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The role of government benefits in reducing housing cost burdens, 2009 – 2022

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ABSTRACT

Measures of housing cost burden based solely on pretax cash income cannot capture how in-kind benefits supplement or exhaust resources available for housing. We thus apply a broader definition of income, following the Supplemental Poverty Measure (SPM), which considers cash income, in-kind benefits, taxes, and expenses, to measure housing burden in the United States. Using the American Community Survey, we estimate cost burdens among renters over time and after the onset of the COVID-19 pandemic. The picture of burden changes when a broader definition of resources is used, especially among the most financially insecure households. We use this alternative SPM resource-based definition of burden to show how anti-poverty policies impact the prevalence of rent burden. When comparing measures of burden based on SPM resources, we find that pretax cash income underestimates the prevalence of burden, overstates the decline in burden between 2009 and 2019, and fails to account for major policy changes in the social safety net.

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1. Introduction

The COVID-19 pandemic propelled the housing affordability crisis to new heights, resulting in a record number of cost-burdened renter households spending more than 30% of their incomes on rent and utilities (Joint Center for Housing Studies of Harvard University, 2024).¹ By the standard 30% of income measure of housing affordability that is commonly used in policy and research, the cost burden rate increased by 2.6 percentage points from 2019 to 2021, one of the fastest increases in recent history (Joint Center for Housing Studies, 2023). These housing cost burdens are traditionally calculated using the sum of contract rent and utilities divided by household pretax cash income. As a result, the pandemic increase did not account for expanded benefits such as the Child Tax Credit (CTC) that likely relieved burdens for many households.

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In fact, the role of tax and social welfare policy in the context of housing cost burdens has been largely unexplored. National surveys and income eligibility rules for social programs typically consider household pretax cash income as it is easy to report. This approach may inflate cost burden rates, especially for low-income households that benefit from programs such as rental assistance and the Earned Income Tax Credit and understate the value of policies that alleviate pressure on household budgets.

Traditional housing cost burden measures, namely the 30% of income standard, also do not reflect the amount of income households actually need to cover necessary living expenses. Stone (1993) proposed an alternative measure of housing burden known as the residual income approach, which considers the income households have left over for shelter after meeting all other basic needs. After paying for shelter, households unable to afford basic needs such as food, clothing and transportation are considered burdened or impoverished by their shelter expenses. In their most recent national estimate of cost burdens, Airgood-Obrycki *et al.* (2023) found that the residual income approach identified 19.2 million working-age renter households as cost-burdened, compared to 14.8 million using the 30% of income standard. Considering whether households can afford both housing and basic expenses is therefore important when holistically assessing the financial burden of renter households.

In this paper, we examine how estimates of renters' cost burden rates change when accounting for taxes, government transfers, and necessary household expenses. We particularly focus on economically disadvantaged households in the lowest income quintile, a group whose housing expenses take up a larger proportion of pretax cash income but who often qualify for public assistance, in kind benefits, and tax credits.

We begin by calculating standard cost burden rates for renter households using pretax cash income and the sum of reported rent and utilities in the American Community Survey. Next, we replace pretax cash income with the Supplemental Poverty Measure's (SPM's) definition of resources in the traditional housing cost burden formula to compute adjusted cost burden estimates. The sum of SPM resources includes cash income, transfers, and the value of in-kind benefits, net taxes and expenses (Citro & Michaels, 1995; Shrider & Creamer, 2023).

The deduction of necessary expenses such as health care, transportation and child-care to the equation extends the cost burden estimate beyond the traditional ratio measure.² This adjustment is more akin to a residual income approach, as it considers other household needs and highlights how renters might still fall short. The expenses considered by the SPM are necessary to maintain health and earn an income (Citro & Michaels, 1995). These expenses are thus excluded from the sum of resources available for other necessities such as food, clothing, shelter and utilities. In other words, deducting medical out-of-pocket costs, work-related expenses, and child support payments, provides a better estimate of what can be spent on other essentials.

Components of SPM resources are often estimated and added to pre-tax cash income; thus, we consider the subsequent estimates as adjusted. We repeatedly estimate housing cost burden by incrementally including components of SPM resources. This approach illustrates the marginal impact of benefits and expenses on adjusted cost burden estimates and corresponds to how poverty is more commonly measured today (Blank, 2008; Fox *et al.*, 2015; Iceland, 2013; Nolan *et al.*, 2017; Pacas & Rothwell, 2020; Shrider, 2024; Wimer *et al.*, 2016, 2018).

In adapting the commonly used 30% measure of housing cost burden to include SPM resources, we better capture the affordability of housing and explicitly show how government assistance, taxes, and expenses, separately and together, change the picture of burden among renters over time. These estimates help gauge how non-housing related benefits indirectly temper housing burden and to what extent taxes and expenses worsen burdens. We also pay special attention to temporary expansions to the social safety net in response to the COVID-19 pandemic and estimate how such policies impacted the prevalence of burden. Our findings provide context for how future policies may indirectly reduce cost burdens.

2. Rental market and welfare state regimes in the US

Low-income renters in the US face persistent housing unaffordability and financial insecurity, reflecting the country's rental market and welfare state regimes. The US rental market system is often characterized by the commodification of housing and by rising rental unaffordability in the twenty first century.³ Housing is not a right, and rental assistance is not an entitlement, leaving three out of every four income-eligible households to fend for themselves in the private market with no rental subsidy (Center on Budget and Policy Priorities, 2024).

The highly commodified and privatized nature of the U.S. rental market, and the associated high housing cost burdens for low-income renters, can be described using Kemeny's (1995, 2006) theory of housing regimes, which classifies the United States as a dualist rental system. This dualist system, which also characterizes housing in England, Ireland, Canada, Australia, and New Zealand, is dominated by a for-profit rental sector with a separate "cost-rental" social housing sector for low-income families (Stephens, 2020). While the applicability of Kemeny's typology has been recently debated (Ruonavaara, 2020), it remains a useful framework for describing the United States as a dualist rental market system that chronically underserves the lowest-income households and is associated with substantial housing cost burdens for low-income renters.

In such a system, affordability depends not only on the rental market and household income but also on the reach and generosity of the welfare regime. Esping-Andersen's (1990) typology of welfare capitalism underscores variation in welfare approaches, highlighting the United States as an archetypal liberal welfare regime in which means-tested programs have low participation rates and provide limited levels of support. Consequently, the commodification of housing and rising rents have outpaced what many households are able to afford with income alone. We know relatively little about the extent to which the welfare regime or social safety net has counteracted this commodification or alleviated resulting housing cost burden. We also have limited measures to quantify how the other side of this dualist system, the social housing sector, offsets, if at all, the housing cost burdens generated in the for-profit rental sector.

In this dualist rental market system, bounded by a liberal welfare regime, the lowest-income households in the United States face overlapping and self-reinforcing challenges. Housing is a vital need that underpins other aspects of well-being, and with growing unaffordability and limited rental assistance, households face tradeoffs

in other spending and in the quality of their housing and neighborhoods. Existing measures, such as the residual income approach, help characterize the extent of this gap and indicate the income needed to eliminate these tradeoffs for an average household. Social welfare programs can help bridge this gap, reduce burdens on low-income households, and improve housing stability. Yet in a highly commodified rental market with a sparse and insufficient social welfare regime, many households may still face financial insecurity even when they receive additional cash transfers through safety net programs. Without a measure that implicitly accounts for transfers and necessary expenses, it is difficult to assess the role of these policies in mitigating housing commodification and its consequences for affordability and burden. It is also difficult to quantify how much an expansion of the social safety net would be needed to reduce burdens in the United States. Our proposed SPM resource-based definition of burden, which incorporates the value of social welfare programs, aims to fill this gap.

3. Cost burdens and the potential role of government transfers

Over the last 20 years, housing costs have rapidly outpaced gains in income for households across the country. This dynamic pushed the number of cost-burdened households to a record high in 2022, fueled in part by income losses and runaway rent and home price increases during the pandemic. Cost burdens can have a significant impact on people's lives, especially for those in low-income households. Indeed, the Joint Center for Housing Studies of Harvard University (2024) found that in 2022 severely burdened renters (who pay more than 50% of pre-tax income on housing) in the bottom expenditure quartile—a proxy for the lowest-income households—spent 39% less on food and 42% less on healthcare than their unburdened counterparts. Cost burdens have also been found to increase material hardship and decrease well-being along several dimensions (Shamsuddin & Campbell, 2022). Notably, Black and Hispanic renters, single-parent households, and people with disabilities have a greater likelihood of being cost burdened (Airgood-Obrycki *et al.*, 2024), compounding systemic inequities.

The best way to measure cost burdens and housing affordability has been long debated. The most widely used measure of housing cost burdens uses a ratio approach. For renters, the sum of gross rent and utilities is divided by pretax cash income to derive a cost-to-income ratio. For decades, the standard in public policy and housing research has been to classify a household as cost burdened if they spend more than 30% of their income on housing and severely cost burdened if they spend more than 50%. The ratio approach originated from studies of typical spending on housing among modest income households from the late 1800s, with the standard initially set at 25% of income, a threshold formally incorporated into housing assistance programs starting the 1960s (Pelletiere, 2008). In 1981, Congress raised the standard for households living in public housing by capping shelter expenses to 30% of income rather than 25% (Pelletiere, 2008; US Department of Housing and Urban Development, 2017).

Regardless of the specific percentage, the ratio approach has endured because it is easy to calculate and apply across a variety of households, despite its substantial

criticisms. Michael Stone formulated one of the most enduring arguments against the ratio approach, suggesting instead a shelter poverty measure, which identifies households unable to meet non-shelter needs (Stone, 1993, 2004; Stone *et al.*, 2011). He asserted that the ratio approach does not account for what households can actually spend on shelter while meeting all other expenses. This approach is also insensitive to household size and composition and does not account for variation in spending needs or households' marginal propensity to consume. In other words, the ratio measure does not capture the fact that spending 30% of income on shelter equates to a more comfortable standard of living for higher income households than for lower income households, nor for smaller households compared to larger households. Consequently, the ratio and residual income approach may provide different pictures of housing cost burden. For example, using the residual income approach, Airgood-Obrycki *et al.* (2023) find that 4.4 million more households were cost burdened under the shelter poverty measure compared to the standard ratio calculation in 2018.

In addition to incorporating other household expenses, the residual income measure used in Airgood-Obrycki *et al.* (2023) accounts for tax burdens and credits but does not capture the value of additional subsidies households may receive. The standard ratio approach typically uses pretax cash income without incorporating benefits and costs from social welfare and tax policies. As a result, the standard approach may make the housing affordability problem look worse than it is, especially for lower income renters, and undermine the value of programs and policies that help alleviate housing burdens and pull people out of poverty. Estimates from the COVID-19 pandemic illustrate this problem. Expanded resources during the pandemic through the Supplemental Nutrition Assistance Program (SNAP) and the CTC are not accounted for in standard cost burden measures. The increase of 1.2 million cost-burdened renter households from 2019 to 2021 may therefore overstate the extent of worsening housing unaffordability while underestimating the effect and importance of the temporarily reinforced social safety net. Nevertheless, once these expanded benefits expired, the country still experienced an increase of 0.8 million cost-burdened renter households from 2021 to 2022, suggesting that rising shelter costs were truly outpacing expanded benefits and income supports. Alternative measures that consider taxes and other in-kind benefits could have highlighted how rapid policy changes affected housing affordability and whether standard cost burden calculations adequately capture the reality of household financial pressures.

Tax policy and government transfers could play an important role in alleviating cost burdens, particularly for lower income renters. According to the Economic Policy Institute, tax expenditures and government spending lift the incomes of households in the bottom three income quintiles (EPI, U.S. Tax & Spending Explorer). Provisions in the tax code provide an income boost for many lower-income households, primarily through the refundable Earned Income Tax Credit (EITC) for working households and the Child Tax Credit (CTC) for households with children, the latter of which extends into higher income ranges. The Congressional Budget Office (2021) reported that 54% of households in the lowest income quintile received the EITC in 2019 and 37% received the CTC.

Tax credits have important antipoverty impacts and may alleviate the extent of housing burden among recipients. In 2018, prior to the COVID-19 pandemic, refundable tax credits pulled approximately 8.9 million people out of poverty according to the SPM (Fox, 2019). The EITC, for example, pushed incomes above the SPM poverty line for nearly 6 million people and reduced the severity of poverty for an additional 17.5 million people in 2018 (CBPP, 2023). The EITC has also been found to reduce housing cost burdens (Stegman *et al.*, 2003), doubling up, and overcrowding (Pilkaukas & Michelmore, 2019). The CTC has similar anti-poverty and housing stability effects. The expanded CTC in 2021 cut child poverty to its lowest level on record (Burns & Fox, 2022; Curran, 2022; Hardy *et al.*, 2023), and families were less likely to experience material hardship while the increased benefit was in effect than after it expired (Gonzalez *et al.*, 2024). The expanded and monthly CTC also reduced the likelihood that households had rental or mortgage arrears or moved because they couldn't afford their rent or mortgage (Parolin *et al.*, 2023; Pilkaukas *et al.*, 2023).

In addition to tax expenditures, government spending through social welfare programs further reduces the financial pressure on households. Among these, rental assistance and the Low-Income Home Energy Assistance Program (LIHEAP) directly offset rent and utility payments. Rental assistance—which takes many forms, including public housing, Housing Choice Vouchers, and Low-Income Housing Tax Credit properties—serves about 5 million households nationwide (Joint Center for Housing Studies of Harvard University, 2024). Housing subsidies have been found to reduce household instability, overcrowding, and poverty (Fischer *et al.*, 2019). While rental assistance programs do not guarantee that households will not be cost burdened, the rates of burden are much lower among subsidized households compared to lower-income households in the private market (Joint Center for Housing Studies, 2018). Utilities can also consume a large share of household incomes, contributing to higher burdens. At last measure, utilities took up about 8% of household pretax cash incomes for lower-income renter households (Joint Center for Housing Studies, 2020) and about half of all lower-income renter households were energy insecure (Joint Center for Housing Studies, 2024). Programs such as LIHEAP help offset utility costs for eligible households, and in 2021, LIHEAP helped about 5.9 million energy insecure, low-income households pay their home energy bills (National Low Income Housing Coalition, 2024). Including crucial subsidies like rental and energy assistance in the cost burden calculation could meaningfully reduce rates among the lowest-income households, though the number of households benefitting from these programs is small relative to the extent of need.

In kind benefits are often designated for or limited to specific expenses and cannot be used as liquid cash. Consequently, benefits from, for example, the National School Lunch Program, SNAP, and WIC do not directly offset shelter costs but do supplement household income. All three programs assist eligible low-income households cover food expenses, with school lunch targeting families with school aged children and WIC targeting families who are pregnant or who have young children. While these benefits cannot be used on housing expenses directly, receipt of SNAP and WIC has been found to reduce the likelihood of housing instability. Indeed, Sandel *et al.* (2014) find that households receiving SNAP, WIC, and a housing

subsidy were 72% more likely to be housing secure compared to those that only received housing assistance. During the pandemic, households who were behind on their rent were more likely to report using expanded SNAP benefits to cover their food expenses, potentially offering these households food security despite facing housing precarity (Airgood-Obrycki *et al.*, 2022).

While the net effect of government spending on the prevalence and severity of housing cost burden has not been fully assessed, these policies have documented relationships with housing stability. Given the potential value for recipients and the level of spending that goes into these supports, it's important to understand how different forms of government assistance can reduce housing cost burdens for low income renters and identify the most impactful policies when targeting additional assistance. The pandemic provided a unique opportunity to assess how expanded supports, like tax credits and SNAP, could help households navigate rapidly rising housing costs. Considering these resources in the cost burden calculation can help policymakers assess the extent of housing affordability and the degree to which the pretax cash income standard for measuring cost burden overestimates the number of households in need of shelter or income support.

4. Data and methods

We first use data from the 1-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) to calculate housing cost burden among renters in the United States over time using pretax reported household income.⁴ Following the housing literature and designation of burden by the U.S. Department of Housing and Urban Development (Joice, 2014), moderately burdened households are defined as those that spend between 30 and 50% of their income on gross rent (which includes spending on utilities). Severely burdened households are those that spend more than 50% of their income on gross rent. We consider households occupying their residence without payment to be “rent free renters” and are automatically characterized as unburdened.

We then recalculate the cost burden ratio following the SPM's definition of resources. For this recalculation, we replace household income with the sum of SPM resources, recompute cost burden ratios, and reidentify cost burdened individuals under this definition.⁵ Components of SPM resources come from a series of supplementary research data files published by the U.S. Census Bureau. These supplementary files are merged with the original ACS microdata to create augmented datasets that include all survey variables along with the components of SPM resources produced by Fox *et al.* (2020). These research extracts are available from 2009 to 2019 and for 2021 and 2022. No extract is provided for 2020 due to the pandemic related data quality concerns with the one-year ACS (Villa Ross *et al.*, 2021).

SPM estimates published by the Census Bureau normally rely on the data from the Annual Social and Economic Supplement of the Current Population Survey (CPS ASEC), which collects detailed information on income and participation in government assistance programs (Shrider & Creamer, 2023). Because the ACS lacks the detail found in the CPS ASEC, Fox *et al.* (2020) impute program participation and related benefit and expense components needed to implement the SPM.⁶ This

reliance on imputation is a limitation. However, the imputations draw on three years of pooled CPS ASEC data, incorporate a wide range of individual- and household-level characteristics (Renwick, 2015), and are benchmarked to aggregate resource and expenditure totals so that they align with the CPS ASEC (Fox *et al.*, 20220). With this method, researchers can take advantage of ACS variables, such as reported rent, which are not available in the CPS ASEC, to study the interaction of housing burden and poverty with a more comprehensive, up-to-date measure.

We show how considering components of SPM resources changes cost burden estimates. Appendix Table 1 outlines how the definition of cash income used in the traditional cost burden measure compares with the broader set of resources included in the SPM. We categorize each component of resources as one of three main types: in-kind (i.e. non-cash) benefits, taxes, and expenses. In-kind benefits include those from housing subsidies, school lunch subsidies, the Supplemental Nutrition Assistance Program (SNAP), the Low-Income Home Energy Assistance Program (LIHEAP) and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). See Table 1 for a description of these in-kind benefit programs, along with other transfer programs that are traditionally included in cash income.

Table 1. In-kind benefits and cash transfer programs in the united states.

Program	Description
Housing Assistance	A set of programs that subsidize the cost of shelter for low-income households. This assistance includes housing vouchers and public housing. The value of this benefit is included in SPM resources but not part of cash income, the sum of market income and cash transfers.
Energy Assistance	A set of programs that subsidize the cost of energy, heating, and cooling for low-income households. This assistance includes support from the Low-Income Home Energy Assistance Program (LIHEAP). The value of this benefit is included in SPM resources but not part of cash income.
School Lunch	A federal program that provides free or reduced-price lunches to eligible children of low-income families. The value of this benefit is included in SPM resources but not part of cash income.
Social Security	A federal social insurance program that provides monthly cash benefits to retired and disabled workers, along with eligible family members and survivors. The value of this benefit is included in both cash income and SPM resources.
Supplemental Nutrition Assistance Program (SNAP)	A federal nutritional assistance program that provides monthly benefits to low-income families redeemable for food purchases. The value of this benefit is included in SPM resources but not part of cash income.
Supplemental Security Income (SSI)	A federal cash transfer program that provides monthly benefits to low-income individuals who are aged 65 or older, blind, or disabled. The value of this benefit is included in both cash income and SPM resources.
Temporary Assistance for Needy Families (TANF)/General Assistance	A federal block grant program that provides limited cash assistance to low-income families with children. The value of this benefit is included in both cash income and SPM resources.
Unemployment Insurance	A federal block grant program that provides limited cash assistance to low-income families with children. The value of this benefit is included in both cash income and SPM resources.
Supplementary Nutrition Program for Women, Infants, and Children (WIC)	A program that provides food assistance to eligible pregnant women, postpartum women, and infants of low-income families. The value of this benefit is included in SPM resources but not part of cash income.
Worker's Compensation	A state insurance program that provides cash assistance to workers with an injury or illness that prevents them from working. The value of this benefit is included in both cash income and SPM resources.
Veteran's Assistance	A federal program that provides cash assistance to eligible veterans and their families. The value of this benefit is included in both cash income and SPM resources.

The two other components of SPM resources not included in the traditional definition of income include taxes and expenses. Taxes encompass federal and state income taxes, including tax credits, as well as payroll taxes. Economic Impact Payments (sometimes referred to as “stimulus payments”) and expanded credits from, for example, the American Rescue Plan (ARP) are also considered within taxes. Expenses for medical care, childcare, transportation to work, and child support payments, and are subtracted from the sum of income, in-kind benefits, and tax credits.⁷ Although families face many necessary expenses, the SPM deducts only those that poverty measurement experts classify as related to basic needs, in these cases to care for one's health or to engage in the labor market (Citro & Michaels, 1995).

Figure 1 compares definitions of income with these categorized components of SPM resources. Applying the full definition of SPM resources into the ratio measure of burden effectively tests whether households designate more than 30 or 50% of their post-tax income and benefits toward rent once work, childcare, and medical out of pocket necessities are accounted for. Although SPM resources consider tax liabilities and expenses, they are not guaranteed to be less than total pretax cash income. Resources may be greater than pretax cash income, for example, if a household receives tax credits and/or in-kind benefits. When the value of these benefits is ignored, the prevalence of housing burden may be subsequently overestimated. Conversely, once households pay their taxes and incur substantial expenses for necessities, the true proportion of resources available for housing may be lower than total cash income. In such cases, income-based measures may underestimate the prevalence of burden.

Components of resources in the ACS SPM are first imputed when absent from the ACS and then summed at a poverty unit level within each household. Poverty

1. Market Income
• Income from wages and earnings.
2. Pretax Cash Income
• Also referred to as “cash income”. • The sum of market income and cash transfers (e.g., Social Security). • Reported household income in the American Community Survey, traditionally used to estimate housing burden.
3. Cash Income and Value of Benefits
• In-kind benefits include those considered by the Supplemental Poverty Measure (SPM). • E.g., food, energy and housing assistance/subsidies.
4. Cash Income, Value of Benefits and Taxes
• Also referred to as the sum of “post-tax income and benefits”. • Includes the value of in-kind benefits, and tax liabilities and credits.
5. SPM Resources
• The sum of all the above components (market income, cash transfers, benefits, tax liabilities and credits) net expenses. • Expenses deducted include medical, work and childcare expenses.

Figure 1. Definitions of income and resources.

See Appendix Table A1 for sources and additional details on definitions.

units are expanded families that include adopted children and unmarried partners (Provencher, 2011). Although multiple poverty units may live in a single household, data on rent paid is collected at the household level. This cost cannot be divided between poverty units without imposing cost sharing assumptions or pro-rating rent between them. We subsequently sum up components from the poverty unit to the household level, and compute rent to resource ratios accordingly. This has the additional advantage of being consistent with prior work on housing burden using ratio measures.

Throughout our analysis we focus primarily on renters in the lowest income quintile who are disproportionately burdened by rent. Quintiles are determined using pretax cash income and the entire sample of households in the ACS for each year. Once all households are assigned to an income quintile, only the sample of renters is kept. To facilitate comparisons when altering the definition of resources, the subset of renters in each income quintile remains unchanged, even when expanded definitions of income using SPM resources are used to measure burden.

5. Results

5.1. Differences in cost burden measures over time

Renter cost burden rates neared an all-time high in 2022 after gradually falling over the preceding decade. The left-hand panel of [Figure 2](#) shows trends in burden over time using the traditional rent to pretax cash income ratio (i.e. the ratio of gross rent to total income, including cash transfers). In 2009, approximately 49% of all renters were burdened by the cost of housing as the effects of the Great Recession began taking hold, with about 54% of those burdened considered severely burdened. Using this measure, the prevalence of cost burden among renters peaked in 2011 before gradually but modestly decreasing to 46% in 2019. Improvements in overall burden over this period were largely driven by reductions in severe burden. However, rising burdens during the pandemic offset nearly all progress made since the Great Recession, once again leaving nearly half of all renters burdened.

The right-hand panel of [Figure 2](#) shows that the trend in overall burdens is largely driven by renters in the second- and third-income quintiles, while those in the lowest income quintile saw little movement in their persistently high burden rates over time. The lowest-income renters had a cost burden rate of approximately 82% over the ten years leading up to the pandemic, meaning the most economically disadvantaged renters remained as burdened in 2019 as they were in 2009. However, the degree to which these renters were burdened fluctuated over time. Often slight decreases in moderate burden were accompanied by increases in severe burden, and vice versa, keeping overall burden rates high. Even with continually high rates of burden, renters in the bottom income quintile still saw their cost burdens increase during the pandemic, as did every other income group.

The picture of cost burden changes when implementing components of SPM resources into the ratio measure. [Figure 3](#), Panel A compares trends in cost burden using different definitions of income for all renters. When including in-kind benefits, adjusted cost burdens drop by about 5 to 6 percentage points compared to

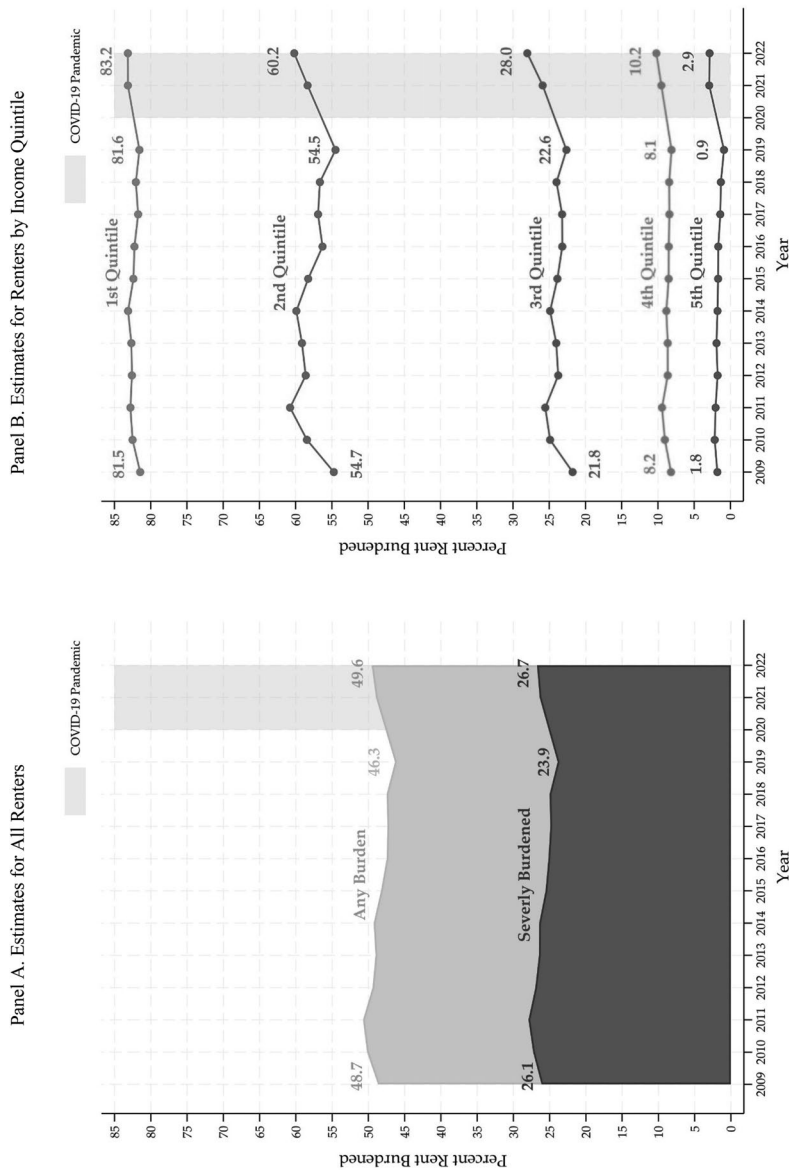


Figure 2. Housing burden estimates over time using cash income. source: data are from the American Community Survey (ACS) and the ACS Supplemental Poverty Measure (SPM) research files for 2009–2022 (Fox et al., 2020). No data are available for 2020 (Villa Ross et al., 2021). Annual sample sizes range from about 2.9 to 3.2 million individuals. All estimates use Census person-level weights to represent the U.S. population. The sample of renters in each quintile is determined using cash income, which is the sum of market income and cash transfers. See Appendix Table A1 for additional details regarding different definitions of income.

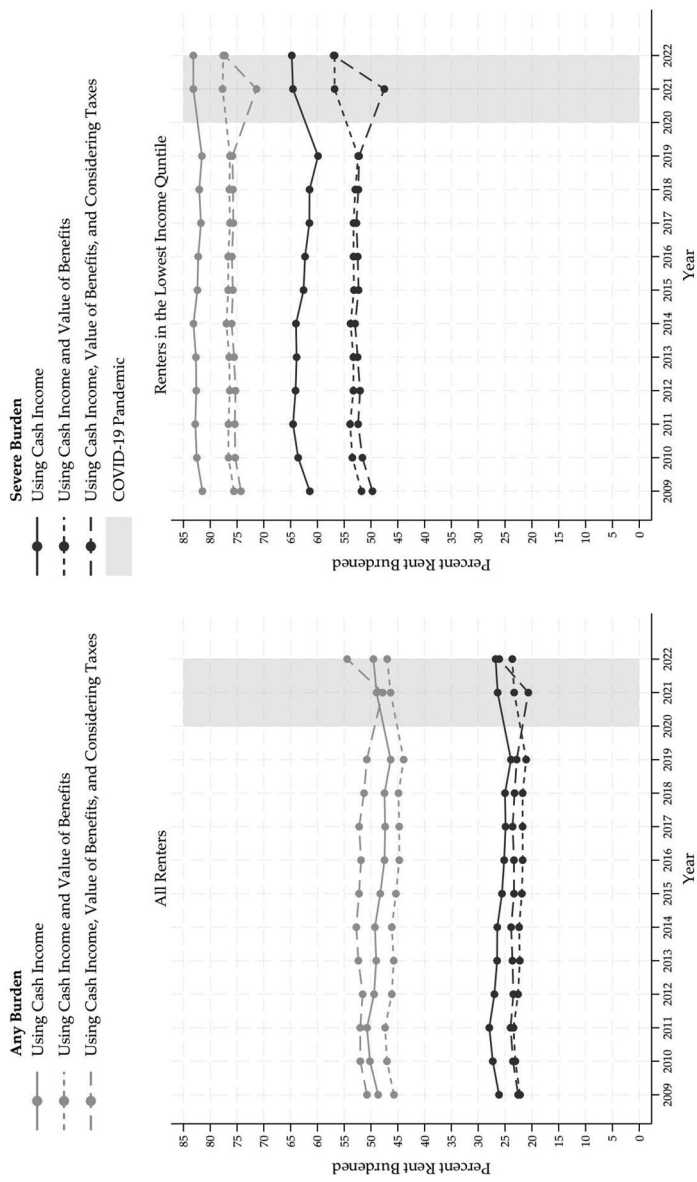


Figure 3. Housing burden estimates over time using income and SPM resources.
Source: Data are from the American Community Survey (ACS) and the ACS Supplemental Poverty Measure (SPM) Research Files for 2009–2022 (Fox et al., 2020). No data are available for 2020 (Villa Ross et al., 2021).
Annual sample sizes range from about 2.9 to 3.2 million individuals. All estimates use Census person-level weights to represent the U.S. population. Total cash income is the sum of household market income and cash transfers from Social Security, SSI and any other public assistance programs. The value of benefits includes those considered by the Supplemental Poverty Measure (SPM) and includes various types of nutrition and housing benefits. Taxes are the sum of Social Security payroll taxes (FICA), and state and federal tax liabilities after credits. See Appendix Table A1 for additional details regarding definitions of income, benefits and resources.

traditional estimates using pretax cash income. Conversely, including tax credits widens the gap, pushing adjusted estimates well above traditional estimates. The difference between traditional and adjusted ratio measures has grown over time. Appendix [Figure 1](#) highlights this difference, which is evident in the divergence between the traditional and adjusted measures between 2009 and 20219. Just before the pandemic, the gap between housing burden rates using pretax cash income and the sum of pretax cash income benefits and tax liabilities/credits was wider than it had been a decade before. The only exception to this trend came when the pandemic-era safety net substantially increased the value of tax benefits and reduced adjusted burdens, a dynamic we will discuss in greater detail at the end of the results section.

Benefits and tax credits play a substantial role in reducing burden among the lowest-income renters. [Figure 3](#), Panel B shows adjusted cost burdens over time for renters in the bottom income quintile using SPM resources. When accounting solely for the value of benefits, cost burden rates decrease by an average of 6 percentage points during pre-pandemic years. Tax credits further reduce cost burdens by an additional percentage point. Therefore, in a typical pre-pandemic year, the standard cost burden calculation was relatively overstating burden among the lowest-income renters by about 7 percentage points. By ignoring in-kind benefits and credits, the pretax income ratio measure overlooks how anti-poverty policies alleviate housing cost burdens for the lowest-income renters.

Among the lowest-income renters, in-kind benefits and tax credits play an especially important role in reducing the incidence of severe burden. In the decade leading up to the pandemic, severe cost burden rates when including in-kind benefits were 9.5 percentage points lower on average than traditional estimates, though the gap shrunk from 10 percentage points in 2009 to about 7.5 percentage point in 2019. Tax credits further lowered the rate of severe burden by about an additional percentage point. Nevertheless, convergence between adjusted and traditional cost burden rates suggests that, over time, tax credits were less influential and pulled fewer renters out of severe housing burden.

Using the latest available data, [Figure 4](#) further highlights differences in adjusted cost burden rates for the lowest-income renters. In 2022, when using only market income (i.e. the sum of earnings and wages), the prevalence of overall burden was about 90% for renters in the lowest income quintile. Pretax cash income, which is used by the traditional ratio measure and includes income from cash transfers such as Social Security, relatively decreases the cost burden rate to 83%. The addition of in-kind benefits further aids these households, and their cost burden rate drops to 78%. About half of this decrease (2.9 percentage points) comes from housing-related benefits while the remaining half is from the inclusion of in-kind nutrition benefits. Including tax liabilities and credits provides only a small reduction in burden for these households. By this measure, the lowest the cost burden rate could be for the bottom quintile households is still an astoundingly high 77%.

As noted earlier, a drawback of the ratio measure of housing cost burden is that it does not consider other necessary expenses that households incur. Adjusted cost burden estimates using all SPM resources account for work, childcare and medical out of pocket expenses, and thus provide a picture of burden that extends beyond

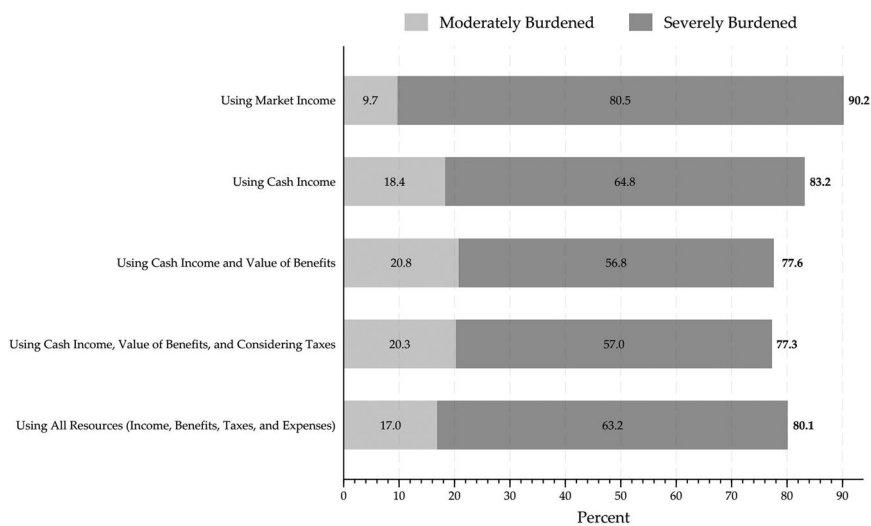


Figure 4. Housing burden estimates using different definitions of income, 2022 renters in the lowest income quintile.

Source: Data are from the American Community Survey (ACS) and the ACS Supplemental Poverty Measure (SPM) Research Files for 2009–2022 (Fox *et al.*, 2020). No data are available for 2020 (Villa Ross *et al.*, 2021). The sample size of the ACS in 2022 was about 3.2 million individuals. All estimates use Census person-level weights to represent the U.S. population. The sample of renters in the lowest income quintile is determined using cash income. Market income is the sum of wages and earnings. Total cash income is the sum of market income and cash transfers from Social Security, SSI and any other public assistance programs. The value of benefits includes those considered by the Supplemental Poverty Measure (SPM) and includes various types of nutrition and housing benefits. Taxes are the sum of Social Security payroll taxes (FICA), and state and federal tax liabilities after credits. Necessary expenses include capped work and childcare expenses, and medical out of pocket expenses. See Appendix Table A1 for additional details regarding definitions of income, benefits and resources.

housing costs. While covering a limited set of expenses, including these costs in the measure pushes the adjusted cost burden rate up to 80% for the lowest-income renters, suggesting that pretax cash income alone still slightly overstates the prevalence of burden, even when accounting for these other vital expenses.

The high rates of burden estimated by all iterations of the ratio measure are unsurprising given how few resources are actually available to renters in the bottom income quintile. Various social safety net benefits do alleviate burdens and pad household budgets, but the lowest-income households still have very little left over to meet all other needs. Figure 5 compares average residual income estimates using different definitions of income and including components of SPM resources. The first column shows how the current measure’s exclusion of housing benefits, which are explicitly meant to reduce burden, results in a relative underestimate of residual income. When the estimated value of housing and energy subsidies is added to cash income, average household residual income for the most economically disadvantaged renters increases from about \$2,200 annually to \$3,900. The further inclusion of other components of SPM resources reduces the prevalence of burden and increases residual income. Indeed, the inclusion of benefits and taxes more than doubles annual residual income from about \$2,200 to \$5,740. While this increase is substantial, an annual average of \$5,740 equates to less than \$500 per month. Such little residual income makes it difficult for households to afford other necessities and save for emergencies or retirement.

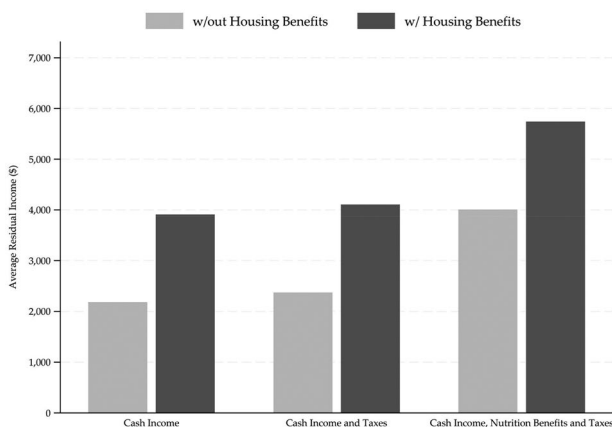


Figure 5. Average residual income for renter households in the lowest income quintile, 2022.

Source: Data are from the American Community Survey (ACS) and the ACS Supplemental Poverty Measure (SPM) Research Files for 2022.

The sample size of the ACS in 2022 was about 3.2 million individuals. All estimates use Census person-level weights to represent the U.S. population. The above figure presents estimates of residual income (i.e., income after deducting annual gross rent). The sample of renters in the lowest income quintile is determined using cash income. Cash income is the sum of household market income and cash transfers from Social Security, SSI and any other public assistance programs. Taxes are the sum of Social Security payroll taxes (FICA), and state and federal tax liabilities after credits. Nutrition benefits include those from free and reduced-price school lunches, SNAP/Food Stamps and Women, Infants, and Children (WIC). Housing benefits include those from housing and energy subsidies. See Appendix Table A1 for additional details regarding definitions of income, benefits and resources. See Appendix Table A3 for average residual estimates for all renter households and median residual estimates.

5.2. The COVID-19 pandemic safety net and housing cost burdens

In 2020, the COVID-19 pandemic disrupted the overall economy and economic wellbeing of many households. Congress responded with a suite of policies that expanded the social safety net and potentially reduced cost burdens temporarily. Due to pandemic related data quality concerns, supplemental poverty and housing burden estimates cannot be produced using the 2020 one-year ACS. However, we use data from 2019, 2021, and 2022 to investigate how pandemic-era policies in effect in 2021, but not renewed after 2022, impacted the prevalence of housing burden during the pandemic.

Between 2019 and 2021, the overall housing burden among all renters increased by about 3 percentage points using the traditional pretax cash income ratio measure. This change was largely driven by an increase in severe burden, especially for renters in the lowest income quintile. According to this measure, reductions in housing burden made over the decade were effectively erased during the pandemic and continued on an upward trajectory through 2022.

However, the traditional measure of housing burden does not capture how many pandemic era policies affected this dimension of wellbeing. In 2020, Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act in response to the pandemic and subsequent restrictions on economic activity. This Act expanded public assistance benefits and provided emergency rental assistance and stimulus payments to eligible families. Many expansions to the social safety net were made through existing in-kind benefit programs and tax credits.

As the pandemic continued, many, but not all, of these benefits were reinstated in 2021 through the ARP. The absence of an ACS SPM research extract for 2020 prevents us from determining how the CARES Act affected housing burden in that year. Nevertheless, we can estimate how certain pandemic-era policies reduced burden in the subsequent year. Although funding for emergency rental assistance was included in the 2021 Consolidated Appropriations Act and ARP, the ACS does not capture receipt of this assistance, and its value is not imputed by the SPM. This could lead to a potential underestimate of the value of the safety net and would thus overstate burdens. However, other significant benefits, such as stimulus payments, are included in the 2021 ACS SPM.⁸

One of the most notable policies in the 2021 ARP was the expanded CTC, which provided an influx of thousands of dollars per child to eligible families throughout the year. These credits were unconditional transfers that families could use for any needed expenses and are captured by the ACS SPM. Research has shown that the CTC provided economic stability for low-income families,⁹ and reduced overall and child poverty (Burns & Fox, 2022; Hamilton *et al.*, 2022; Parolin *et al.*, 2021). Many families with low incomes reported explicitly using their CTC to pay for housing and utilities, consistent with quasi-experimental evidence on the CTC's impacts on household spending (Schild *et al.*, 2024; Zippel, 2021). Expanded SNAP was also in effect in 2021, temporarily increasing in-kind food benefits. Cost burden estimates using pretax cash income do not capture the increase in these resources in 2021.

Table 2 presents pre- and post-pandemic estimates broken down by the severity of housing burden for all renters and for those in the lowest income quintile. Under the traditional cost burden measure using pretax cash income, overall burden rates rose by nearly 3 percentage points from 2019 to 2021. But including the sum of post-tax income and benefits shows a decrease in burden over this period, from 51% in 2019 to 48% in 2021. This decrease is attributable to expanded tax credits, which significantly alleviated severe burdens and resulted in the largest gap between traditional and adjusted cost burden estimates of any year in the dataset. The drop in burden rates holds even after accounting for expenses and effectively considering all components of SPM resources.

For renters in the bottom income quintile, the traditional ratio measure of burden again underestimated the value of the expanded social safety net in reducing cost burdens during the same period. When using pretax cash income, the prevalence of burden for the most economically vulnerable households increased by about 2 percentage points from 2019 to 2021. Including in-kind benefits in the calculation still results in an increase in cost burdens over this period and suggests that expanded food benefits did not alone offset rising rents and income losses. Once both benefits and taxes are considered, though, the prevalence of burden among these households decreases from 76% in 2019 to 71% in 2021. This decrease is again driven by the marginal inclusion of tax credits and holds even after accounting for expenses.

By 2022, pandemic era policies had expired, decreases in supplemental poverty (Shrider & Creamer, 2023) and housing burden were reversed, and the gap between traditional and adjusted cost burden estimates was reduced. When using the sum of post-tax cash income and benefits, the prevalence of severe and overall housing

Table 2. Housing burden estimates based on different definitions of income: 2019, 2021 and 2022.

	All Renters			Renters in the First Income Quintile		
	Not Burdened	Moderately Burdened	Severely Burdened	Not Burdened	Moderately Burdened	Severely Burdened
2019						
Market Income	48.4	19.0	32.7	10.6	11.7	77.7
Total Cash Income (Market Income + Cash Transfers)	53.7	22.4	23.9	18.4	21.7	59.9
w/Housing Benefits	54.8	22.7	22.5	21.4	22.5	56.0
w/Housing and Nutrition Benefits	56.1	22.8	21.1	23.7	23.9	52.4
w/Housing, Nutrition Benefits and Tax Liabilities & Credits	49.2	28.0	22.8	24.1	23.6	52.2
w/Benefits, Taxes and Expenses	40.7	29.4	30.0	20.4	19.3	60.3
2021						
Market Income	46.0	19.4	34.7	9.7	9.8	80.6
Total Cash Income (Market Income + Cash Transfers)	51.0	22.6	26.4	16.9	18.6	64.6
w/Housing Benefits	52.1	22.8	25.1	19.6	19.2	61.1
w/Housing and Nutrition Benefits	53.7	23.0	23.3	22.3	20.9	56.8
w/Housing, Nutrition Benefits and Tax Liabilities & Credits	52.2	27.2	20.7	28.6	23.8	47.5
w/Benefits, Taxes and Expenses	44.9	28.8	26.3	25.1	20.8	54.2
2022						
Market Income	45.7	19.7	34.6	9.8	9.7	80.5
Total Cash Income (Market Income + Cash Transfers)	50.4	22.8	26.7	16.8	18.4	64.8
w/Housing Benefits	51.5	23.1	25.4	19.7	19.2	61.1
w/Housing and Nutrition Benefits	53.0	23.3	23.6	22.4	20.8	56.8
w/Housing, Nutrition Benefits and Tax Liabilities & Credits	45.5	28.4	26.1	22.7	20.3	57.0
w/Benefits, Taxes and Expenses	38.8	28.9	32.2	19.9	17.0	63.2

Source: Data are from the American Community Survey (ACS) and the ACS Supplemental Poverty Measure (SPM) Research Files for 2019, 2021, and 2022.

The sample size of the ACS was about 3.0 million individuals in 2020 and 2021, and 3.2 million in 2022. All estimates use Census person-level weights to represent the U.S. population. The sample of renters in the lowest income quintile is determined using cash income. Market income is the sum of wages and earnings. Total cash income is the sum of household market income and cash transfers from Social Security, SSI and any other public assistance programs. The value of benefits includes those considered by the Supplemental Poverty Measure (SPM) and includes various types of nutrition and housing benefits. Taxes are the sum of Social Security payroll taxes (FICA), and state and federal tax liabilities after credits. Necessary expenses include capped work and childcare expenses, and medical out of pocket expenses. See Appendix Table A1 for additional details regarding definitions of income and resources.

burden increased by about 7 percentage points for all renters and 6 percentage points for the lowest-income renters. Severe housing burden among bottom-quintile households in particular increased by about 10 percentage points between 2021 and 2022 when using the sum of post-tax cash income and benefits.

Overall, the results from the years surrounding the pandemic underscore that economically disadvantaged households are disproportionately sensitive to fluctuations in social safety net policies, which can greatly increase total resources and offset rapidly rising rents. These results also highlight the importance of tax policy in quickly reducing pressure on household budgets for low-income renters. Our adjusted estimates show that in 2021 housing benefits reduced the severe cost burden rate for this group by about 4 percentage points compared to traditional pretax cash income estimates. Emergency rental assistance, which is not captured by our adjusted

estimates, likely helped reduce burdens even more. After including nutrition benefits and taxes, the gap between traditional and adjusted cost burden estimates widens even more for this group. Adjusted estimates of burden, which consider expanded tax policies in 2021, were 9 percentage points lower than traditional estimates for the lowest-income renters.

6. Discussion

The results show the evolution of housing burden over recent years using the traditional pretax cash income ratio measure as compared to broader definitions of resources. Housing burden estimates among renters are sensitive to different definitions of income and subsequent iterations of the ratio measure. Burden levels based on pretax cash income may be either over- or under-estimated when moving from pretax cash incomes to a broader definition of SPM resources. This relative over- or -under estimate depends on whether tax liabilities and expenses exceed the sum of in-kind benefits and tax credits. Renters in the lowest income quintile have lower housing burdens with a broader definition of resources, while those further up the income distribution face higher burdens largely due to the impact of tax payments.

From 2009 to 2019, the pretax cash income ratio measure shows a decline in overall and severe housing burden among renters. However, when the definition of income is broadened to follow the SPM, little to no change in housing burden is observed over the decade. These trends remain true for economically disadvantaged renters in the lowest income quintile. Differences between traditional estimates of burden using the pretax cash income and adjusted estimates using SPM resources largely stem from the inclusion of taxes in the latter. The redistributive effect of taxes is ignored by the traditional pretax cash income measure, thus their potential dampening effect on housing burden is unobserved. Nevertheless, before pandemic-related expansions to the social safety net, the convergence between adjusted and traditional cost burden rates suggests that the redistributive effect of taxes and transfers for the lowest-income households, as well as the associated reductions in housing burden, diminished over time.

In 2021, the prevalence of housing burden among renters appears particularly overstated using the traditional ratio measure, which ignores COVID-related income supports such as stimulus payments and the expanded CTC and therefore underestimated the important policy changes that were happening. While the traditional income measure did not perform well during the pandemic, the fast reduction in cost burdens during a period of rapid rent growth speaks to the importance of a robust social safety net in alleviating financial pressure on households, especially during periods of economic uncertainty. It further highlights the challenges that policymakers and planners face in assessing policy changes. Our analysis of the differences between measures illustrates the impact of a rapidly expanded social safety net during a period of crisis. Our findings show that cost burdens, and especially severe burdens, among the lowest-income renters fell quickly. While the focus of our study has been at the national level in just one country, adequately measuring

affordability conditions is a challenge across countries and geographies. Measurement is key for assessing the scope of problems, building narratives for policy change, and evaluating the impact of those changes.

A comparison of measures also underscores how much is needed to support households experiencing periods of low income. Though the traditional measure overstates burdens at the lower end of the income spectrum by failing to incorporate noncash and post-tax income supports (including temporary and expanded supports during economic downturns), renters experience persistently high-cost burdens regardless of the measure used. The fact that cost burdens remain high and residual incomes remain low, despite accounting for in-kind benefits and tax credits, points to the insufficiency of social programs during a typical year. Housing benefits do little to move the needle on adjusted cost burden rates for this group, reflecting the small number of households who actually receive rental subsidies and the increasingly shallow housing programs that still leave many renters burdened despite receiving assistance.

Our findings suggest there are multiple pathways for reducing housing cost burdens. One way is through more generous and universally available rental assistance, either through existing programs or by drawing on social housing models from other countries. Moving to a less commodified or unitary rental market regime could provide a longer-term solution for persistent affordability challenges. Other countries have achieved this by highly regulating housing markets or by building a robust social housing sector. In the US, new social housing models are being explored on a small scale but policy efforts such as rent caps have not gained widespread traction. Another approach for addressing housing cost burdens is through supplements to household income, which could be done through the tax code or through direct cash assistance. The pandemic illustrated that this can happen quickly when there is political will. While tax benefits do not do much to reduce severe burdens among the lowest-income renters in a typical year, the expanded Child Tax Credit and Earned Income Tax Credit contributed to a substantial decrease in severe burden rates for this group when they were in effect.

There are a few study limitations to consider when implementing the full SPM definition of resources into the ratio measure of housing burden. First, the ACS SPM is only available from 2009 onwards. The lack of data prior to 2009 prevents any analyses over a longer historical period. Second, the implementation of the SPM in the ACS relies on imputed receipt and amounts of most in-kind benefits (Fox *et al.*, 2020). Further research is needed to assess the relative accuracy of the ACS SPM and the reliability of its imputations across years, though Census research suggests that imputed benefits' distributions generally align with reported receipt and amounts in other datasets (Fox *et al.*, 2020). Another caveat to consider is that all SPM resources incorporated into the ratio measure are implicitly considered equally fungible. Many in-kind benefits, such as SNAP, however, are constrained, are not equivalent to cash, and cannot be used to pay for housing or directly reduce housing burden. These in-kind benefits may help cover the cost of other necessities, but they do not increase the amount of resources available to cover the cost of rent and utilities. The only exception is the estimated value of housing subsidies, which directly reduces the housing burden for recipients. Even with these limitations and

challenges, however, the SPM cost burden approach provides a window into how policy can shape the material well-being of renters.

Although the SPM better captures the sum of resources at families' disposal, the expanded definition of income may not be appropriate when measuring housing burden in all contexts. For example, income not spent on housing is assumed to be spent on other necessities. It thus may not be conceptually appropriate to subtract medical out of pocket expenses, and capped work and childcare expenses when determining housing burden. The remaining income after housing is paid for should arguably be spent on these exact expenses. The ratio measure of burden is also often used as an eligibility indicator for government programs (Pelletiere, 2008). In this case, considering components of SPM resources when estimating burden may underestimate the need. Overall, using SPM resources to measure housing burden provides a different picture of its prevalence and distribution relative to the standard measure. Despite measurement challenges described above, using a more comprehensive definition of resources clarifies the extent to which policy can attenuate housing burden in the United States.

Notes

1. This paper follows the standard calculation of rent burden using gross rent for the housing costs, which is the sum of contract rent and utilities.
2. Expenses defined in the SPM include medical care, health insurance premiums, childcare, transportation to work, and child support payments. These expenses, along with tax liabilities, are subtracted from the sum of income, benefits, and tax credits to calculate total SPM resources.
3. See (Fu and Velasco, 2023) for a history of commodification of housing in the United States.
4. Going forward estimates of housing burden refer to burden among renters. This analysis does not consider housing burden among owners.
5. See Figure 1 or Appendix Table 1 for definitions of resources and income used throughout the paper.
6. Fox et al. (2020) provides details on which SPM resource components are imputed and how they are constructed.
7. The sum of work and childcare expenses are capped at the earnings level of the lower-earning spouse or partner in the household. For additional details, see the technical documentation on the SPM (Poverty Statistics Branch, 2024).
8. See Glassman and Wilson (2023) for details on how select post pandemic benefits were imputed for and considered by ACS SPM.
9. For a comprehensive review of the 2021 Child Tax Credit expansion and its effects, see Curran (2022).

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Data availability statement

All data used in this analysis are publicly available. The Public Use Microdata from the American Community Survey (ACS) can be accessed through the U.S. Census Bureau's File Transfer Protocol (FTP) site at <https://www2.census.gov/programs-surveys/acs/data/pums/>. Additional variables related to the Supplemental Poverty Measure (SPM) are included in a research extract produced by the Poverty Branch of the Social, Economic, and Housing Statistics Division at the U.S. Census Bureau. These files are accessible at <https://www.census.gov/data/datasets/time-series/demo/supplemental-poverty-measure/acs-research-files.html>.

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