Housing poverty

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INTRODUCTION

Housing circumstances—access to housing, affordability, and poor amenities or inadequate housing conditions—are an important part of people's material conditions and affect the probability of both entering and exiting poverty. Accessing and maintaining quality housing standards might result in a charge on income for many households. Housing can also be considered as a source of income. This is central to the strand of literature that attempts to deal with imputed rents in the analysis of the income distribution. Many studies focusing on income poverty have tried to test the extent to which this imputed value can give rise to levels and trends different from those resulting from the strict consideration of disposable income (e.g., Figari et al. 2017; Kilgarriff et al. 2018). A related strand of the literature has focused on the effects that housing costs have on housing affordability. When incomes are low, housing costs can be a severe constraint to meet household needs.

There is also a sizable body of research on the relationship between income poverty and material deprivation. Some authors have found that the relationship is stronger when the analysis of deprivation focuses on housing circumstances (Martínez and Navarro 2016; Dewilde 2022). Recently there has been increasing interest in housing conditions as a basis for the analysis of deprivation because of the greater availability of data from many countries and the growing concerns of international institutions about an adequate measurement of poverty and social exclusion. In European Union countries, the redefinition of the poverty-reduction goal in terms of an indicator of 'risk of poverty or social exclusion' based on low income, severe material deprivation and low work intensity within the household has helped focusing the attention given to housing conditions. Outside the European sphere, the material deprivation approach, although less popular, has also become more common.

Due to this diversity of dimensions, the notion of 'housing poverty' is employed to cover a variety of aspects that are not always interchangeable. It is not a clearly defined concept, nor is it a form of poverty that can be clearly disconnected from other dimensions. Drawing on the extant literature on the different issues mentioned, in this chapter we examine the idea of housing poverty through four areas of analysis: the identification of the housing conditions that are relevant to the study of deprivation, the methods and approaches to create measures of housing deprivation, the evidence related to the dynamics of housing deprivation, and the links between housing and poverty. In reviewing these four topics, we are implicitly accepting that the notion of 'housing poverty' fundamentally refers to an interpretation of poverty more in terms of outcomes than means. In this sense, the first three topics are related to housing deprivation and the last one to income poverty. In the latter case, we believe that considering the housing dimension helps refine the income-based approach.

THE DIMENSIONS OF HOUSING DEPRIVATION

Housing is a source of material deprivation when certain basic conditions are not met. However, it is not easy to reach accurate definitions of housing deprivation, and the range of questions arising is very large: What conditions must a dwelling meet? How are these conditions measured? What combination of conditions allows a minimum level of well-being to be reached?

For most authors, housing problems may be identified in four different areas: housing conditions, housing equipment, housing costs, and neighborhood quality. As stressed by Nolan and Winston (2011), there does not necessarily have to be overlapping between these areas. The dwelling may be in good condition but not adequately equipped, dwelling conditions and equipment could be adequate, but difficulties in meeting housing costs may be large, or sometimes the main problems may be those related to neighborhoods.

Many of the studies analyzing material deprivation include housing indicators. In his pioneering study, Townsend (1979) included not having a toilet and bath as components of deprivation and added a wider range of indicators related to structural problems, the lack of basic facilities, overcrowding and dissatisfaction regarding housing conditions. Several of these indicators were also used by subsequent studies, the most common conditions being space, housing facilities, housing deterioration, and neighborhood problems.

The list of indicators chosen in empirical studies varies and depends on the availability of data and the selection criteria. In the United States, the first attempts to establish a system of indicators of housing deprivation were those of the Department of Housing and Urban Development in the late 1970s to assign housing benefits. Six dimensions were defined (Newman and Struyk, 1983): plumbing, kitchen, physical structure, common areas, heating and electrical. For European Union countries, the Eurostat index of severe material deprivation lists the lack of at least four elements from a list of nine indicators that include some related to housing conditions. In 2012, in a far-reaching study aimed at improving the measurement of material deprivation in this area, Guio et al. (2012) concluded that some of those items did not pass the basic tests of suitability, validity and reliability in many countries. As a result, an expanded list of indicators was collected to support a new deprivation index. Later, Eurostat defined what it called the severe housing

deprivation rate. It takes four different aspects into account: overcrowding, roof leakage or window frame or floor rot, lack of bath or shower and indoor flushing toilet for the sole use of the household, and dwelling darkness.

These lists often leave out some indicators that may be relevant. For example, eviction risks, even rarely included in housing deprivation indexes, are an important component of economic insecurity. Different criteria have been proposed to identify the relevant indicators to be included in an index of housing deprivation. One frequent procedure is to choose those most strongly correlated with household income. In other cases, the decision depends on what individuals perceive as housing needs, which generally coincide with those enjoyed by the majority of society. Another criterion is the relationship between housing characteristics and an individual's health.

In practice, the selection depends on the explicit objectives of each study. In a recent study, Ayala et al. (2021) analyzed the differences in the housing conditions in which households faced the lockdown strategies used by different countries during the COVID-19 pandemic. These authors considered variables related to the living space – overcrowded housing, degree of urbanization, and dwelling type–, technology–lack of computer and access to the Internet–, environment–prevalence or absence of crime, violence, pollution and noise–, and economic stress–arrears on mortgage or rental payments, arrears on utility bills and housing cost burden.

[TABLE 1]

Table 1 provides a thumbnail sketch of housing indicators and their extent in a selected sample of European countries representative of different welfare regimes. The differences in the synthetic indicators of deprivation are important, both between countries and within each welfare regime. Some problems stand out, such as dampness and overcrowding. Additionally, important are those related to the environment and, above all, to the financial burden of the total housing cost.

THE MEASUREMENT OF HOUSING DEPRIVATION

Once a battery of indicators of housing deprivation is available, the next choice is whether to use a synthetic measure or look separately at the different items. For several different reasons—greater capacity to arouse public awareness and to transmit information and higher efficiency to implement public policies—it seems advisable to have a composite measure of housing deprivation, and the literature provides a wide range of possibilities to build it. It is common to use a counting approach, where individuals are identified as housing deprived if they show deprivation on one or more indicators.

As in multidimensional deprivation analyses, to summarize the information contained in partial indicators of housing deprivation, it is necessary to determine the corresponding weightings. The simplest method is to assign the same weight to all the housing items. Another common approach is to consider that an indicator reflects greater deprivation when the item is more widespread in the general population. Another possibility is to refer to the reported importance for each indicator of deprivation, that is, to use subjective assessments (Guio and Marlier 2013).

An alternative is based on fuzzy sets theory. This theory interprets poverty and deprivation as a phenomenon that appears in different degrees and levels that are difficult to separate and identify instead of as an attribute that one lacks or possesses (Chiappero, 2000; Betti and Verma, 2008). Using this fuzzy methodology, the standard deprived/nondeprived dichotomy can be avoided, as housing deprivation is seen as a fuzzy set to which individuals belong to in different degrees. Using the integrated fuzzy and relative (IFR) methodology, Ulman and Ćwiek (2020) determined the scale of housing poverty and its determinants in Poland. Ayala et al. (2021) propose a fuzzy approach to analyze housing deprivation in EU countries during the COVID-19 lockdowns.

Other authors propose using multivariate statistical techniques. These techniques allow one summing up a wide range of indicators on a housing deprivation scale. As in the general case of multiple deprivation analyses, the main constraint lies mainly in the arbitrariness of setting deprivation thresholds. This last problem usually occurs in international comparisons. Stephens and Van Steen (2011), for example, analyzed the problem of relative housing standards in the case of EU countries. The lack of indoor flushing toilets was a measurable problem in some of the new member states, but it was not in Western Europe.

There are different alternatives to construct synthetic housing deprivation indices using multivariate analysis techniques. One of the first techniques used was principal component analysis, intensively employed in the first synthetic indices of multidimensional deprivation (Hutton 1991). Another approach is factor analysis. Layte et al. (2001) and Whelan et al. (2001) applied factor analysis to a set of deprivation indicators, finding that in addition to the two dimensions of basic and secondary deprivation, there was a third one related to residential deprivation.

The latent trait model and latent class analysis are very similar to factor analysis, but they can be specifically applied to observed dichotomous variables. They allow researchers to synthesize a set of partial indicators under a synthetic index based on the correlation of its components and their mutual dependence on the latent variable. These models also have the advantage of assigning each household to a different class – a latent class model – or producing a score which allows ranking the households – a latent trait model – based on how they have responded to the observed items. Navarro and Ayala (2008) used a latent class model assigning households to different classes, showing that a vector of observed variables –having hot running water, heating, a leaky roof, damp walls or floor, rot in window frames and floors and overcrowding– and the correlations among such variables could be explained by a single latent variable.

An interesting latent trait model is called Item Response Theory (IRT). This theory, based on mathematical models, aims to explain the link between observed outcomes and unobservable characteristics. Some authors have adopted this approach to rank assets, among which housing equipment (Deutsch et al. 2020), according to their prevalence, use this order to classify individuals or households as a function of the number of assets owned and then derive measures of inequality, welfare and poverty. Similarly, combining IRT with the concept of deprivation sequence, Deutsch et al. (2015) found which expenditures households facing financial difficulties in EU Member states curtail first,

these expenditures including those related to housing conditions. Martínez and Navarro (2016) also used IRT to analyze a set of indicators of material deprivation, including some of the most common housing indicators.

A different approach was taken by Bérenger et al. (2018) who used correspondence analysis to derive an order of importance of the different assets, including dwelling characteristics and utilities. This order allowed them then to rank the various individuals and households as a function of the prevalence of assets and then to derive measures of ordinal inequality in Mexico. Fernandes et al. (2017) also used the asset-based approach to propose an index of housing comfort in Portugal.

THE DYNAMICS OF HOUSING DEPRIVATION

A dynamic approach to housing deprivation may allow a better identification of its extent and characterization than cross-sectional studies. The longitudinal perspective is also relevant to confirm a stronger consistency between income poverty and material deprivation (Whelan et al. 2001). However, longitudinal evidence is very limited. While some of the studies that analyze the relationship between the dynamics of poverty and deprivation include certain housing conditions, most of the available evidence on the dynamics of housing focuses on prices and tenure rather than housing conditions.

Some authors have also analyzed the dynamics of housing assistance benefits and public housing (Dantzler and Rivera 2019; Dantzler 2021). Other studies have linked housing deprivation to the dynamics of certain urban areas (Aaronson 2001; Lee and Lin 2018). In general, these studies show that the concentrations of low-income households in certain neighborhoods characterized by bad housing conditions result from entry barriers to the labor market, insufficient income and the lack of choices in the housing market.

Among the reasons that explain the small number of studies on the dynamics of housing deprivation, the most relevant are the limited availability of longitudinal data and some measurement problems. One of them is defining genuine housing deprivation transitions. It may be the case that small changes in a dwelling's structural problems can yield transitory improvements, and the initial state will once again be observed in the period following the transition. Ayala and Navarro (2007) used the *European Community Household Panel* and defined persistent housing deprivation as being in such a situation for four or more years. As a result, different categories could be established – households that do not suffer any kind of deprivation, temporary deprivation, and persistent deprivation.

Other national studies have focused on certain demographic categories. Barnes et al. (2010) used five waves of data from the *Families and Children Study* to analyze whether the duration of living in bad housing was associated with other poor outcomes for children in Britain. Considering three major housing problems—overcrowding, poor state of repair, and inadequate heating—these authors also found that the problem of bad housing was likely to be more widespread than official data would suggest. They also found that children experiencing persistent bad housing often had worse outcomes than when housing problems were experienced on a temporary basis.

Looking at a longer time period –18 waves of the British Household Panel Survey– Stephens and Leishman (2017) aimed at answering whether there are particular housing

pathways associated with poverty and its persistence. By adopting different definitions of housing costs and a consensual approach to defining housing deprivation, they found that the housing tenure element of the housing pathways dominated over the life event element. The authors find what they call 'a benign experience of home ownership': high mortgage costs when incomes are rising and falling incomes in retirement offset by lower levels of mortgage debt.

Fusco (2015) used longitudinal analysis data from Luxembourg to analyze the impact of income on housing deprivation. An interesting contribution with respect to the previous studies – confirming also that tenure status is the stronger predictor of housing deprivation – is the finding that housing deprivation is negatively associated with long-term income, but the size of this relationship is greatly reduced when controlling for unobserved heterogeneity through fixed effects models. This result suggests that housing deprivation is less affected by short variations in income than by changes in long-term income and that unobserved characteristics may affect the relationship between long-term deprivation and long-term income.

HOUSING AND INCOME POVERTY

Differences in housing circumstances and housing costs are one of the main factors explaining divergences in the material deprivation profiles of low-income households in most countries. Not considering these differences may produce bias, especially where there is a higher percentage of home ownership. In practice, only a few countries have made poverty measures sensitive to differences in housing status, and there is still a certain lack of consensus on the best route to integrate housing costs and imputed rent into the analysis of poverty and deprivation.

The consequences of omitting imputed rent are especially important when evaluating poverty risk across groups. It can also lead to flawed international comparisons since housing tenure regimes vary considerably across countries. Adding imputed rents may therefore have significant distributional consequences, with a decrease in poverty rates in a majority of countries and substantial changes in the poverty profile (Frick et al. 2010, Maestri 2012). Some studies have also found better consistency between income poverty and deprivation indicators when imputed rents are included (Törmälehto and Sauli 2013).

While there are strong justifications for considering home ownership when evaluating household resources, the best way to do so is not straightforward. According to the Canberra Group (2011, p.14), "imputed rent is the imputed value of the services received less the value of the housing costs incurred by the household in their role as a landlord, including interest paid". In practice, it is common to deduct housing costs from income before estimating poverty rates, and after housing costs (AHC) measures are central to analyzing housing affordability.

For low-income households, when housing costs reach high levels, the ability to cope with other consumption is reduced, and the probability of being poor increases. Many studies have examined the effect of these costs on poverty. Kutty (2005, p.118) devised the expression 'housing-induced poverty' to refer to a situation when a household cannot afford the costs of non-housing goods after paying for housing. Saunders (2017) found

for Australia that taking housing costs into account results in higher poverty even though it leads to a lower poverty line.

The key issue is how to adjust the definition of the AHC measure. Van den Bosch et al. (2016) tried to develop a framework of comparable reference budgets for European countries, including housing costs. They focused on the lowest cost of adequate housing – what households actually pay at the 30th percentile for dwellings that conform to the quality requirements. Ritakallio (2003) defined AHC as disposable income minus actual housing costs, including mortgage repayments and interest as well as heating, electricity and water expenditures, as well as expenditures on repairs and maintenance. Dustmann et al. (2018) defined housing expenditures for renters as the basic rent –including utilities– and energy costs, and housing expenditures for owner-occupiers as mortgage interest payments, energy costs, and maintenance and operating costs.

There are also comparative studies considering imputed rents. Frick et al. (2010) estimated the effects of including them in a selected sample of European countries, finding that the main beneficiaries were outright homeowners and households living in rent-free accommodation. Using hierarchical linear regression models and a sample of European countries, Dewilde (2022) found that higher housing prices and price volatility are associated with increased living condition deprivation for renters and low-income owners, both cross-sectionally and within countries over time. Both studies agree that including housing costs does not lead to substantial changes in the ranking of countries in terms of their levels of poverty.

CONCLUSIONS

Concepts and measures of poverty and material deprivation cannot be entirely separated from housing circumstances. On the one hand, considering imputed rental income can give rise to levels and trends of poverty different from those resulting from disposable income. Housing costs also affect the ability of low-income households to meet other needs, increasing their risk of poverty. On the other hand, housing deprivation is a frequent reality in many countries, and its consideration often leads to a closer link between monetary poverty and material deprivation. This variety of conditions and dimensions makes the definition of 'housing poverty' complex.

In this chapter, we have addressed this problem through four axes: the selection of housing indicators, composite measures, the dynamics of housing deprivation, and the links between housing and poverty. We hope that this review has clarified which basic indicators are needed for measuring housing deprivation and which are the most promising approaches to constructing synthetic measures. The main challenge is to make further progress in the development of multidimensional measures and in the study of their dynamics.

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Table 1. Housing indicators

	EU[a]	Denmark	Sweden	UK[b]	Ireland	Spain	Italy	Germany	France	Czechia	Poland
Official EU definition											
Housing deprivation	17.6	18.5	12.2	16.8	16.4	17.8	15.8	14.7	16.7	8.8	14.1
Severe Housing deprivation	4.0	2.8	2.6	1.9	1.1	1.7	5.0	2.1	2.3	1.9	7.9
Housing deprivation											
Leaking roof, damp walls/floors/foundation, or rot in window frames or floor	12.7	14.9	7.0	17.6	12.5	14.7	14.0	12.0	11.5	7.3	10.8
Having neither a bath/shower, nor indoor flushing toilet for sole use of household	1.6	0.3	0.0	0.1	0.1	0.3	0.5	0.0	0.2	0.2	1.6
Dwelling considered too dark (not enough light)	4.8	3.6	6.1	10.0	6.2	5.6	2.6	4.0	7.3	2.9	3.9
Overcrowded household	17.1	10.0	15.6	4.8	3.2	5.9	28.3	7.8	7.7	15.4	37.6
Environment and neighborhood											
Noise from neighbors or from the street	17.3	20.1	17.0	19.8	8.2	14.1	11.9	26.1	17.3	14.0	12.6
Pollution, grime or other environment problems	15.1	8.4	6.6	14.0	6.5	9.9	12.4	25.2	14.9	11.1	13.8
Crime, violence or vandalism in the area	11.0	7.5	13.0	24.2	8.8	11.6	9.4	13.1	14.7	7.8	4.4
Economic stress associated with housing											
Housing cost overburden	9.4	15.6	9.4	15.1	4.2	8.5	8.7	13.9	5.5	6.9	6.0
Arrears on mortgage or rental payment	2.7	3.0	2.4	4.9	5.9	3.8	1.9	1.4	4.9	1.8	0.7
Arrears on utility bills	6.2	3.6	2.3	5.4	8.9	6.5	4.5	2.2	5.6	1.8	5.8
Arrears on hire purchase installments or other loan payments	2.0	4.5	2.9	1.8	2.1	1.6	0.5	1.5	1.5	0.6	2.8
Financial burden of the total housing cost	28.3	7.2	7.6	16.8	23.7	46.9	38.4	12.1	23.2	16.1	54.0
Inability to pay to keep home adequately warm	6.9	2.8	1.9	5.4	4.9	7.5	11.1	2.5	6.2	2.8	4.2
(Items of) housing circumstances											
Dwelling type (flat respect to house)	46.1	33.3	46.9	14.8	8.2	64.6	52.7	56.4	34.4	51.4	44.6
Tenure status (owner respect to tenant)	69.8	60.8	63.6	65.2	68.7	76.2	72.4	51.1	64.1	78.6	84.2
Degree of urbanization (cities, densely populated area)	37.7	37.6	40.3	58.7	35.8	49.6	35.3	36.3	35.9	30.0	35.0
Technology in the dwelling											
Cannot afford a computer	3.5	1.6	1.9	1.5	3.3	5.6	2.7	2.0	2.6	2.0	2.6
Cannot afford access the Internet	3.8	0.4	0.2	3.8[d]	4.9[d]	5.2	5.2[c]	2.3	1.9	1.6	1.2

Notes:
[a] EU: EU-27 (from 2020); [b,c] 2018; [d] 2015.
Housing deprivation: percentage of households with a leaking roof, no bath/shower and no indoor toilet, or a dwelling considered too dark.

Severe housing deprivation rate: percentage of population living in a dwelling considered overcrowded while also exhibiting at least one of the housing deprivation indicators.

Financial burden of the total housing cost: extent to which housing costs (including mortgage repayment, installment, and interest, or rent, insurance and service charges) are considered a heavy financial burden by households.

Cannot afford access to the Internet: at least half of adults have no internet connection for personal use at home.

Overcrowded household: percentage of people living in an overcrowded household. The person is considered to be living in an overcrowded household if the household does not have at its disposal at least one room for the household, one room for each couple, one room for each single person aged 18+, one room for two single people of the same sex between 12 and 17 years of age, one room for each single person of different sexes between 12 and 17 years of age, and one room for two people under 12 years of age.

Housing cost overburden: percentage of the population living in households where total housing costs ('net' of housing allowances) represent more than 40 % of disposable income ('net' of housing allowances).

Source: EUSILC (Eurostat).