers in Columbus are charged $.0873/kwh with a $10.70 billing fee. The electricity estimate for Columbus is calculated for the 14,000 public electricity users, rather than the whole population.

Dallas. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[14] These usage estimates are then combined with city-specific rate information to estimate an average household cost. Dallas has no public electric company.

Houston. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[15] These usage estimates are then combined with city-specific rate information to estimate an average household cost. Houston has no public electric company.

Los Angeles. Annual water usage estimates for 2015 are based upon calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[16] These usage estimates are then combined with city-specific rate information to estimate an average household cost.

Los Angeles does not have a public electric company, but it does charge a 10 percent utility tax on its usage among residents. The average California residential customer used 577 kwh per month in 2015.[17] The average public electricity bill paid in Los Angeles for a 500 kwh customer in October 2014 ($78.88), as published in the *Los Angeles Times*,[18] is used to calculate the annual utility users tax paid per household.

Miami. Annual water usage estimates for 2015 are made comparable to the other cities by calculating rates for a residential customer who uses 12,000 gallons of water a month (the amount a household was estimated to have used in other cities). The average monthly bill published by the Miami-Dade Water and Sewer Department is $51.11 for 6,750 gallons.[19] The monthly bill is then adjusted to reflect 12,000 gallons of monthly usage. Miami has no public electric company.

New Orleans. Annual estimates for water and sewer bills are compiled from the Sewerage and Water Board of New Orleans rates.[20] To be consistent with the other cities, estimates are based on a household of four people using 100 gallons of water per day in a month (or 12,000 gallons of water a month, the amount a household was estimated to have used in other cities). The charges for water service and quantity, sewage service and volume, and the annual safe drinking water administrative fee are compiled into one annual charge for such a household. New Orleans has no public electric company.

New York City. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[21] These usage estimates are then combined with city-specific rate information to estimate an average household cost. New York City has no public electric company.

San Francisco. Annual water usage estimates for 2015 are based on calculations of the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[22] These usage estimates are then combined with city-specific rate information to estimate an average household cost. San Francisco has no public electric company.

Seattle. Annual water usage estimates for 2015 are based on calculations from the average monthly bill across 30 cities, which finds that households of four would pay to use 100 gallons of water per person per day for water, sewage, and storm water services.[23] These usage estimates are then combined with city-specific rate information to estimate an average household cost.

Seattle's public electric company, Seattle City Light, published its average residential power bill for 2015 in its annual report (Seattle City Light 2015, 77).

Notes

1 City-specific household counts come from "Households and Families: 2015 American Community Survey 1-Year Estimates," US Census Bureau, American Fact Finder, accessed January 10, 2017, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_1YR_S1101&prodType=table.

2 City-specific unemployment rates for 2015 come from "Local Area Unemployment Statistics: Unemployment Rates for the 50 Largest Cities," Bureau of Labor Statistics, last updated April 15, 2016, https://www.bls.gov/lau/lacilg15.htm. Data for New Orleans, which is also a county (Orleans Parish), come from "Labor Force Data by County, 2015 Annual Averages," Bureau of Labor Statistics, last updated April 15, 2016, https://www.bls.gov/lau/laucnty15.txt. The national unemployment rate for 2015 (5.3 percent) comes from "Databases, Tables, and Calculators by Subject: Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, accessed January 10, 2017, https://data.bls.gov/timeseries/LNU04000000?years_option=all_years&periods_option=specific_periods&periods=Annual+Data.

3 The eviction model assumes that all the people evicted in our model use city homeless services. This assumption helps compensate for low and uncertain measurement of the evicted population in available data sources. We make this assumption for two reasons. First, the Survey of Income and Program Participation's estimate of evictions is much lower than other survey estimates (e.g., Matthew Desmond in his book *Evicted: Poverty and Profit in the American City* estimates with his survey that 16 percent of households encounter eviction in a year). SIPP estimates are unusually low because households who face housing disruptions from eviction are also those most likely to leave the SIPP sample. Second, while there are numerous surveys of homeless individuals, including the point-in-time surveys conducted every year across the nation on the same night and reported to the US Department of Housing and Urban Development, no national survey records evicted households. We have no national estimate of how many evicted households become homeless.

4 This average is based on authors' calculations from Mills and coauthors (2016).

5 Because of data limitations, this analysis uses rates of missed mortgage payments as a proxy for missed property tax payments. We use the SIPP to estimate how income disruptions relate to different financial hardship outcomes (e.g., eviction, missed utility bills, and missed mortgage payments) for households with different levels of savings. But the SIPP does not ask if property tax payments were missed. Because property tax payments for many homeowners are bundled via escrow with mortgage payments, this is a reasonable proxy.

6 All property tax data come from "Mortgage Status by Median Real Estate Taxes Paid (Dollars): Universe: Owner-Occupied Housing Units, 2015 American Community Survey 1-Year Estimates," US Census Bureau, American Fact Finder, accessed January 10, 2017, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25103&prodType=table. The American Community Survey may overestimate the property taxes that households pay, especially within municipalities that offer tax breaks to low-income households. A 2016 Lincoln Institute of Land Policy report finds that the real property tax rate for a $150,000 home for the 10 cities studied is often lower than that paid on a $300,000 home (Lincoln and Minnesota 2016). Many states and municipalities also provide tax breaks to elderly residents and long-term homeowners, which can substantially lower individual tax bills. The ACS provides the same benchmark for

measurement across the 10 cities studied, but is based on self-reported household data that may not take into account the tax breaks households receive.

[7] "Budget–2015 Budget Ordinance–Appropriations," City of Chicago, accessed January 10, 2017, https://www.cityofchicago.org/city/en/depts/obm/dataset/budget---2015-budget-ordinance---appropriations.html.

[8] "FY 2014–15 Adopted Budget and Multiyear Capital Plan: Homeless Trust," Miami-Dade County, accessed January 10, 2017, http://www.miamidade.gov/budget/library/FY2014-15/adopted/volume3/homeless-trust.pdf.

[9] Brett Walton, "Price of Water 2015: Up 6 Percent in 30 Major US Cities; 41 Percent Rise Since 2010," Circle of Blue, April 22, 2015, http://www.circleofblue.org/2015/world/price-of-water-2015-up-6-percent-in-30-major-u-s-cities-41-percent-rise-since-2010/.

[10] "Frequently Asked Questions: How Much Electricity Does an American Home Use?" US Energy Information Administration, last updated October 18, 2016, https://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3.

[11] Walton, "Price of Water 2015."

[12] "Power FAQs: Electricity," City of Columbus, accessed January 10, 2017, https://www.columbus.gov/utilities/customers/Power-FAQ-s/.

[13] "Frequently Asked Questions: How Much Electricity Does an American Home Use?"

[14] Walton, "Price of Water 2015."

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[17] "Frequently Asked Questions: How Much Electricity Does an American Home Use?"

[18] Jeff McDonald, "California Electric Bill Shock: Private Firms Charge Way More Than Public Utilities," *Los Angeles Times*, June 14, 2015, http://www.latimes.com/local/lanow/la-me-ln-electric-bills-differ-private-companies-charge-more-than-public-utilities-20150614-story.html.

[19] "Rates, Fees, and Charges," Miami-Dade County, last updated October 4, 2016, http://www.miamidade.gov/water/rates.asp.

[20] "S&WB Billing Rates," New Orleans Sewerage and Water Board, accessed January 10, 2017, https://www.swbno.org/custserv_information_rates.asp.

[21] Walton, "Price of Water 2015."

[22] Walton, "Price of Water 2015."

[23] Walton, "Price of Water 2015."

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For more information on this project, as well as 2019 and 2017 fact sheets about the 10 focal cities, see "The Cost of Eviction and Unpaid Bills of Financially Insecure Families for City Budgets."

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