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Road Map to a Unified Measure of Housing Insecurity

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Abstract

*This article discusses the evolution of the concept and measurement of housing insecurity. Our survey of the literature uncovers that multiple terms and definitions are used to describe housing insecurity. Based on our analysis, we argue for one operational term, **housing insecurity**, and we put forth an operational definition that captures the various dimensions of this issue. We also argue for the development of an instrument that allows researchers to accurately measure the problem. We provide a road map for how this can be achieved based on the precedent set forth by the U.S. Food Security Survey Module.*

Introduction

Housing insecurity is often a reality for individuals experiencing poverty and/or social marginalization. Although it is multidimensional by nature, typically only a few of these dimensions are reliably measured and included in national estimates. Based on a thorough cross-field literature review of 106 quantitative, qualitative, and mixed-methods studies,¹ we argue in this article that current measures of housing insecurity are incomplete, which may result in inadequate policy responses and funding.

The importance of housing goes beyond the material infrastructure that serves as protection from the elements (Shaw, 2004); housing is interrelated with physical, social, and psychological well-being (Padgett, 2007). Research has primarily focused on either the health and education threats associated with substandard housing and neighborhoods (Bashir, 2002; Katz, Kling, and Liebman, 2001; Leventhal and Brooks-Gunn, 2003; Ludwig et al., 2013; Marsh et al., 2000; Sanbonmatsu et al., 2006) or the psychosocial benefits of housing as a home (Dupuis and Thorns, 1998; Low and Lawrence-Zuniga, 2003; Padgett, 2007; Shaw, 2004; Somerville, 1992). Also a focus of research, lack of housing altogether—or homelessness—brings into stark relief the fundamental importance of housing security as a prerequisite for health, employment, and various other aspects of daily functioning (Henwood et al., 2013).

In the United States, over half a million people experience homelessness on any given day (Henry et al., 2018). Efforts to address this extreme form of housing insecurity receive dedicated infrastructure and oversight. Congress provides direct funds to address homelessness through the McKinney-Vento Homeless Assistance Act, and communities across the United States are required to maintain homeless management information systems to receive federal funding to address homelessness. Each year, communities across the country also conduct a homeless count to monitor the scope of the problem. An Annual Homeless Assessment Report (AHAR) is submitted to Congress each year that includes monitoring from both the Homeless Management Information System (HMIS) and homeless counts. This type of monitoring has helped direct resources and has enabled strategies that have reduced the overall number of chronically homeless adults and homeless veterans since the inception of AHAR in 2007. Although some interventions to address homelessness promote housing stability and security (Padgett, Henwood, and Tsemberis, 2015),² the definition of what constitutes homelessness has been a moving target³ and is not considered to be part of a unified construct of housing insecurity that can be measured on a continuum.

As compared with the extreme of homelessness or even housing affordability, there is much less research exploring other facets of housing insecurity. This could partially be because individuals

¹ See appendix B for a list of articles included in our literature review.

² Housing First is an example of an effective intervention for homelessness, with research consistently demonstrating its impact on housing stability. Despite, or perhaps because of, overwhelmingly positive housing outcomes, there has been limited discussion of differences in the operationalization of housing stability and retention in studies of Housing First, which reflects inconsistencies in the definition of these concepts in the broader body of research on homelessness and housing (Byrne, Henwood, and Scriber, 2018).

³ Beginning in 2009, federal definitions of homelessness were expanded to permit inclusion of persons at “imminent risk of homelessness” to expand access to homelessness assistance benefits. Such persons include individuals or families whose residence will be lost within 14 days of application for homelessness assistance, for whom no subsequent residence has been identified, and for whom resources are lacking to obtain other permanent housing. Another group for which homeless assistance has been expanded is those individuals and families fleeing or attempting to flee domestic violence (HUD, 2012).

and families experiencing housing insecurity are less visible to the public. The limited focus on the more hidden aspects of housing insecurity, such as housing stability, housing quality, and behavioral responses to housing affordability (for example, trading housing safety, housing quality, neighborhood safety, and/or neighborhood quality for affordability), and the failure to take into consideration all the domains of housing insecurity (that is, housing affordability, housing stability, housing safety, housing quality, neighborhood safety, neighborhood quality, and homelessness) have resulted in much less being known about its true prevalence and the actual costs it imposes on society. In addition, in domains with more research focus, such as neighborhood effects, the link has not been adequately made to the issue of housing insecurity. Developing a common language and uniform measurement tool would help society mobilize resources, improve its understanding of the importance of this invisible problem, and generate solutions.

In this article, we propose a uniform instrument to assess housing insecurity that can capture the multidimensional aspects of housing, such as access and quality. A comprehensive measure would be able to encapsulate both access to and quality of housing and the behavioral tradeoffs made to secure housing. In addition to examining how housing insecurity has been conceptualized across the literature, we propose a road map for the creation of a new measure of housing insecurity, based on the development of the U.S. Food Security Survey Module that has been incorporated into the Current Population Survey (CPS) annually since 1995 (National Research Council, 2006).

A Brief History of Housing Insecurity

The concept of adequate housing as a human right was adopted by the United Nations (U.N.) General Assembly in Article 25 of the 1948 Universal Declaration of Human Rights and Article 11 of the International Covenant on Economic, Social and Cultural Rights in 1966 (U.N., 2014). The U.N. Committee on Economic, Social and Cultural Rights did not define “adequate housing,” however, until the Committee’s general comments in 1991 and 1997, at which point the U.N. characterized adequate housing as meeting the following minimum criteria:

- (a) tenure security that guarantees legal protection against forced evictions,⁴ harassment, and other threats;
- (b) availability of materials and infrastructure, such as safe drinking water; adequate sanitation; energy for cooking, heating, and lighting; food storage; and refuse disposal;
- (c) affordability such that paying for housing does not compromise other human rights;
- (d) habitability that includes protection against the cold, damp, heat, rain, wind, other threats to health, and structural hazards;
- (e) location that is not polluted or dangerous and that does not cut off access to employment opportunities, healthcare services, schools, or other critical social institutions; and
- (f) accessibility that can meet the specific needs of disadvantaged and marginalized groups and does not compromise the expression of cultural identity (U.N., 2014).

⁴ Note that forced evictions do not include evictions that are justifiable (for example, repeatedly not paying rent or damaging property without justifiable cause) and carried out in accordance with international human rights law (U.N., 2014).

The U.N. provides a framework to monitor human rights, including the right to housing, with several suggestions for housing indicators; those include the share of public expenditure on subsidized or public housing, reported cases of forced evictions, and rates of homelessness. Nonetheless, they do not operationalize a uniform measure of adequate housing or housing security (U.N., 2014).

Likewise, in 1949, the U.S. Congress passed the Housing Act of 1949. This controversial law⁵

...declare[d] that the general welfare and security of the Nation and the health and living standards of its people require housing production and related community development sufficient to remedy the serious housing shortage, the elimination of substandard and other inadequate housing through the clearance of slums and blighted areas, and the realization as soon as feasible of the goal of a decent home and suitable living environment for every American family, thus contributing to the development and redevelopment of the communities and to the advancement of the growth, wealth, and security of the Nation.⁶

The law explicitly recognizes the importance of affordable adequate housing and a “suitable living environment,” or neighborhood, not only for the health and well-being of the people (more than 40 years before the 1991 and 1997 U.N. criteria) but also for macroeconomic growth and stability.

In 1969, the U.S. Department of Health and Human Services (HHS) went a step further in explicitly defining housing instability using five indicators:

- (1) exorbitant housing costs relative to income (greater than 50 percent);
- (2) inferior housing quality (for example, inadequate plumbing, heat, or electricity; leaks; holes; and so on);
- (3) neighborhood instability (for example, high rates of poverty, crime, and unemployment; poor city services; litter; noise; pollution; and so on);
- (4) overcrowding; and,
- (5) at the extreme, the condition of homelessness (HHS, 1969).

The U.N. Housing Act of 1949 and HHS definitions take a broad view of what constitutes housing security. The Housing Act of 1949 establishes the importance of housing to the welfare and security of the people and the macroeconomic growth and stability of the nation, the U.N. describes the minimum conditions necessary for housing security, and HHS provides a foundation for a comprehensive housing insecurity definition. Although the definitions are, in general, mirror images of one another, the HHS definition is more narrowly defined and leaves out certain aspects of the U.N. definition, such as expression of cultural identity, forced evictions, and accessibility to services required by disadvantage and marginalized groups. Nonetheless, the HHS definition incorporates the dimension of housing affordability and is defined in a way that more readily permits the operationalization of a housing insecurity measure: All five of the categories of housing insecurity in this definition are quantifiable. The HHS characterization of housing insecurity also illustrates that, while homelessness is a sufficient condition for housing insecurity, it is not a necessary one.

⁵ Critics of this law argue that it led to increases in housing insecurity by cultivating the slums and ghettos it sought to eliminate (von Hoffman, 2000).

⁶ U.S. Congress. 1949. Housing Act of 1949. Pub. L. 81-171. 63 Stat. 413-444. <http://legisworks.org/congress/81/publaw-171.pdf>.

These definitions provide a good starting point to create a fully operational definition of housing insecurity. In the next section, we conduct an exhaustive cross-field literature review, which will form the basis for the fully operational definition of housing insecurity that we set forth in the section after that.

Current Approaches to Housing Insecurity

Despite the fact that the HHS set forth a definition of housing insecurity as early as 1969, and both the U.N. and HHS depictions of this problem correctly outlined the concept, to date, working definitions have not captured the multidimensional aspects of this issue. Most of the research has focused on only three dimensions (homelessness, stability, and affordability), giving a potentially incomplete view of the extent of housing insecurity. To better understand how housing insecurity has been defined both conceptually and operationally, we conducted a thorough cross-field literature review to determine how housing insecurity is defined, measured, and used in research.

We sought out academic studies, government reports, and technical reports released from 1991 to 2017 on the topic of housing insecurity and its allied definitions. We operationalized this review by gathering papers on the Google Scholar and Web of Science search engines for the following terms: “housing security,” “housing insecurity,” “housing affordability,” “housing stability,” “housing instability,” “homelessness,” “housing hardship,” “housing quality,” “housing safety,” and “neighborhood safety.” Given the focus of this paper on the global concept of housing insecurity, we restricted our search to the macrolevel terms listed above. Relevant papers (see appendix A, exhibit A-1) either (1) included housing security as an explanatory variable measuring outcomes on households, individuals, or populations; (2) sought to understand reasons for housing security as a dependent variable; or (3) assessed the prevalence of housing insecurity. Our search focused on the U.S. context; however, several articles from other developed countries were relevant to the development of a measure of housing insecurity. Our literature review yielded 106 quantitative, qualitative, and mixed methods studies and reports from a variety of fields and outlets (see appendix B for a complete list of articles reviewed); 55 of those studies used some form of housing insecurity as an explanatory variable measuring a different individual-level or household-level outcome, 44 studies used housing insecurity as a dependent variable, seeking to understand its causes, and 17 studies measured the prevalence of some form of housing insecurity. Of these studies, 7 were counted as both explanatory and dependent variable studies, 2 were counted as both prevalence and dependent variable, and 2 were counted as both prevalence and explanatory variable. Eleven studies were from an international context (see appendix table 1 of Cox et al., 2017a for a full list of all papers, with short descriptions).

Based on the 106 quantitative, qualitative, and mixed methods studies and reports reviewed, we find three major concerns with current approaches to measuring housing insecurity: (1) lack of a uniform definition, (2) underdeveloped concept, and (3) inconsistent measurement. Specifically, we find that the definition of what constitutes housing insecurity varies widely. In our scan of the literature, certain search terms—housing instability (43 percent), homelessness (34 percent), and housing insecurity (16 percent)—had many more associated papers on this topic than did other key words⁷ (see appendix A, exhibit A-2). Moreover, most papers did not refer to “housing (in)security” explicitly;

⁷ Certain papers came up under multiple search terms.

rather, they examined a particular subcategory, such as housing instability or affordability. Definitions of what constitutes housing insecurity also varied widely. For example, Heflin, London, and Scott (2011) assessed how women in three disadvantaged Cleveland neighborhoods coped with housing hardships, with the dependent variable—housing hardships—including housing stability, housing quality, housing safety, and neighborhood safety. In contrast, Rourke et al. (2012) used a whole battery of housing-insecurity categories (stability, affordability, quality, neighborhood quality, and homelessness) in assessing physical and mental health outcomes in adults with HIV.

Even when definitions varied in consistency, measurements of the same condition often differed in the literature (see appendix A, exhibit A-3). For example, 30 of the papers considered housing (un)affordability as housing insecurity, but affordability was assessed using five different measurements: (1) “difficulty/inability to make payments on housing” (83 percent), (2) “housing cost burden” (37 percent), (3) “foreclosure” (10 percent), (4) “legal housing issues” (7 percent), and (5) “having rental assistance” (3 percent), with some 30 percent of papers testing for multiple measurements but no studies testing for all five measures. There is variability even within measures. Some researchers use a 30-percent housing burden cutoff (for example, Mimura, 2008), while others use 50 percent (see Capps, 2001), and some use both (see Coulton et al., 2001). Assessments of difficulty in making payments vary as well: most are solicited via survey responses, and questions are not standardized. The measurement of housing instability varies even more than affordability. Eight different measures were employed in the 49 papers that used housing instability as a measure of housing insecurity: (1) “multiple moves” (59 percent), (2) “doubling up” (35 percent), (3) “eviction” (18 percent), (4) “overcrowding” (18 percent), (5) “duration of stay” (14 percent), (6) “forced moves” (8 percent), (7) “living in unstable conditions” (2 percent), and (8) “living in multiple subsidized units over time” (2 percent). As with affordability, 39 percent of the papers used multiple definitions, although no study used all eight measures. There was also considerable within-measure variability in instability, with overlapping definitions of overcrowding and doubling up, and overlapping definitions of multiple moves and duration of stay. For example, studies differed on how many moves were multiple: in two studies of mothers and children, using the same Fragile Families and Child Wellbeing Study, Ziolo-Guest and McKenna (2014) defined it as three moves over a 5-year timeframe, while Suglia, Duarte, and Sandel (2011) defined it as two or more moves in 2 years.

Most of the papers reviewed define housing insecurity incompletely or narrowly. While some papers we surveyed do focus only on a specific housing issue (such as homelessness), its determinants, or its outcomes, many others claim to speak for housing insecurity in general. Yet, it is rarely the case that all available dimensions of housing insecurity are combined into one indicator, even when more than one measure is available in a survey. Of the 106 surveyed papers, none addresses all seven of our domains of housing insecurity, and only 8 studies address four or more facets. Of the 73 papers with a focus on homelessness, 35 percent focused only on this one subcategory of insecurity, and 38 percent focused on just two.

Data availability and specificity have also created challenges in studying the full continuum of housing insecurity. In the reviewed literature, 98 of the 106 studies analyzed used data-driven approaches to ascertain some dimension of housing insecurity. Twenty-nine studies collected primary data; the rest relied on 38 different secondary sources. Among these secondary data sources, the U.S. Center for Disease Control’s Behavioral Risk Factor Surveillance System survey;

the Children's Health Watch survey; HUD's National Survey of Homeless Assistance Providers and Clients; the Worcester, MA Family Research Program; and Australia's Journeys Home data sets were used in three papers each; the Fragile Families and Child Wellbeing Study, the National Survey of America's Families, and the National Longitudinal Survey of Youth data sets were used in two papers each. Such data set variation contributes to the different permutations in housing insecurity measurement.

As a result of varying definitions, comparing housing insecurity across studies is difficult. Moreover, many scholars define the measurement of their version of housing insecurity to a specific subpopulation of interest, making comparisons impossible. Such a narrow definition of housing may also lead to undercounting and partial measurement. Take, for example, the affordability dimension of housing insecurity. If we were only to define housing insecurity by affordability, a household could be considered housing secure if their housing cost burden is below a certain threshold (or if they do not report difficulty with making payments), even if they made tradeoffs between affordability and housing quality such that they chose to live in a low-quality dwelling that poses threats to the household members' health (containing lead paint, mold on the walls, and so on) or safety (for example, active electrical wires sticking out, severely dilapidated stairs, living in a dangerous neighborhood) in order to obtain more affordable housing.

Toward a New Approach to Measuring Housing Insecurity

A comprehensive definition of housing insecurity, as set forth by HHS and the U.N. General Committee, has yet to be put into use.⁸ Housing insecurity impacts many well-being outcomes for adults and children, yet many aspects of housing insecurity are understudied, at least compared to homelessness and housing affordability (possibly because they are less visible to the public or more difficult to measure), and their prevalence and cost to society are not fully understood. Developing a uniform measurement tool would help society to mobilize resources, improve its understanding of the importance of this problem, and generate solutions.

One possible definition (based on the overlapping descriptions set forth by HHS and the United Nations) for housing security is as follows:

Availability of and access to stable, safe, adequate, and affordable housing and neighborhoods regardless of gender, race, ethnicity, or sexual orientation.

Likewise, housing insecurity would be defined as follows:

Limited or uncertain availability of stable, safe, adequate, and affordable housing and neighborhoods; limited or uncertain access to stable, safe, adequate, and affordable housing and neighborhoods; or the inability to acquire stable, safe, adequate, and affordable housing and neighborhoods in socially acceptable ways.

⁸ Note that the Office of Policy Development and Research within the U.S. Department of Housing and Urban Development (HUD), inspired by an earlier version of this paper first released as a working paper in 2016 (see Cox et al., 2017a), has developed and recently published a 60-day notice to pilot a housing insecurity module within the 2019 American Housing Survey. Published in the *Federal Register* as a notice on September 11, 2018. 83 Fed. Reg. 45,955-45,956. <https://www.govinfo.gov/content/pkg/FR-2018-09-11/pdf/2018-19707.pdf>.

From this definition, it becomes clear that housing insecurity can be characterized by the following dimensions:

- (1) Housing Stability
- (2) Housing Affordability
- (3) Housing Quality
- (4) Housing Safety
- (5) Neighborhood Safety
- (6) Neighborhood Quality
- (7) Homelessness

Where housing stability is the ability of a household to stay in a housing unit of its choosing, for a duration of its choosing, without interruption or complication. Common manifestations of instability include living in overcrowded conditions, doubling up with relatives or friends, frequent moves, forced moves such as eviction, and others. Housing affordability is a household being reasonably able to pay for adequate housing, on time, within its budget; unaffordability includes having a high housing cost-to-income ratio (burden), the difficulty or inability to pay for the full costs of housing on time or fully, and legal issues related to paying for housing. Housing costs include not only the rent or mortgage but also relevant property taxes and utilities and routine maintenance bills.

Housing quality and safety deal with structural characteristics of a household's housing unit. Unsafe housing poses direct health risks to inhabitants. Manifestations include open wires; lack of insulation or heating; holes in exteriors, roofs, or floors; lack of water access; and pests in the unit. Low-quality housing, while not directly harming the household, nevertheless shifts the members' quality of life below an expected level; common manifestations include dilapidated exterior of building, peeling paint in the interior of the unit, lack of access to (working) appliances, not having bathroom fixtures and/or flushing toilets, and having utilities that experience frequent breaking or stopping, including sewage, water, electricity, heat, and so on. In addition to the health concerns, it is important to include low-quality and unsafe housing in housing insecurity because of the tradeoffs individuals and households may choose to make between housing affordability, housing quality, and housing safety.

Neighborhood-level characteristics such as safety and quality are not often thought of as directly housing-related; however, they are certainly tied to households' ability to live in a safe environment in particular and to its well-being in general. Therefore, we believe, neighborhood characteristics form part of a measure of housing insecurity. This is especially true if households are making tradeoffs in neighborhood quality or safety for greater housing affordability. For example, if a household can only afford to live in a high-crime neighborhood, there could be at least two possible policy interventions: give the household a subsidy to move elsewhere (an issue of housing affordability) or make the current neighborhood safer (an issue of neighborhood safety). Lack of neighborhood safety entails the presence of high crime, many abandoned buildings, the proximity of environmental hazards, and excessive noise and traffic, among others. Low-quality neighborhoods include those with poor services, poor infrastructure, low access to amenities, and others. Both neighborhood quality and safety can be measured subjectively by self-reports or objectively, perhaps, through administrative data. For example, a neighborhood audit tool could be used as a more "objective" measure of neighborhood quality, such as The Revised Residential Environment Assessment Tool (REAT 2.0), which includes measures of neighborhood condition, natural surveillance, and natural elements (Poortinga et al., 2017). Note that these tools may still suffer from observer bias. In terms

of neighborhood safety, these measures could be obtained by working with other government agencies, such as the Federal Bureau of Investigation and the Environmental Protection Agency, that collect more objective administrative data on neighborhood safety. These measures might include crime statistics from the FBI's Uniform Crime Reports,⁹ neighborhood-level industrial hazard data from EPA's Toxic Release Inventory (for example, see Crowder and Downey, 2010), and EPA's Safe Drinking Water Information System Federal Reporting Services. One interesting implication of the inclusion of neighborhood safety into a housing insecurity measure is that we could consider a scale that might place more weight on variables that pose an immediate danger to the safety of the inhabitant. This could potentially lead to housing in areas with extreme violence being marked as uninhabitable locations that need immediate assistance. The authors are not aware of a standard of neighborhood safety that would lead to this conclusion, but they note that epidemiological models of contagion might shed some light on such a threshold. These models could help to determine when there might be an epidemic (in certain neighborhoods and communities), warranting the designation of dwellings in those areas as uninhabitable.

Finally, homelessness can have multiple forms (HUD, 2012), such as literal homelessness (which includes sleeping on the street), temporary housing (such as homeless shelters), and living in dwellings not meant for human habitation (living in a vehicle, railroad car, abandoned building, encampment, RV, and so on); while examples of more hidden forms of homelessness might include couch surfing and doubling up.

This definition makes room for both a categorical and a continuous measure (both of which have value) of housing insecurity. Such a measure would be a function of the number and depth of housing issues along the aforementioned seven dimensions. While we have included homelessness as part of our housing insecurity definition, as in the case of the condition of hunger in the food security module, it is conceivable that homelessness could be removed from the definition. As previously mentioned, homelessness is a sufficient—but not necessary—condition for housing insecurity; therefore, it could be modeled as the severest form of housing insecurity along a continuum, or possibly as an outcome of housing insecurity. One argument for including homelessness within the definition of housing insecurity is, unlike hunger, homelessness is experienced at the household level; therefore, we have opted to keep it in our definition. What will prove to be more difficult when measuring homelessness in an index of housing insecurity is the ability to capture homeless households that are doubling up with households that are not homeless.¹⁰

Developing a uniform definition does not mean that research or policy should not separately focus on the different dimensions of housing insecurity when appropriate; rather, it suggests that to precisely estimate the prevalence of this issue and accurately account for its social costs, we need a comprehensive definition so that we can develop an instrument that will jointly measure all of its dimensions. Specifically, a common definition of housing insecurity would facilitate the development of a validated national instrument of housing insecurity that can be assessed at the household level and, possibly, the individual level. To capture the multidimensionality of housing insecurity, this measure should be defined as a scale that can quantify housing security along a continuum, from the most housing secure to the most extreme cases of housing insecurity, as well as categorically.

⁹ Another source of crime data is the Centers for Disease Control and Prevention's (CDC) National Vital Statistics System (NVSS), which has information on deaths by homicide, as well as the National Crime Victimization Survey (NCVS), which, although less objective, provides self-reports of crime victimization.

¹⁰ Specifically, some households may choose to double up, while others may do so because of the loss of housing.

We provide several guidelines to aid in the development of such an instrument, to ensure that this measure is useful in a variety of settings and contexts. A uniform multidimensional construct captures the presence of an underlying constellation of issues rather than just one problem, an approach that may be appropriate for many studies, but not for all. Measurement frequency should depend on the needs of the particular study, so survey question wording should be easily adaptable to different time lengths but will also have to take into consideration the burden of the survey on the respondent. Housing insecurity prevalence measures at national, state, regional, or local levels should be at frequent enough intervals (at least annually or biennially) to measure the evolution of housing insecurity. For example, similar to the U.S. Household Food Security Module, a housing security module could survey respondents' about their housing security over the past 12 months; and because this survey is collected biennially, to understand the housing characteristics of the U.S. population, population estimates of housing insecurity would be obtained every 2 years. In addition, the timeline for the baseline module questionnaire should cover the lifetime history of housing security of the household for the inaugural year in order to understand the past experience of housing insecurity in American households.

Households should be the units of analysis for housing insecurity, unless study designs necessitate otherwise. While housing insecurity takes neighborhood-level characteristics into account, relevant outcomes are at the household level, recognizing that different processes may affect household-level and neighborhood-level insecurity. Measurement modules should be flexible to include local context. For example, housing cost burden cutoffs may differ by metropolitan area, or regions in warm climates do not need questions about the existence and performance of home heating equipment. Similarly, rural contexts, Native American reservations, and other unique areas may require slight modifications. While this article approaches housing insecurity from a U.S. perspective, the measure should be easily transferrable to other developed countries and, with some modification, to the developing world context.

Current Measures of Housing Insecurity

To date, no research has captured all the proposed seven domains of housing insecurity among a nationally representative population. Tsui et al. (2011) have the most expansive measure of insecurity, including unaffordable or unsafe housing, unsafe neighborhoods, homelessness, experiencing foreclosure, or having been in housing court. In contrast, Curtis and Geller (2010), Geller and Franklin (2014),¹¹ Goldrick-Rab et al. (2015), and Warren and Font (2015) view insecurity as a combination of housing instability, unaffordability, and homelessness. Routhier (2018) restricts her sample to renters and measures housing insecurity only among the dimensions of housing affordability, housing stability, and poor physical unit conditions. Bailey et al. (2016) see insecurity as a housing stability and affordability issue. Buffardi et al. (2008) and Diette and Ribar (2018) see it as a combination of housing instability and homelessness. Others define insecurity as a mix of homelessness and poor housing quality (Western, Braga, and Kohl, 2015), and yet others think of it as a mix of homelessness and unaffordability (Surratt et al., 2015). Campbell et al. (2014), Greder et al. (2008), Liu et al. (2014), and Stahre et al. (2015) equate housing insecurity with unaffordability only; Cutts et al. (2011) and Frank et al. (2010) associate it with only housing instability; and Thurston et al. (2013) view it solely as unsafe housing.

¹¹ Geller and Franklin (2014) also mentioned eviction as a component of housing insecurity.

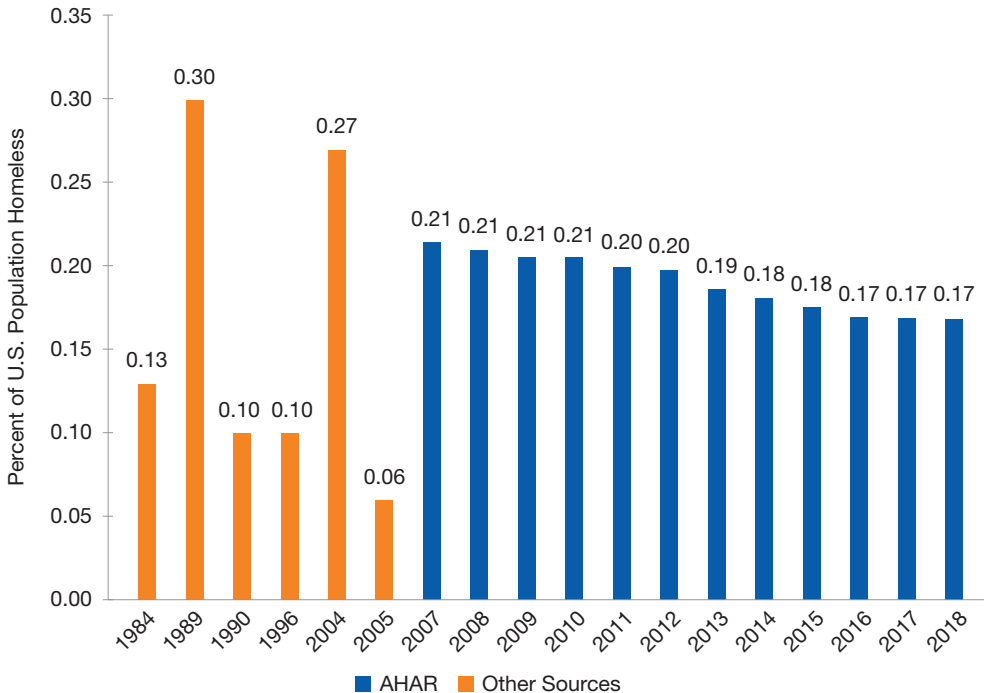
Although a comprehensive housing insecurity measure including all seven insecurity dimensions is heretofore unavailable, some studies do document the prevalence of specific dimensions at the national level for the United States. We next present the two dimensions that have national prevalence statistics (homelessness and housing affordability), followed by a view of currently existing multidimensional measures.

Homelessness

Of our seven housing insecurity dimensions, homelessness appears to have the most standardized measurement in the United States, even though there is still disagreement on what constitutes homelessness. Homelessness is typically categorized in one of three ways: being homeless at the time of the survey, having been homeless at least one night throughout the survey year, or having ever been homeless. Since 2007, the U.S. Department of Housing and Urban Development (HUD) has conducted the Annual Homeless Assessment Report (AHAR) for Congress, which is an annual point-in-time (PIT) homeless count, measuring the number of literal homeless at the time of survey, throughout the country (Solari et al., 2016). The AHAR also documents homeless counts as performed by homeless services agencies, shelters, and transition centers (Solari et al., 2016). Exhibit 1 shows national estimates from AHAR and other sources prior to AHAR's inception in 2007.

Exhibit 1

U.S. Homelessness Rate, Point-in-Time Count



AHAR = Annual Homeless Assessment Report.

Sources: U.S. HUD AHAR 2017 Report, Exhibit 1.1; Honig and Filer (1993); Drake et al. (1989); Lee et al. (2010); National Law Center on Homelessness and Poverty (2004); Pearson, Montgomery, and Locke (2009)

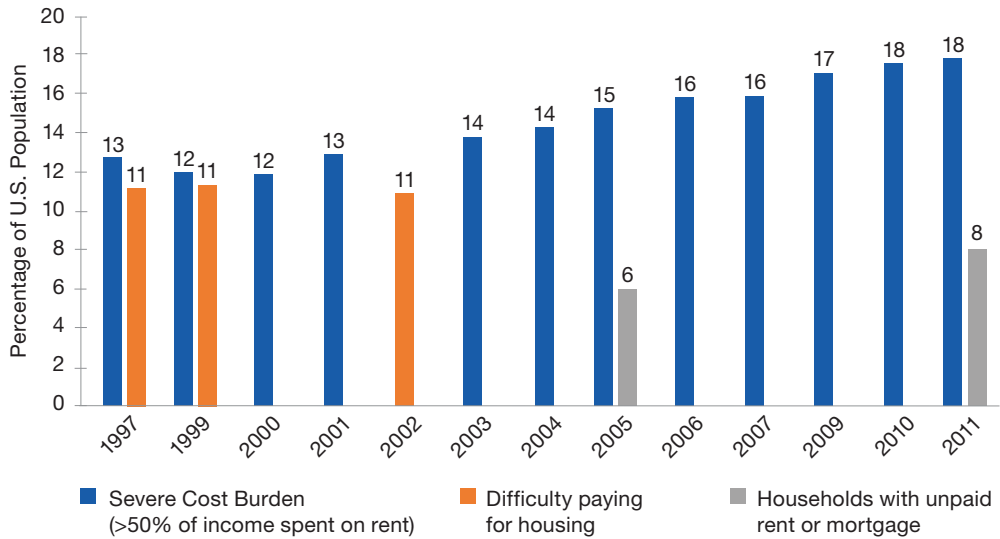
The AHAR process standardized measurements and enabled adequate comparisons. This figure is a great illustration of how the estimation of prevalence rates can improve once definitions are standardized. Prior to AHAR's introduction, prevalence rates ranged from a high of roughly 0.3 percent to a low of about 0.06 percent. After the introduction of AHAR, however, prevalence rates stabilized, ranging from roughly .22 percent to .2 percent from 2007 to 2012, with a continual drop in the prevalence rates from 2013 to 2016 to about .17 percent. Prior to AHAR, it is likely that differences in national estimates of homelessness were influenced by definitional differences versus actual differences in the prevalence of homelessness. Also, while some may argue that AHAR only captures one type of homelessness, literal homelessness, it is clear from Exhibit 1 that AHAR has helped to improve the estimation of homelessness over time.

The prevalence of homelessness can also vary by the time period over which it is defined and the unit of measurement (that is, individual or household). For example, the point-in-time prevalence rate will be vastly different from prevalence rates measuring homelessness over 12 months or one's lifetime. Specifically, prevalence estimates of individuals homeless at least once during a given year were 1.08 percent, using the 1999 National Survey of Homeless Assistance Providers and Clients (NSHAPC), and 0.85–1.19 percent in 2004, using estimates from the Urban Institute and the Harvard Joint Center for Housing Studies (Kushel et al., 2006; National Law Center for Homelessness and Policy, 2004). These studies occurred before AHAR's inception, and their definitions of homelessness may differ, possibly explaining the differences. Widening the measurement time period further, Link et al. (1994) estimated the population of the United States that has ever been homeless as approximately 7–14 percent. Thus, the measurement time period is an important consideration in designing standardized measures.

Housing Affordability

Measures, and hence prevalence rates, vary among scholars documenting housing affordability issues. The most commonly used are whether a household demonstrates difficulty paying for housing-related expenses such as rent, mortgage, and utilities; whether rent or mortgage goes unpaid over a given time period; and whether housing cost presents a burden, defined as spending more than a certain percentage (usually between 30 and 50 percent) of household income per month on housing. Other less common measures include experiencing legal issues related to housing finance, foreclosure, or the receipt of housing assistance through a government program. Exhibit 2 shows the national estimates for the three most frequently utilized housing affordability measures over time. Depending on the statistic used, recent estimates vary from 6 to 18 percent of U.S. households that experience difficulties with housing affordability. Each statistic uses a different nationally representative data set. Severe cost burden and difficulty paying for housing seem to trend closely in years when comparable data are available. On the other hand, the statistic for unpaid rent or mortgage, measured using the U.S. Census Bureau's Survey of Income and Program Participation (SIPP), show rates twice as low as severe housing cost burden for the same years (Siebens, 2013).

¹² Nationally reliable statistics on difficulty paying rent come from the National Survey of America's Families, undertaken by the Urban Institute three times in 1997, 1999, and 2002 and not since.

Exhibit 2**Affordability-Related Housing Insecurity Estimates for U.S. Households 1997–2011**

Sources: Joint Center for Housing Studies (2002, 2003, 2005, 2006, 2007, 2008, 2011, 2012, 2013); Urban Institute and Child Trends (NSAF) (1997, 1999, 2002); Siebens (SIPP) (2013)

National Multidimensional Measures of Housing Insecurity

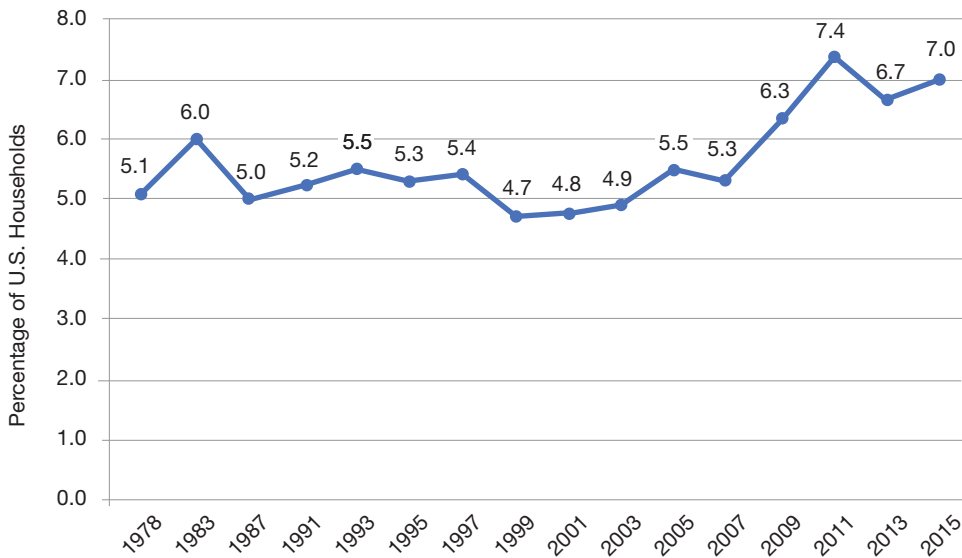
Few studies mention the dimensions of housing safety or quality and neighborhood safety or quality, and national prevalence statistics for these are likewise difficult to find. Leopold et al. (2017) describe the difficulties in obtaining reliable and representative data on overcrowding, housing instability, housing quality, and neighborhood quality. They also point out the dearth of longitudinal data on these topics (Leopold et al., 2017). Prevalence of neighborhood issues is often measured for only one neighborhood, city, or region, and definitions and measurements vary.

One alternative for housing quality and safety is the American Housing Survey (AHS), which provides a variety of statistics that could be used to measure housing quality and safety (see Cox et al., 2017b). Since 1991 HUD has released a biennial report to Congress documenting the “Worst Case Housing Needs” based on the biennial AHS data. Eligible U.S. households for this designation are those who are renters, have incomes below 50 percent of area median income, and do not receive housing assistance. Of these, households are counted as having Worst Case Needs if they have severe rent burdens (paying more than 50 percent of income toward rent) or severely inadequate housing quality in terms of heating, plumbing, electrical systems, or maintenance (HUD, 2017). Worst Case Housing Needs at the national level have hovered between 4.5 and 6 percent for most years, rising to 7.4 percent in 2011 in the aftermath of the Great Recession (exhibit 3). The Worst Case Housing Needs reports provide a start to measuring housing insecurity nationally, including the housing

affordability and quality dimensions. This measure leaves out multiple important dimensions of housing insecurity, however, (such as neighborhood quality and safety, housing safety, instability, and homelessness) and is defined based on very low-income renters.

Exhibit 3

Percentage of U.S. Households with Worst Case Needs: 1978–2015



Notes: 1981, 1985, and 1989 linearly interpolated.
 Sources: U.S. HUD Worst Case Needs Report 2017, Exhibit 1-4; U.S. HUD Worst Case Needs Report 2005; U.S. HUD Trends in Worst Case Needs for Housing, 1978–1999

Aside from HUD’s “Worst Case Housing Needs” reports, Siebens’ U.S. Census Bureau report (2013) takes steps toward a national snapshot of housing insecurity prevalence based on 2011 data. The author shows that 3.4 percent, 2.6 percent, and 6.7 percent of U.S. households had poor housing quality, lived in unsafe housing, and lived in unsafe neighborhoods, respectively. Moreover, the author recommends summarizing a measure of hardship across nine indicators, the first five of which could qualify as housing-related: difficulty meeting essential expenses, not paying rent or mortgage, getting evicted, not paying utilities, having utilities cut off, having phone service cut, not seeing a doctor when needed, not seeing a dentist when needed, or not always having enough food (Siebens, 2013). According to Siebens’ measure, in 2011, 78 percent of households faced zero hardships, 9 percent faced one hardship, and 3 percent faced three or more hardships (Siebens, 2013). This measure bears some similarity to our proposed measure of housing insecurity but focuses on overall material well-being instead of developing a comprehensive measure of housing insecurity, and while the report looks at various dimensions of housing insecurity that we have incorporated in our definition, the focus of the report is not solely on the development of a measure of housing insecurity. Therefore, Siebens’ scale captures both housing and nonhousing measures of well-being of U.S. households.

A different approach, which looks at the effects of housing and neighborhood quality on mental health, was undertaken by Wright and Kloos (2007). This approach measured three levels of housing and environment variables among residents of supportive housing programs for the mentally ill across 34 housing sites in 10 cities in one U.S. state, for a total sample of 249 (Wright and Kloos, 2007). Self-reported data on apartment quality, neighborhood quality, and neighborhood social climate were obtained using the Housing Environment Survey. Housing data were validated by an observer using the Housing Environment Rating Scale, and neighborhood-level data were supplemented by census tract demographic and socioeconomic data from the 2000 census (Wright and Kloos, 2007). Well-being was measured using four outcome variables: psychiatric distress, orientation to recovery, residential satisfaction, and adaptive functioning. The study finds that neighborhood-level variables explained more variance in well-being than either apartment- or census-tract-level variables. Wright and Kloos (2007) present an important finding and buttress the case for including neighborhood-level variables in a measure of housing security. The study, however, does not take into consideration housing affordability and stability, which are key components of housing insecurity present in many other studies. In addition, it is a local sample for a subpopulation, which may not readily generalize to the U.S. population as a whole.

As previously mentioned, data availability could pose a challenge to studying the full continuum of housing insecurity. However, the AHS currently provides readily available data on many of the housing insecurity dimensions for conducting a proof-of-concept analysis for a uniform instrument based on the seven dimensions proposed in this paper (see Cox et al., 2017b for an analysis). As previously mentioned, the AHS is administered biennially by HUD and contains questions pertinent to housing affordability, quality, and safety, as well as neighborhood safety and quality. The AHS also contains some information on housing instability, although measurement is incomplete and inconsistent across survey waves for the variables that could capture housing instability. For example, overcrowding and eviction were added in 1997, while other variables related to housing instability, such as doubling up, foreclosure, and frequent moves, are only included in the 2013 survey. The AHS is representative at a national level, for certain cities, and at the metropolitan area level, making it a useful tool for national, regional, and major metropolitan area studies. One drawback of the AHS is it follows the housing unit and not the household as the unit of analysis, which could potentially cause additional complications when constructing an externally valid instrument that measures population estimates of housing insecurity at the household level. Specifically, the AHS has a unique longitudinal study design, in which housing units sampled in a specific year are followed over time. This allows for stakeholders to obtain information on how housing stock and its occupants change over time but may require more thought about implementing a housing security module and, more importantly, what such a module would measure in this type of survey design. This is especially true for capturing the housing insecurity domain of homelessness: AHS is not a reliable instrument to measure current homelessness because only individuals with housing are surveyed.

Discussion

Current working definitions of housing insecurity are inconsistent and incomplete, which may lead to households that are actually experiencing housing insecurity to be counted as housing secure. Different measures for the same phenomenon have significant potential to cause comparability

issues and, potentially, omitted variable bias if certain facets within subcategories are omitted from measurement. Moreover, having multiple terms to describe a general social problem could lead to confusion (not just among researchers), making it hard to mobilize resources and efforts to solve the problem. Therefore, based on the conceptual framework put forth by the U.N. General Committee and the U.S. Department of Health and Human Services (HHS), we propose an operational definition of housing insecurity that includes seven dimensions: housing stability, housing affordability, housing quality, housing safety, neighborhood safety, neighborhood quality, and homelessness.

This is not to say that research or policy should not individually focus on the different facets of housing insecurity when appropriate; rather, it suggests that to precisely estimate the prevalence of this issue and accurately account for its social costs, we need a comprehensive approach to measure the multiple dimensions of housing insecurity.

Housing insecurity measurement is a global problem that will require the deployment of resources from not only the research community but also policymakers and practitioners to solve. Without a comprehensive instrument, many aspects of housing insecurity will continue to be understudied, and their prevalence and cost to society will not be fully understood. Consequently, it will be difficult to create policies that can impact the plethora of well-being outcomes for adults and children associated with housing, which could lead to greater inefficiency and waste of resources. Given the potentially large social costs of housing insecurity, it is in the national interest of the United States to ensure a uniform, functional definition of housing insecurity that can capture all its dimensions. That means the government should mobilize and coordinate the resources needed for the development of a national housing insecurity measure. Given its knowledge base and skill set, the research community has a comparative advantage in creating, legitimizing, and validating any instrument developed through this process.

A paradigm for the creation of a uniform housing insecurity instrument already exists with the U.S. Food Security Survey Module, which has been incorporated into the U.S. Census Bureau's Current Population Survey (CPS) annually since 1995 (National Research Council, 2006). In 1984, the President's Task Force on Food Assistance determined that the lack of a valid indicator of hunger constrained public policy concerning this issue. In October 1990, Congress ratified the National Nutrition Monitoring and Related Research Act, authorizing the preparation and implementation of a 10-year plan that incorporated as one of its goals to "establish and improve the quality of national nutritional and health status data and related databases and networks, and stimulate research necessary to develop uniform indicators, standards, methodologies, technologies, and procedures for nutrition monitoring."¹³ This led to the creation of the first federal food security instrument in 1995, which was included in the CPS.

The Food Security Module has now been included in the CPS for more than 20 years; as a result, society's understanding of food insecurity has grown tremendously. Specifically, we know more about the risk factors that cause food insecurity and whether food insecurity is a chronic or temporary state. Additionally, food security is now considered a key indicator of the well-being of households

¹³ Nutrition Monitoring and Related Research Act of 1990. H.R. 1068, 101st Congress (1989–1990). <https://www.congress.gov/bill/101st-congress/house-bill/1608/text>.

and children, along with being considered an important outcome in the program evaluation of food assistance programs. All these accomplishments stemmed from a transdisciplinary effort comprising practitioners, policymakers, and academics devoted to developing a validated scale over 20 years that has been used to understand and help solve one of society's most intractable problems (see Coleman-Jensen, 2015 and appendix exhibit A-4 for a full timeline of the creation of the food security module). The time has now come to do the same for housing.

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Appendix A

Exhibit A.1

Overall Motivation of Research on Housing Insecurity

Reason	Percent of Papers (N=106)
Explanatory Variable	52
Outcome	42
Prevalence	16
Outcome and Explanatory Variables	7
Outcome and Prevalence	2
Prevalence and Explanatory Variable	2
International Context	10

Exhibit A.2

Housing Insecurity Definition by Search Term, Based on Literature Review

Search Term	Percent of Papers Mentioning Search Term (N=102)	Percent of Papers Mentioning Search Term (Excluding Homelessness (N=74))
Housing Insecurity	16.0	16.4
Housing Affordability	5.7	5.7
Housing Instability	42.5	37.0
Homelessness	34.0	46.6
Housing Quality	2.8	1.4
Housing Satisfaction	0.9	0
Housing Needs	0.9	0
Housing Hardship	4.7	6.8
Neighborhood Safety	1.9	2.7
Housing Safety	0.9	1.4

Exhibit A.3

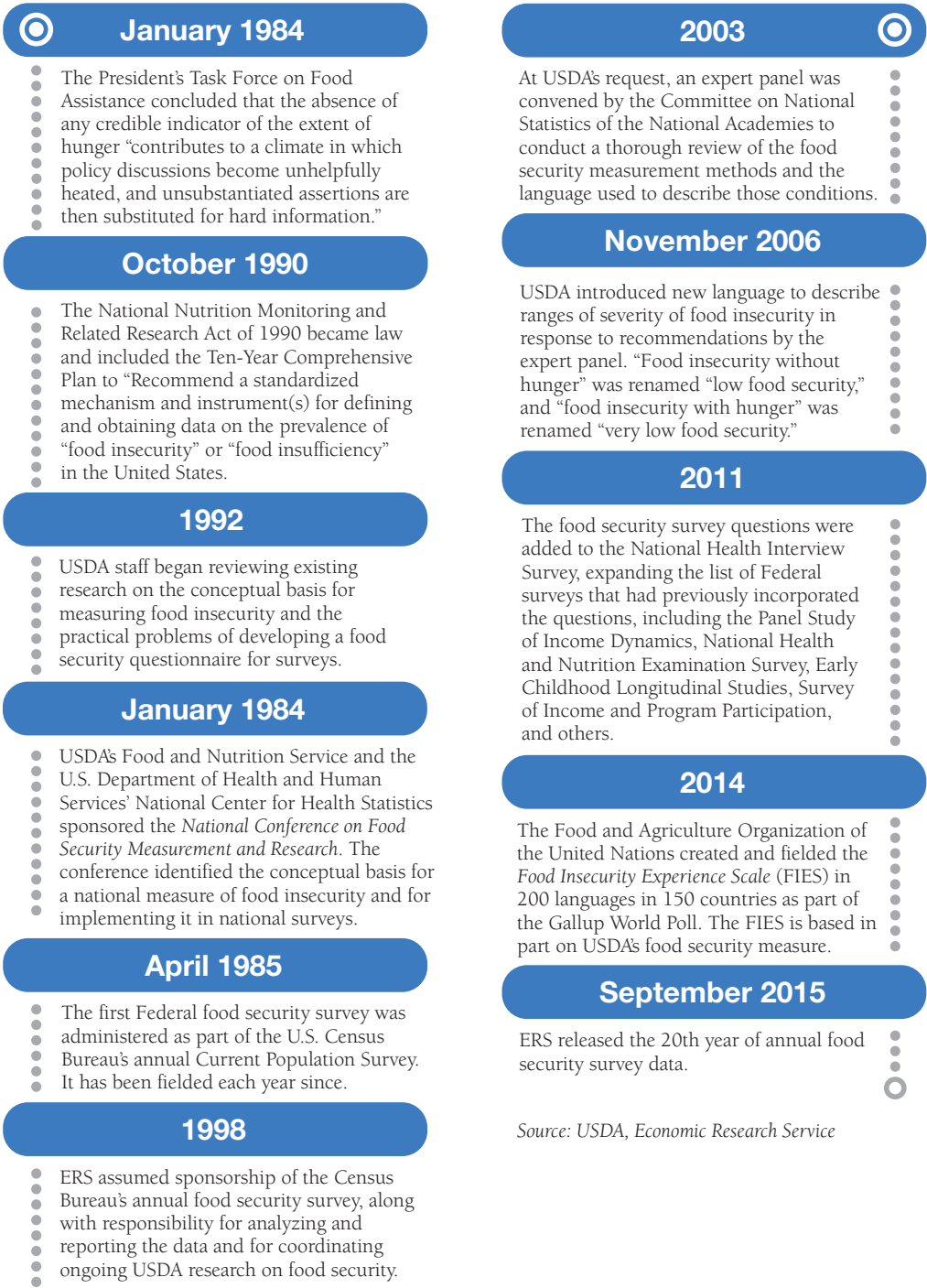
Measures Used to Capture Housing Insecurity Within the Domains of Housing Affordability and Housing Instability

Measure	Percent of Papers Using Measure
Housing Affordability N=30	
Difficulty/Inability to Make Payments	83
Housing Cost Burden	37
Foreclosure	10
Legal Housing Issues	7
Rental Assistance	3
Multiple Measures	30
Housing Instability N=49	
Multiple Moves	59
Doubling Up	35
Eviction	18
Overcrowding	18
Duration of Stay	14
Forced Moves	8
Living in Unstable Conditions	2
Living in Multiple Subsidized Units	2
Multiple Measures	39

Exhibit A.4

Timeline of the Creation of a Food Security Module

A History of Food Security Measurement in the United States



Source: USDA, *Economic Research Service*

Source: Reprinted from Coleman-Jensen (2015). https://www.ers.usda.gov/webdocs/charts/62517/oct15_feature_jensen_fig05.png?v=42276.

Appendix B

Below is a list of readings not cited in the text but incorporated in our literature review. Together, the additional readings and the references comprise the 106 studies we consulted to generate our literature review. These papers were selected by conducting literature searches in Google Scholar and Web of Science using the following terms: “housing security,” “housing insecurity,” “housing affordability,” “housing stability,” “housing instability,” “homelessness,” “housing hardship,” “housing quality,” “housing safety,” and “neighborhood safety.” Relevant papers either (1) included housing security as an explanatory variable measuring outcomes on households, individuals, or populations; (2) sought to understand reasons for housing security as a dependent variable; or (3) assessed the prevalence of housing insecurity. Our search focused on the U.S. context; however, several articles from other developed countries were relevant to the development of a measure of housing insecurity. A table summarizing all of the articles can be found in Cox et al. (2017a).

Additional Reading

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